

**DIGITAL CLOCK DISTRIBUTOR
500 SERIES
INPUT/OUTPUT REFERENCE GUIDE
RELEASE 5.02.xx**

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1. GENERAL

1.01 This practice provides information on the input messages (commands), response messages, and automatic messages used with an MIS card (part number 090-44018-05 or 090-45018-05) which is part of Telecom Solutions' Digital Clock Distributor (DCD) 500 System. The language used for the commands in this practice is Transaction Language 1 (TL1).

1.02 This practice has been reissued for the reasons listed below. Change bars mark the changed material.

- The parameter <dur> was added to Table A, the ED-COM command, and the RTRV-COM command.
- In the CPY-MEM command, a note was added to the INPUT FORMAT.
- In the INIT-SYS command, a caution was added, a value of 3 was added to the <ph> parameter, and the meaning for the <ph> values was expanded.
- The commands SET-REPTMODE-PORT and RTRV-REPTMODE-PORT were added. These commands were also added to Tables B and H, and the parameter <modetype> from these new commands was added to Table A.
- In Table G, Alarm/Event Summary, notes were added, some <condtype> and <conddescr> parameters were changed, and a Severity column was added.

2. DESCRIPTION

A. Conventions

2.01 The syntax and language structure used in this document follow the 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.

2.02 The following conventions are used in the input and response messages:

- < > encloses a parameter
- [] encloses an optional parameter
- { } encloses multiple parameters, one of which must be selected (or in a response, one of which will appear)
- | separates parameters enclosed by the { } symbols
- " " encloses a report of an alarm, event, AID or log
- /* */ encloses condition descriptions
- :
- separates parameter blocks
- ,
- separates parameters within a block
- &
- indicates "and" (1&9 means 1 and 9)
- &&
- indicates a range (1&&9 means 1 through 9)
- ...
- indicates the line may repeat one or more times
- ;
- terminates a command and causes execution

> indicates a message continuation (message blocks are limited to 4096 bytes)

Note: When listing parameter values that can be used in a command, a range of numbers is shown as a–b, where any number a, b, or any number between a and b can be entered. (Example: 1–12 indicates any number from 1 through 12 inclusive.)

B. Commands

2.03 A command to an NE (Network Element) consists of a command code of up to three fields separated by hyphens followed by parameter blocks separated by colons. Figure 1 shows the command format. Parameter blocks consist of one or more parameters separated by commas. The semicolon terminator causes execution.

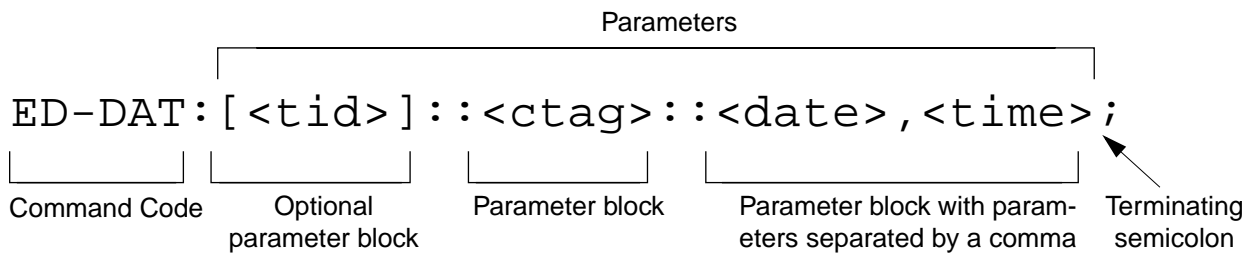
Example:

```
command-code:parameter:parameter
::parameter,parameter;
```

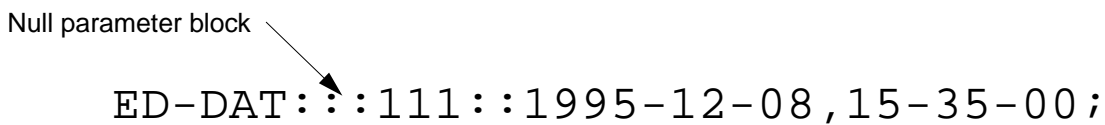
2.04 Parameter blocks may be null (contain no parameters), or contain one or more parameters. Two colons occur next to each other if a parameter block is null. (Some parameters in the complete TL1 language set are not used. These unused parameters are left null in this command set.)

2.05 Multiple parameters in a parameter block are separated by commas. Two commas occur next to each other if a parameter is null.

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



Example of a command format



Example of a command using the above format

Figure 1. Command Format

C. Parameter Definitions and Values

2.07 The TL1 commands use parameters that direct and constrain their operation. The general definitions of the parameters, are listed in Table A. The values of the parameters are listed with the command.

2.08 In this guide, uppercase letters in a command designate parameter values which must be entered as shown. Lowercase letters in a command indicate that there is a choice of values for the parameter. The values allowed for a parameter are listed with the command. When actually entering commands, the system will accept either uppercase, lowercase, or a mixture of both, but within a parameter block, upper and lower case cannot be mixed.

D. Responses

2.09 A response is returned by the system when it receives a command. All responses include the source identifier (<sid>), the date and time, an M to indicate it is a response to a command, and the correlation tag that was entered with the command. A response to a command may be a completed or an error response.

- a. *Input/Response:* A valid command is sent to the 500 series system and a response is returned. The letter "M" is returned with the message in response to a command.

Completed response:

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

Note: If the command was a query, additional information will be displayed before the semi-colon.

Error response:

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

Note: Refer to Table A for possible error codes.

- b. *Automatic:* This type of message is generated by the 500 series system, stored in the Event Log, and sent out via the Communications Port. There are two automatically generated message types: report alarm (REPT-ALM) and report event (REPT-EVT) messages. Refer to the actual command for message format details.

Table A. Parameter Definitions

PARAMETER	DEFINITION
aid	<p>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.</p> <p>Note: Shelf types are defined as follows:</p> <ul style="list-style-type: none"> Master: the shelf that is the communications interface for the system and contains the highest-quality clocks in the system. Expansion: a shelf with no input cards, no clock cards, and is timed from the master shelf via a ribbon cable (generally collocated with the master shelf). Remote: a shelf that contains timing input cards that use composite clock timing signals from the master or an expansion shelf (generally located distant from the master shelf); communication port COM3 on the remote shelf must be connected to communication port COM3 on the master shelf. <p><u>MIS card with S/W label A:</u></p> <p>Expansion and remote shelves are not addressed through the <aid> parameter. Refer to the <tid> parameter in this table.</p> <p><u>MIS card with S/W label B:</u></p> <p><i>Without Remote Shelf:</i> direct a command to a particular shelf as follows:</p> <ul style="list-style-type: none"> <aid> = Master shelf E1-<aid> = Expansion shelf #1 E2-<aid> = Expansion shelf #2 E3-<aid> = Expansion shelf #3 <p><i>With Remote Shelf:</i> a maximum of two expansion shelves can be collocated with the master shelf, and no expansion shelves can be timed from the remote shelf. To allow the master shelf to communicate (send commands and receive responses) with the remote shelf, the master shelf COM3 port and the remote shelf COM3 port must be connected. Direct a command to a particular shelf as follows:</p> <ul style="list-style-type: none"> <aid> = Master shelf E1-<aid> = Expansion shelf #1 E2-<aid> = Expansion shelf #2 E3-<aid> = Remote shelf (E3 identifies the remote shelf even if there are no Expansion shelves).
almcde	<p>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. Valid values for <almcde> are:</p> <ul style="list-style-type: none"> *C = critical alarm ** = major alarm * = minor alarm A = event
atag	<p>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.</p>

Table A. Parameter Definitions (Contd)

PARAMETER	DEFINITION
baud	This parameter is the communications port baud rate; the baud rate for COM2 can only be changed via jumper straps on the MIS card; ports 1 and 3 are software-configurable only.
compri	This parameter is the priority of communication ports. Valid values are: INH = communication through a port with this designation is inhibited (INH is not allowed on COM2) ALW0 = allows normal communication; autonomous messages are not sent out a port with this priority level ALW1 = allows normal communication; autonomous messages are always sent out this port regardless of the priorities of the other ports (this is the highest port priority) ALW2 = allows normal communication; autonomous messages are sent out this port only if there are no ports with a priority level of ALW1 (this is the second-highest port priority) ALW3 = allows normal communication; autonomous messages are sent out this port only if there are no ports with a priority level of ALW1 or ALW2 (this is the lowest port priority)
comtype	This parameter indicates the type of communications device used (X25, MODEM, TERM1, or TERM2). Refer to the ED-COM command for an explanation of device types.
conddescr	This parameter is the condition description. It is a text description of the alarm or condition reported by the system, enclosed within /* and */. The system returns one conddescr per response message. Valid values for <conddescr> are listed in Table F.
condeff	This parameter indicates the effect of the event on the condition of the equipment. If a standing condition is raised, it can be retrieved using the RTRV-COND-EQPT command with an <aid> of SHELF. A transient condition does not change the basic state of the equipment. Valid values for <condeff> are: SC = standing condition raised CL = standing condition cleared TC = transient condition
condtype	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). Valid values for <condtype> are listed in Table F.
conttype	This parameter is the control type. Refer to the SET-ATTR-CONT command for additional information. With an <aid> of TO (timing output card), this parameter indicates the output protection mode (applies to TO-EA cards only): NO = no protection 1-1 = 1-for-1 protection 1+1 = 1-plus-1 protection With an <aid> of SHELF, this parameter indicates the timing output source selection mode: RVRT = revertive NRVRT = nonrevertive

Table A. Parameter Definitions (Contd)

PARAMETER	DEFINITION																				
ctag	This parameter is the correlation tag. This parameter is used to correlate the input and response messages. The <ctag> is a maximum of 6 characters beginning with either a letter or a numeral. It is recommended that the user enter a unique <ctag> with each command to associate the response with the command.																				
date	This parameter is the current date in the 8-digit form yyyy-mm-dd (year, month, day).																				
dur	This parameter specifies the number of minutes after which the user will be logged off if there is no activity.																				
echo	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.																				
endoftext	This parameter is the end-of-text terminator; it does not replace the TL1-specified end-of-text terminator (;).																				
errcde	<p>This parameter is the error code returned by the system. It is a four-character mnemonic that identifies the reason the command was denied. Valid values for <errcde> are:</p> <table> <tbody> <tr> <td>ENEQ = not equipped</td> <td>PIUC = invalid access level</td> </tr> <tr> <td>ENPS = invalid protection switch</td> <td>PIUI = invalid user identification</td> </tr> <tr> <td>ICNV = command not valid</td> <td>PLNA = user not logged on</td> </tr> <tr> <td>IDNV = data not valid</td> <td>SARB = system resources are busy</td> </tr> <tr> <td>IEAE = entity already exists</td> <td>SCSN = invalid sequence</td> </tr> <tr> <td>IIAC = invalid aid</td> <td>SDNA = duplex unit not available</td> </tr> <tr> <td>IICT = invalid ctag</td> <td>SPFA = protection card switch failure</td> </tr> <tr> <td>IISP = invalid syntax or punctuation</td> <td>SROF = command execution failed</td> </tr> <tr> <td>IITA = invalid tid</td> <td>SWFA = working card switch failure</td> </tr> <tr> <td>IPMS = input parameter missing</td> <td></td> </tr> </tbody> </table>	ENEQ = not equipped	PIUC = invalid access level	ENPS = invalid protection switch	PIUI = invalid user identification	ICNV = command not valid	PLNA = user not logged on	IDNV = data not valid	SARB = system resources are busy	IEAE = entity already exists	SCSN = invalid sequence	IIAC = invalid aid	SDNA = duplex unit not available	IICT = invalid ctag	SPFA = protection card switch failure	IISP = invalid syntax or punctuation	SROF = command execution failed	IITA = invalid tid	SWFA = working card switch failure	IPMS = input parameter missing	
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IITA = invalid tid	SWFA = working card switch failure																				
IPMS = input parameter missing																					
framing	<p>This parameter specifies the framing format:</p> <table> <tbody> <tr> <td>CAS</td> <td>= channel assigned signaling</td> </tr> <tr> <td>CAS4</td> <td>= channel assigned signaling with frame aligned sequence with cyclic redundancy check 4</td> </tr> <tr> <td>CRC4</td> <td>= cyclic redundancy check 4</td> </tr> <tr> <td>D4</td> <td>= D4 framing</td> </tr> <tr> <td>ESF</td> <td>= extended superframe</td> </tr> <tr> <td>FAS</td> <td>= frame alignment sequence (FAS/NFAS) framing</td> </tr> </tbody> </table>	CAS	= channel assigned signaling	CAS4	= channel assigned signaling with frame aligned sequence with cyclic redundancy check 4	CRC4	= cyclic redundancy check 4	D4	= D4 framing	ESF	= extended superframe	FAS	= frame alignment sequence (FAS/NFAS) framing								
CAS	= channel assigned signaling																				
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D4	= D4 framing																				
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FAS	= frame alignment sequence (FAS/NFAS) framing																				
hwcontrol	This parameter allows (or inhibits) external equipment to start (CTS = high) and stop (CTS = low) output messages by manipulating the clear-to-send (CTS) lead.																				
integration	This parameter specifies the alarm integration time before an alarm is declared on the LPR.																				
keepalive	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 a ctag of 999.																				
modetype	This parameter specifies the message type used to report autonomous port-alarm messages (REPT-ALM-PORT or REPT-ALM-EQPT).																				
mondatt	This parameter is the beginning date of the requested performance-monitoring period.																				
monmsg	This parameter specifies whether a port is allowed to view data traffic associated with other ports in real-time.																				

Table A. Parameter Definitions (Contd)

PARAMETER	DEFINITION												
montm	This parameter is the beginning time of the requested performance-monitoring period.												
montype	This parameter is the type of performance-monitoring register in the memory storage.												
monval	This parameter is the value in the specified performance-monitoring register.												
ntfncde	<p>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. Valid values for <ntfncde> are:</p> <table style="margin-left: 40px;"> <tr> <td>CR</td> <td>= critical alarm</td> <td>NA</td> <td>= not alarmed</td> </tr> <tr> <td>MJ</td> <td>= major alarm</td> <td>NR</td> <td>= not reported</td> </tr> <tr> <td>MN</td> <td>= minor alarm</td> <td>CL</td> <td>= cleared</td> </tr> </table> <p>Note: The Shelf, and MRC and PSM cards support critical, major, and minor alarms. Clock, LTI, GTI, and TO cards support major and minor alarms only.</p>	CR	= critical alarm	NA	= not alarmed	MJ	= major alarm	NR	= not reported	MN	= minor alarm	CL	= cleared
CR	= critical alarm	NA	= not alarmed										
MJ	= major alarm	NR	= not reported										
MN	= minor alarm	CL	= cleared										
ocrdat	This parameter is the date the event occurred.												
ocrtm	This parameter is the time the event occurred.												
osc1	This parameter is external clock source 1 (OSC A) to an LPR shelf, or the type of clock in the first clock slot with an MRC card.												
osc2	This parameter is external clock source 2 (OSC B) to an LPR shelf, or the type of clock in the second clock slot with an MRC card.												
ph	This parameter specifies the degree of system initialization.												
pid	This parameter specifies the password identification (<pid>) which is limited to a minimum of 1 character and maximum of 10 characters. The password must contain at least one alpha character; alpha characters can be uppercase, lowercase, or a mixture of both; and the first character must be an alpha character. Any printable character can be used except: comma (,), colon (:), semicolon (;), null (), space (), ampersand (&), and equal sign (=).												
portseverity	This parameter specifies the severity of the alarm on an output port.												
priority	This parameter specifies the priority of the references available at the input. The reference with priority 1 is used first, then the priority 2 reference, and so on.												
reference type	This parameter is the type of reference input signal to the DCD.												
reptalm	This parameter specifies whether alarm/event messages are transmitted from a port: ALW allows alarm/event messages to be transmitted from a port, INH inhibits alarm/event messages from being transmitted from a port.												
shelf	<p>This parameter directs the command to a particular shelf. Valid values for <shelf> are:</p> <table style="margin-left: 40px;"> <tr> <td>(null)</td> <td>= master shelf</td> </tr> <tr> <td>E1</td> <td>= expansion shelf 1</td> </tr> <tr> <td>E2</td> <td>= expansion shelf 2</td> </tr> <tr> <td>E3</td> <td>= expansion shelf 3</td> </tr> </table>	(null)	= master shelf	E1	= expansion shelf 1	E2	= expansion shelf 2	E3	= expansion shelf 3				
(null)	= master shelf												
E1	= expansion shelf 1												
E2	= expansion shelf 2												
E3	= expansion shelf 3												

Table A. Parameter Definitions (Contd)

PARAMETER	DEFINITION
sid	This parameter is the source identifier (site ID). It identifies the system sending the response or automatic message. The sid in a response message matches the tid in the input command. The sid can be no more than 20 characters, limited to letters, numerals and hyphens, beginning with a letter. The sid is recommended to be the target's CLLI code, if available (alternatively, the office name can be used). All systems are manufactured with the sid TELECOM as the factory-set value. Assign unique sids in a multi-system installation with the SET-SID command. The sid is case sensitive.
signal type	This specifies the signal type: analog or digital.
srveff	This parameter identifies how the alarm condition affects service. Valid values for <srveff> are: SA = service affecting NSA = not service affecting
state	This parameter is the maintenance state (in-service or out-of-service) of the unit. IS-NR = nonredundant card in-service normal IS-NR-ACT = redundant card in-service normal active IS-NR-STBY = redundant card in-service normal standby OOS-MT = out of service maintenance (card removed by command) OOS-MT-FLT = out of service maintenance failed OOS-MT-LOCK = out of service maintenance locked in current state (automatic switch to other state is inhibited) OOS-MT-MTCE = card not installed
swcontrol	This parameter allows (or inhibits) the use of key combinations to start (Control-s) and stop (Control-q) output messages.
switchto	This parameter specifies the internal synchronization source to be used by the timing output cards.
thlev	This parameter specifies threshold level of a <monval>.

Table A. Parameter Definitions (Contd)

PARAMETER	DEFINITION
tid	<p>This parameter is the target identifier and identifies the routing information necessary for a message sent by an OS to reach a 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>.</p> <p>Shelf types are defined as follows:</p> <p>Master: the shelf that is the communications interface for the system and contains the highest-quality clocks in the system.</p> <p>Expansion: a shelf with no input cards, no clock cards, and is timed from the master shelf via a ribbon cable (generally collocated with the master shelf).</p> <p>Remote: a shelf that contains timing input cards that use composite clock timing signals from the master or an expansion shelf (generally located distant from the master shelf).</p> <p><u>MIS card with S/W label A:</u></p> <p><i>Without Remote Shelf:</i> direct a command to a particular shelf as follows:</p> <p style="padding-left: 40px;"><tid> = Master shelf <tid>E1 = Expansion shelf #1 <tid>E2 = Expansion shelf #2 <tid>E3 = Expansion shelf #3</p> <p><i>With Remote Shelf:</i> a maximum of two expansion shelves can be collocated with the master shelf, and no expansion shelves can be timed from the remote shelf. To allow the master shelf to communicate (send commands and receive responses) with the remote shelf, the master shelf COM3 port and the remote shelf COM3 port must be connected. Direct a command to a particular shelf as follows:</p> <p style="padding-left: 40px;"><tid> = Master shelf <tid>E1 = Expansion shelf #1 <tid>E2 = Expansion shelf #2 <tid>E3 = Remote shelf (E3 identifies the remote shelf even if there are no Expansion shelves).</p> <p>The <tid> can be omitted only if one of the following is true:</p> <ul style="list-style-type: none"> • Connection is made directly to the master shelf, and the command is intended for the master shelf. • There is only one system, and the command is intended for the master shelf. <p><u>MIS card with S/W label B:</u></p> <p>Expansion and remote shelves are not addressed through the <tid> parameter. Refer to the <aid> parameter in this table.</p> <p>The <tid> can be omitted only if one of the following is true:</p> <ul style="list-style-type: none"> • Connection is made directly to the master shelf. • There is only one system.
time	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.
troublecode	This parameter specifies the signal condition upon failure: AIS or squelch.

Table A. Parameter Definitions (Contd)

PARAMETER	DEFINITION
type	This parameter specifies the type of reference (GPS, Cesium, etc.) the selected reference uses.
typerep	This parameter is the type of condition <condtype> or state <state>. See Tables A and D.
uap	This parameter specifies the user access level:1 through 5 (5 is the highest).
uid	This parameter is the user identification. The first character must be an alpha character and a maximum of 10 characters can be used.
vldty	<p>This parameter indicates whether or not the information collected represents a complete monitoring interval. Valid values for <vldty> are:</p> <p style="margin-left: 40px;">(null) = complete NA = not available P = partial</p>

3. SECURITY

3.01 The access level of each command is listed in Table B. The access levels are from 1 (lowest) to 5 (highest). Each user is assigned an access level allow-

ing access to all commands at that level and below. A user with level 5 can access all commands. Table B. also lists the expanded name of each command. (For additional security information, refer to the Operations section of this manual.)

Table B. Command/Message Names and Access Levels

COMMAND/MESSAGE	EXPANDED NAME	ACCESS LEVEL
ACT-USER	Activate User	1
CANC-USER	Cancel User	1
CPY-MEM	Copy Memory	4
DLT-EQPT	Delete Equipment	4
DLT-INVENTORY	Delete Inventory	4
DLT-PORT	Delete Port	4
DLT-USER-SECU	Delete User Security	5
ED-COM	Edit Communication	3
ED-DAT	Edit Date	4
ED-EQPT	Edit Equipment	3
ED-INVENTORY	Edit Inventory	3
ED-PID	Edit Password Identification	1
ED-PORT	Edit Port	3
ED-USER-SECU	Edit User Security	5
ENT-EQPT	Enter Equipment	4
ENT-INVENTORY	Enter Inventory	3
ENT-PORT	Enter Port	4
ENT-USER-SECU	Enter User Security	5
INIT-COM	Initialize Communications	3
INIT-LOG	Initialize Log	3
INIT-REG	Initialize Register	3
INIT-SYS	Initialize System	5
OPR-ACO-ALL	Operate ACO All	1
OPR-PROTNSW	Operate Protection Switch	2
OPR-SYNCNSW	Operate Synchronization Switch	4
REPT-ALM	Report Alarm	—
REPT-EVT	Report Event	—

Table B. Command/Message Names and Access Levels (Contd)

COMMAND/MESSAGE	EXPANDED NAME	ACCESS LEVEL
RLS-PROTNSW	Release Protection Switch	2
RLS-SYNCNSW	Release Synchronization Switch	4
RMV-EQPT	Remove Equipment	4
RMV-PORT	Remove Port	3
RST-EQPT	Restore Equipment	4
RST-PORT	Restore Port	3
RTRV-ALM	Retrieve Alarm	1
RTRV-ATTR-CONT	Retrieve Attribute Control	2
RTRV-ATTR-PORT	Retrieve Attribute Port	1
RTRV-COM	Retrieve Communication	1
RTRV-COND	Retrieve Condition	1
RTRV-EQPT	Retrieve Equipment	2
RTRV-GPS-STAT	Retrieve GPS Statistics	2
RTRV-HDR	Retrieve Header	1
RTRV-INVENTORY	Retrieve Inventory	2
RTRV-LOG	Retrieve Log	1
RTRV-PM-PORT	Retrieve Performance Monitoring Port	2
RTRV-PORT	Retrieve Port	1
RTRV-REPTMODE-PORT	Retrieve Report Mode Port	4
RTRV-TH-PORT	Retrieve Threshold Port	1
RTRV-USER-SECU	Retrieve User Security	5
SET-ATTR-CONT	Set Attribute Control	3
SET-ATTR-PORT	Set Attribute Port	4
SET-REPTMODE-PORT	Set Report Mode Port	4
SET-SID	Set Source Identifier (System Identification)	4
SET-TH-PORT	Set Threshold Port	3

4. STANDARD VS. NONSTANDARD CARDS

4.01 Standard cards are those cards which can communicate status information to the MIS card. Non-standard cards cannot communicate status

information to the MIS card. Table C lists the standard cards; all other cards are nonstandard. For more information on standard and nonstandard cards, refer to the Operations section of this manual.

Table C. Standard Cards

CARD	PART NUMBER
Version 5 MRC-EA	090-45010-56
Version 5 MRC-EA/C	090-44010-56
Version 5 MRC-T	090-45010-53
Version 5 PSM-E	090-45025-52
Version 5 PSM-E/C	090-44025-52
Version 5 PSM-EA	090-45025-54
Version 5 PSM-EA/C	090-44025-54
Version 5 PSM-T	090-45025-51
Version 5 TO-EA	090-45029-51
Version 5 TO-EA/C	090-44029-51
Version 5 TOTA-5	090-45012-52
GTI (located in LPR shelf)	090-42140-13, software revision E or higher 090-42140-14, software revision E or higher 090-42140-15, software revision B or higher 090-44140-14, software revision E or higher
LTI (located in LPR shelf) (see note)	090-41140-01 090-41140-02
ST2 (see note)	090-40017-01
ST2E (see note)	090-40017-02
ST3 (see note)	090-40013-01
ST3E (see note)	090-40019-03
TNC (see note)	090-44020-02 or 090-45020-02
TNC-E (see note)	090-44017-02 or 090-45017-02
LNC (see note)	090-44019-02 or 090-45019-02
Note: The following cards in this table do not contain inventory information and must be manually entered using the ENT-INVENTORY command: LTI, ST2, ST2E, ST3, ST3E, TNC, TNC-E, LNC.	

5. COMMANDS

5.01 The commands used with the 500 series systems are listed in this section. Each command starts on a separate page with the purpose describing what the command is and what it does. The input format shows the format of the command and the possible parameters.

5.02 Part 2D, Responses, shows the normal response. Where the response is more detailed, the response format is provided with the command including the possible parameters. An example command is also provided. Operational considerations are listed in Table D.

Table D. Operational Considerations

ITEM	CONSIDERATION
1	All systems are shipped from the factory with a <sid> of TELECOM. In multi-system installations, use the SET-SID command to set a unique sid for each system before entering other commands. (Refer to the Card Information section of this manual for additional security factory settings.)
2	Upon initial installation of the MIS card, it is recommended that the date and time be set using the ED-DAT command to allow for proper event correlation. If the MIS card is being installed in a GPS system, the user need only supply the local time to the nearest hour (minutes and seconds will be set automatically).
3	On the shelf, clock input card slots and clock card slots are labeled A and B. In the commands and responses, these cards are designated 1 and 2. For example, input 4 of an MRC card in slot A is designated MRC-1-4 in the commands and responses.
4	PSM cards can be installed in TO slots 1 through 11. The addressing for the PSM cards is defined by the TO slot where the PSM card is located.

COMMAND CODE: ACT-USER**PURPOSE****ACTIVATE USER**

This command logs the user onto the system and begins a session. The user name and password are case sensitive (uppercase/lowercase) and must be entered exactly as assigned. During a session, if no activity is detected for 15 minutes, the user is automatically logged off.

INPUT FORMAT

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

parameter	value	meaning
uid	user name	the user logging on
pid	password	the user's password

EXAMPLE

Input:

```
ACT-USER:SANJOSE-114:BIG:155::SQUIRT;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13
M 155 COMPLD
;
```

This example, tagged as command 155, logs onto the designated <tid> with the username BIG and the password SQUIRT to begin a session.

COMMAND CODE: CANC-USER

PURPOSE

CANCEL USER

This command logs the user off and ends the session. After 15 minutes of inactivity, the user is automatically logged off. The user name is case sensitive (uppercase and lowercase) and must be entered exactly as assigned.

INPUT FORMAT

CANC-USER: [<tid>]:<uid>:<ctag>;

parameter	value	meaning
uid	user name	the user logging off

EXAMPLE

Input:

CANC-USER::BIG:155;

Response:

SANJOSE-114 1997-12-08 15:04:13
M 155 COMPLD
;

This example, tagged as command 155, logs user BIG off and ends a session.

COMMAND CODE: CPY-MEM

PURPOSE

COPY MEMORY

This command copies card programs from an external device (e.g. PC, network, etc) to the DCD shelf. This command can also be used to copy card programs and/or database information between cards in the shelf.

For a procedure for copying a program file from an external source to the MIS card, refer to the Operations section of this manual.

INPUT FORMAT

CPY-MEM:[<tid>]:<shelf>:<ctag>::,FROM-<fromdev>, ,TO-<todev>:
<memclass>;

shelf = shelf where the copying will occur:
 (null) = master shelf
 E1 = expansion shelf 1
 E2 = expansion shelf 2
 E3 = expansion shelf 3 (or remote shelf if equipped with a remote shelf instead of an expansion shelf 3)

The parameter values in the table below are as follows:

a = 1-2 or ALL b = 1-11 or ALL c = 1-12 (1-10 for TOTA-5) or ALL

fromdev	todev	meaning
ALL	MIS	to MIS card from all cards
EXT		to MIS card from external device
GTI-a		to MIS card from specified card
MRC-a		
PSM-b		
TO-c		
MIS	ALL	to all cards from MIS card
	GTI-a	to specified card from MIS card
	MRC-a	
	PSM-b	
	TO-c	

COMMAND CODE: CPY-MEM (Contd)

INPUT FORMAT (Contd)

parameter	value	meaning
memclass	PGM	program that runs the card (used with <fromdev> = EXT only)
	DATA	card configuration data (cannot be used with <fromdev> = EXT)

Note: After copying to the GTI card (or ALL), use the RTRV-COND-EQPT command to ensure that the GTI is in service. If the GTI is not in service, repeat the COPY command. When copying from the GTI card (or ALL) to the MIS card, the COPY command may be denied with an error code of SROF. If this occurs, repeat the COPY command.

EXAMPLE

Input:

```
CPY-MEM:::134::,FROM-EXT,,TO-MIS:PGM;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13
M 134 COMPLD
;
```

This example, tagged as command 134, copies the MIS card program from an external computer to the MIS card in the shelf.

COMMAND CODE: DLT-EQPT**PURPOSE****DELETE EQUIPMENT**

This command deletes equipment from the system database.

INPUT FORMAT

DLT-EQPT:[<tid>]:<aid>:<ctag>;

The parameter values in the table below are as follows:

a = 1-2 b = 1-11 c = 1-12 (1-10 for TOTA-5)

parameter	value	meaning
aid	CLK-a	specified CLK card
	GTI-a	specified GTI card
	LTI-a	specified LTI card
	MRC-a	specified MRC card
	PSM-b	specified PSM card
	TO-c	specified TO card

EXAMPLE

Input:

DLT-EQPT::PSM-5:134;

Response:

SANJOSE-114 1997-12-08 15:04:13
M 134 COMPLD
;

This example, tagged as command 134, deletes PSM-5 from the system database.

COMMAND CODE: DLT-INVENTORY

PURPOSE

DELETE INVENTORY

This command deletes a nonstandard card from the database. (Standard cards are removed from the database by the DLT-EQPT command.)

INPUT FORMAT

DLT-INVENTORY: [<tid>] : <aid> : <ctag> ;

The parameter values in the table below are as follows:

a = 1-2 b = 1-12

aid	meaning
CLOCK-a	the nonstandard card in the specified slot
INPUT-a	
OUTPUT-b	
PROT	
PRS-a	

EXAMPLE

Input:

DLT-INVENTORY : : OUTPUT-3 : 114 ;

Response:

SANJOSE-121 1997-12-08 15:04:13
M 114 COMPLD
;

This example, tagged as command 114, deletes from the database the card in timing output slot 3.

COMMAND CODE: DLT-PORT**PURPOSE****DELETE PORT**

This command deletes a port from the system database.

INPUT FORMAT

DLT-PORT: [<tid>] : <aid> : <ctag> ;

The parameter values in the table below are as follows:

a	= 1-2	e	= 1-12 (1-10 for TOTA-5)
b	= 1-4 or ALL	f	= 1-10 or ALL
c	= 2-4 (c > b)	g	= 2-10 (g > f)
d	= 1-11		

parameter	value	meaning
aid	MRC-a-b[&&-c]	specified port on specified MRC card
	PSM-d-b[&&-c]	specified port on specified PSM card
	TO-e-f[&&-g]	specified port on specified TO card

EXAMPLE

Input:

DLT-PORT: : PSM-7-3:133;

Response:

SANJOSE-114 1997-12-08 15:04:13
M 133 COMPLD
;

This example, tagged as command 133, deletes port 3 of PSM-7 from the system database.

COMMAND CODE: DLT-USER-SECU

PURPOSE

DELETE USER SECURITY

This command removes a user. The user name is case sensitive (uppercase/lowercase) and must be entered exactly as assigned.

INPUT FORMAT

DLT-USER-SECU: [<tid>] : <uid> : <ctag> ;

parameter	value	meaning
uid	user name	the user being deleted

EXAMPLE

Input:

DLT-USER-SECU: :BIG:155;

Response:

SANJOSE-114 1997-12-08 15:04:13
M 155 COMPLD
;

This example, tagged as command 155, removes the user BIG.

COMMAND CODE: ED-COM

PURPOSE

EDIT COMMUNICATION

This command changes communication parameters. Communication port parameters which cannot be changed are: character bits = 8, parity = none, and start bits = 1. When changing communication parameters, the associated hardware (modem, pad, or terminal) must be connected. After changing a parameter with this command, wait at least 10 seconds before entering another command.

INPUT FORMAT

```
ED-COM: [<tid>]:<aid>:<ctag>:: [<baud>], [<monmsg>], [<keepalive>]
      , [<comtype>], [<endoftext>], [<echo>], [<compri>]
      , [<hwcontrol>], [<swcontrol>][, <dur>];
```

Notes:

1. Any parameter left blank causes no change to that parameter.
2. The “[,dur]” parameter is not supported in software release 5.02.01.

parameter	value	meaning
aid	COM-1	communication port 1 (backplane D connector)
	COM-2	communication port 2 (backplane D connector or front panel RJ connector)
	COM-3	communication port 3 (backplane D connector)
baud	1200	1200 baud
	9600	9600 baud
	Note: the baud parameter must be set to null when the aid is COM-2	
monmsg	ALW	allows this port to view communication messages associated with other communication ports in real-time
	INH	inhibits this port from viewing communication messages associated with other communication ports in real-time
keepalive	ALW	allows a port to autonomously output a COMPLD message every 15 to 20 minutes
	INH	inhibits a port from autonomously outputting a COMPLD message every 15 to 20 minutes
comtype	X25	PAD (sets configuration for Black Box Corporation's X.25 PAD-8 only with the following settings: <ol style="list-style-type: none"> a. drops call if idle time is greater than 1 minute b. fixed destination id
	MODEM	modem (sets RS232 control leads to communicate with any Hayes-compatible modem)
	TERM1	dumb terminal (VT100 with no DSR/DTR support and message buffering disabled)
	TERM2	dumb terminal (VT100 with DSR/DTR support and message buffering enabled)
	REMOTE	allows communication with a remote shelf via the specified communication port

COMMAND CODE: ED-COM (Contd)

INPUT FORMAT (Contd)

parameter	value	meaning
endoftext	00–9F	this hexadecimal number specifies 1 character as an additional end-of-text identifier; this character does not replace the TL1 end-of-text terminator (;); a 00 indicates that there is no end-of-text identifier (refer to an ASCII table for the hexadecimal code for a particular character)
echo	ALW	allows local echo
	INH	inhibits local echo
compri	INH	communication through a port with this designation is inhibited (INH is not allowed on COM2)
	ALW0	allows normal communication; autonomous messages are not sent out a port with this priority level
	ALW1	allows normal communication; autonomous messages are always sent out this port regardless of the priorities of the other ports (this is the highest port priority)
	ALW2	allows normal communication; autonomous messages are sent out this port only if there are no ports with a priority level of ALW1 (this is the second-highest port priority)
	ALW3	allows normal communication; autonomous messages are sent out this port only if there are no ports with a priority level of ALW1 or ALW2 (this is the lowest port priority)
hwcontrol	ALW	allows external equipment to stop the DCD system from sending messages by setting the clear to send (CTS) lead low, or continue messages by setting the CTS lead high
	INH	inhibits external equipment from controlling DCD system messages by manipulation of the clear to send (CTS) lead
swcontrol	ALW	allows the user to use a Control-s key combination to stop the DCD system from sending messages; also allows the user to use a Control-q key combination to cause the DCD system to continue sending messages
	INH	inhibits the use of the Control-s and Control-q key sequences to stop and start messages
dur	1–45	specifies the time (in minutes) after which the user will be logged off if there is no activity

COMMAND CODE: ED-COM (Contd)

EXAMPLE

Input:

```
ED-COM::COM-1:115::9600,,,MODEM,,,,;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13  
M 155 COMPLD  
;
```

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

COMMAND CODE: ED-DAT

PURPOSE

EDIT DATE

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

INPUT FORMAT

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

Note: If connected to a GTI card, the system will adjust the minutes and seconds to coincide with UTC time. The current hour (entered with <time>) will be used so that local time is displayed.

parameter	value	meaning
date	yyyy-mm-dd	year (1997–2096), month (01–12), day (01–31)
time	hh-mm-ss	hour (00–23), minute (00–59), second (00–59)

EXAMPLE

Input:

```
ED-DAT:::118::1997-12-08,16-35-00;
```

Response:

```
SANJOSE-114 1997-12-08 16:35:03
M 118 COMPLD
;
```

This example, tagged as command 118, sets the date to December 8th, 1997, and the time to 4:35 PM.

COMMAND CODE: ED-EQPT

PURPOSE

EDIT EQUIPMENT

This command changes equipment parameters.

INPUT FORMAT

```
ED-EQPT: [<tid>]:<aid>:<ctag>:: [<framing>], [<troublecode>],
          [<portseverity>], [<osc1>], [<osc2>], [<integration>];
```

Any parameter left blank causes no change to that parameter. The parameter values in the table below are as follows:

a = 1–2

b = 1–12 (1–10 for TOTA-5)

aid	parameter	value	meaning
GTI-a	framing	CAS	channel assigned sequence
		CAS4	channel assigned sequence with frame aligned sequence with cyclic redundancy check 4
		CRC4	frame alignment sequence framing with cyclic redundancy check 4
		D4	D4 framing format
		ESF	ESF framing format
		FAS	frame alignment sequence framing
	troublecode	INH	all outputs are squelched when card has major alarm
		ALW	AIS is sent on all outputs when card has major alarm
	portseverity	(null)	(not applicable)
	osc1	RB	oscillator 1 (OSC A) is rubidium clock
		QTZ	oscillator 1 (OSC A) is quartz clock
	osc2	RB	oscillator 2 (OSC B) is rubidium clock
		QTZ	oscillator 2 (OSC B) is quartz clock
	integration	1	see Table E
		2	see Table E
		3	see Table E
		4	see Table E

COMMAND CODE: ED-EQPT (Contd)

INPUT FORMAT (Contd)

aid	parameter	value	meaning
MRC-a	framing	(null)	(not applicable)
	troublecode		
	portseverity		
	osc1	RB	oscillator 1 (OSCA) is rubidium clock
		QTZ	oscillator 1 (OSCA) is quartz clock
		NONE	oscillator 1 (OSCA) is not equipped
	osc2	RB	oscillator 2 (OSCB) is rubidium clock
		QTZ	oscillator 2 (OSCB) is quartz clock
		NONE	oscillator 2 (OSCB) is not equipped
	integration	(null)	(not applicable)
TO-b	framing	CAS	channel assigned sequence
		CAS4	channel assigned sequence with frame aligned sequence with cyclic redundancy check 4
		CRC4	frame alignment sequence framing with cyclic redundancy check 4
		D4	D4 framing format
		ESF	ESF framing format
		FAS	frame alignment sequence framing
	troublecode	INH	all outputs are squelched upon card failure
		ALW	AIS is sent on all outputs upon card failure
	portseverity	MJ	port failure causes major alarm
		MN	port failure causes minor alarm
	osc1	(null)	(not applicable)
	osc2		
	integration		

COMMAND CODE: ED-EQPT (Contd)

EXAMPLE

Input:

```
ED-EQPT::GTI-2:134::FAS,ALW,,RB,RB,1;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13  
M 134 COMPLD  
;
```

This example, tagged as command 134, changes the parameters for GTI-2 as follows:

- framing = FAS
- trouble code = outputs AIS during major alarm
- oscillator types are both rubidium
- alarm integration time is 4 hours for a minor alarm and 24 hours for a major alarm

Table E. GTI Card Alarm Integration Times

INTEGRATION PARAMETER SETTING	GTI CARD TYPE	ALARM INTEGRATION TIME (SIGNAL DEFECT ONLY)	
		MINOR ALARM	MAJOR ALARM
1	GTI -13, & -14	4 hours	24 hours
	GTI -15	Rubidium ref: 4 hours	Rubidium ref: 24 hours
		Quartz ref: 3/4 hour	Quartz ref: 6 hours
2	GTI -13, & -14	3 hours	18 hours
	GTI -15	Rubidium ref: 8 hours	Rubidium ref: 48 hours
		Quartz ref: no minor alarm	Quartz ref: 6 hours
3	GTI -13, & -14	1 hour	6 hours
	GTI -15	Rubidium ref: no minor alarm	Rubidium ref: 24 hours
		Quartz ref: no minor alarm	Quartz ref: 1 hour
4	GTI -13, & -14	10 minutes	1 hour
	GTI -15	Rubidium ref: 1/2 hour	Rubidium ref: 1 hour
		Quartz ref: 1/2 hour	Quartz ref: 1 hour

Notes:

1. The GTI types are as follows:

type	part #
GTI -13	090-42140-13
GTI -14	090-42140-14 & 090-44140-14
GTI -15	090-42140-15

2. The times listed are from when a SIGNAL DEFECT occurs until a minor or major alarm is declared.

COMMAND CODE: ED-INVENTORY

PURPOSE

EDIT INVENTORY

This command is for nonstandard cards only. This command is used to change the card name, part number, CLEI code, serial number, hardware revision, or software revision in the system database for nonstandard cards. Nonstandard cards are all cards not listed in Table C.

Note: Inventory information appears on the front panel of the card. If any particular parameter information is not available, leave that parameter blank.

INPUT FORMAT

```
ED-INVENTORY: [<tid>]:<aid>:<ctag>:: [<card>], [<part>], [<clei>],
                [<serial>], [<hardware_revision>], [<software_revision>];
```

Caution: The letter/number combinations “NO”, “E1”, “E2”, and “E3” cannot be entered *alone* in any field in this command. These combinations can be used if additional characters are entered before or after these combinations.

A maximum of 20 characters is allowed for each of the following parameters: <card>, <part>, <clei>, <serial>, <hardware_revision>, and <software_revision>. If any of these parameters is left blank, there will be no change to that parameter. The parameter values in the table below are as follows:

a = 1–2

b = 1–12

aid	card
INPUT-a	ACI
	CI
	CI-EA
	ECI
PROT	MCA-5
CLOCK-a	LNC
	TNC
	TNC-E
	ST2
	ST2E
	ST3
	ST3E

COMMAND CODE: ED-INVENTORY (Contd)

INPUT FORMAT (Contd)

aid	card
OUTPUT-b	TOAA
	TOCA
	TOEA
	TO-EA
	TOGA
	TOLA
	TOTA
	TOTL
	SCIU
	ESCIU
PRS-a	LOU-1
	LOU-2
	LTI

EXAMPLE

Input:

ED-INVENTORY::OUTPUT-3:114::,090-45025-53,,,,;

Response:

SANJOSE-121 1997-12-08 15:04:13
M 114 COMPLD
;

This example, tagged as command 114, changes the part number of the card in output slot 3 to 090-45025-53 (other parameters that were previously entered are not changed).

COMMAND CODE: ED-PID**PURPOSE****EDIT PASSWORD IDENTIFICATION**

This command changes a user's password. The user name and password are case (uppercase/lowercase) sensitive and must be entered exactly as assigned.

INPUT FORMAT

ED-PID:[<tid>]:<uid>:<ctag>::<pid>,<new pid>;

parameter	value	meaning
uid	user name	the user whose password is being changed
pid	existing password	password identification
new pid	up to 10 characters (see note below)	new password identification

Note: The password can have a minimum of 1 character and a maximum of 10 characters. At least one alpha character must be used. Alpha characters can be uppercase, lowercase, or a mixture of both. Any printable character can be used except: comma (,), colon (:), semicolon (;), null (), space (), ampersand (&), and equal sign (=).

EXAMPLE

Input:

```
ED-PID::super:155::ORION,CASSIOPEIA;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13
M 155 COMPLD
;
```

This example, tagged as command 155, changes the old password of ORION to CASSIOPEIA for user "super".

COMMAND CODE: ED-PORT

PURPOSE

EDIT PORT

This command modifies the priority, reference type, and signal type mode for a port.

INPUT FORMAT

ED-PORT:[<tid>]:<aid>:<ctag>::[<framing>],[<priority>],
[<reference type>],[<signal type>];

Any parameter left blank causes no change to that parameter. The parameter values in the table below are as follows:

- | | | | |
|---|---------------|---|----------------|
| a | = 1-2 | e | = 1-12 |
| b | = 1-4 or ALL | f | = 1-10 or ALL |
| c | = 2-4 (c > b) | g | = 2-10 (g > f) |
| d | = 1-11 | | |

aid	parameter	value	meaning
MRC-a-b[&&-c]	framing	CAS	channel assigned sequence
		CAS4	channel assigned sequence with frame aligned sequence with cyclic redundancy check 4
		CRC4	frame alignment sequence framing with cyclic redundancy check 4
		D4	D4 framing format
		ESF	ESF framing format
		FAS	frame alignment sequence framing
	priority	1-4	priority of the reference, 1 is highest priority
	reference type	CESIUM	cesium reference
		GPS	global positioning system reference
		LORAN	LORAN reference
		NETWORK	network reference
	signal type	ANALOG	analog signal
		DIGITAL	digital signal

COMMAND CODE: ED-PORT (Contd)

INPUT FORMAT (Contd)

aid	parameter	value	meaning
PSM-d-b[&&-c]	framing	CAS	channel assigned sequence
		CAS4	channel assigned sequence with frame aligned sequence with cyclic redundancy check 4
		CRC4	frame alignment sequence framing with cyclic redundancy check 4
		D4	D4 framing format
		ESF	ESF framing format
		FAS	frame alignment sequence framing
	priority	(null)	(not applicable)
	reference type		
signal type	ANALOG	analog signal	
	DIGITAL	digital signal	
TO-e-f[&&-g]	framing	(null)	(not applicable)
	priority		
	reference type		
	signal type	ANALOG	analog signal (TO-EA5 only)
		DIGITAL	digital signal

EXAMPLE

Input:

```
ED-PORT::MRC-2-2:154::FAS,4,NETWORK,DIGITAL;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13
M 154 COMPLD
;
```

This example, tagged as command 154, commands port 2 of MRC 2 to be FAS framing, the lowest priority reference, and specifies that it is receiving timing from a digital network reference.

Note: If all the reference ports of an MRC card are configured for the same priority, the references will be selected based on the numerical order of the ports. The same numerical order will be listed if the settings are retrieved.

COMMAND CODE: ED-USER-SECU

PURPOSE

EDIT USER SECURITY

This command changes a user's name, password, and access level. The user name and password are case (uppercase/lowercase) sensitive and must be entered exactly as assigned. One user is assigned at the factory, and up to 16 additional users can be assigned (for a total of 17 users).

INPUT FORMAT

ED-USER-SECU:[<tid>]:<uid>:<ctag>::<new uid>,<new pid>,,<uap>;

parameter	value	meaning
uid	user name	the user whose name, password, and access level is being changed
new uid	up to 10 alpha-numeric characters	new user name
new pid	up to 10 characters (see note below)	new password
uap	1-5	user access level (5 is highest level)

Note: The password can have a minimum of 1 character and a maximum of 10 characters. At least one alpha character must be used. Alpha characters can be uppercase, lowercase, or a mixture of both. Any printable character can be used except: comma (,), colon (:), semicolon (;), null (), space (), ampersand (&), and equal sign (=).

EXAMPLE

Input:

ED-USER-SECU::BIG:155::LITTLE,SIZE,,3;

Response:

SANJOSE-114 1997-12-08 15:04:13
M 155 COMPLD
;

This example, tagged as command 155, changes the user's name from BIG to LITTLE, changes the password to SIZE, and changes the access level to 3.

COMMAND CODE: ENT-EQPT

PURPOSE

ENTER EQUIPMENT

This command enters and restores a card, and enters and restores all ports associated with the card. All parameters for the card and ports are entered with factory settings.

INPUT FORMAT

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

The parameter values in the table below are as follows:

a = 1-2 b = 1-11 c = 1-12 (1-10 for TOTA-5)

parameter	value	meaning
aid	CLK-a	Clock card
	GTI-a	GTI card
	LTI-a	LTI card
	MRC-a	MRC card
	PSM-b	PSM card
	TO-c	TO card

EXAMPLE

Input:

```
ENT-EQPT::MRC-2:134;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13
M 134 COMPLD
;
```

This example, tagged as command 134, enters and restores the MRC card in slot 2, and enters and restores all ports on the MRC card, with all factory settings.

COMMAND CODE: ENT-INVENTORY

PURPOSE

ENTER INVENTORY

This command is for nonstandard cards and standard cards without a database (ST2, ST2E, ST3, ST3E, TNC, TNC-E, and LNC). This command is used to enter the card name, part number, CLEI code, serial number, hardware revision, and software revision into the system database for each slot equipped with a nonstandard card. All cards entered with this command are nonstandard because they do not contain a database and cannot communicate with the MIS card. (Standard card information is communicated to the MIS card when the ENT-EQPT command is used for that card.) For a list of standard cards, refer to Table C.

Note: Inventory information appears on the front panel of the card. If any particular parameter information is not available, leave that parameter blank.

INPUT FORMAT

ENT-INVENTORY: [<tid>] : <aid> : <ctag> : : [<card>] , [<part>] , [<clei>] ,
 [<serial>] , [<hardware_revision>] , [<software_revision>] ;

Caution: The letter/number combinations “NO”, “E1”, “E2”, and “E3” cannot be entered *alone* in any field in this command. These combinations can be used if additional characters are entered before or after these combinations.

A maximum of 20 characters is allowed for each of the following parameters: <card>, <part>, <clei>, <serial>, <hardware_revision>, and <software_revision>. Parameters not entered will remain blank (null). The parameter values in the table below are as follows:

a = 1-2

b = 1-12

aid	card
INPUT-a	ACI
	CI
	CI-EA
	ECI
PROT	MCA-5

COMMAND CODE: ENT-INVENTORY (Contd)

INPUT FORMAT (Contd)

aid	card
CLOCK-a	LNC
	TNC
	TNC-E
	ST2
	ST2E
	ST3
	ST3E
OUTPUT-b	TOAA
	TOCA
	TOEA
	TO-EA
	TOGA
	TOLA
	TOTA
	TOTL
	SCIU
	ESCIU
	PRS-a
LOU-2	
LTI	

COMMAND CODE: ENT-INVENTORY (Contd)

EXAMPLE

Input:

```
ENT-INVENTORY::OUTPUT-3:114::TOAA,090-45025-53,D0CPBC15AA,  
E18951,B,D;
```

Response:

```
SANJOSE-121 1997-12-08 15:04:13  
M 114 COMPLD  
;
```

This example, tagged as command 114, enters the following inventory information into the system database: output slot 3 contains a nonstandard TOAA card with a part number of 090-40025-01, a CLEI code of D0CPBC15AA, a serial number of E18951, a hardware revision of B, and a software revision of D.

COMMAND CODE: ENT-PORT

PURPOSE

ENTER PORT

This command enters a new port including the priority, reference type, signal type, and CRC mode.

INPUT FORMAT

```
ENT-PORT: [<tid>]:<aid>:<ctag>::[framing],[<priority>],
          [<reference type>],[<signal type>];
```

Any parameter left blank causes the card to use switch settings for that parameter. The parameter values in the table below are as follows:

a	= 1–2	e	= 1–12 (1–10 for TOTA-5)
b	= 1–4 or ALL	f	= 1–10 or ALL
c	= 2–4 (c > b)	g	= 2–10 (g > f)
d	= 1–11		

aid	parameter	value	meaning
MRC-a-b[&&-c]	framing	CAS	channel assigned sequence
		CAS4	channel assigned sequence with frame aligned sequence with cyclic redundancy check 4
		CRC4	frame alignment sequence framing with cyclic redundancy check 4
		D4	D4 framing format
		ESF	ESF framing format
		FAS	frame alignment sequence framing
	priority	1–4	priority of the reference, 1 is highest priority
	reference type	CESIUM	cesium reference
		GPS	global positioning system reference
		LORAN	LORAN reference
		NETWORK	network reference
	signal type	ANALOG	analog signal
		DIGITAL	digital signal

COMMAND CODE: ENT-PORT (Contd)

INPUT FORMAT (Contd)

aid	parameter	value	meaning
PSM-d-b[&&-c]	framing	CAS	channel assigned sequence
		CAS4	channel assigned sequence with frame aligned sequence with cyclic redundancy check 4
		CRC4	frame alignment sequence framing with cyclic redundancy check 4
		D4	D4 framing format
		ESF	ESF framing format
		FAS	frame alignment sequence framing
	priority	(null)	(not applicable)
	reference type		
	signal type	ANALOG	analog signal
DIGITAL		digital signal	
TO-e-f[&&-g]	framing	(null)	(not applicable)
	priority		
	reference type		
	signal type	ANALOG	analog signal (TO-EA only)
		DIGITAL	digital signal

EXAMPLE

Input:

```
ENT-PORT::MRC-2-2:154::FAS,4,NETWORK,DIGITAL;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13
M 154 COMPLD
;
```

This example, tagged as command 154, commands port 2 of MRC 2 to be FAS framing, the fourth priority reference, and specifies that it is receiving timing from a digital network reference.

COMMAND CODE: ENT-USER-SECU**PURPOSE****ENTER USER SECURITY**

This command enters a new user including the user's name, password, and access level. The user name and password are case (uppercase/lowercase) sensitive, therefore use care when assigning these parameters. One user is assigned at the factory, and up to 16 additional users can be assigned (for a total of 17 users).

INPUT FORMAT

```
ENT-USER-SECU:[<tid>]:<uid>:<ctag>::<pid>, ,<uap>;
```

parameter	values	meaning
uid	up to 10 alpha-numeric characters	user name
pid	up to 10 characters (see note below)	password identification
uap	1-5	user access level (5 is highest level)

Note: The password can have a minimum of 1 character and a maximum of 10 characters. At least one alpha character must be used. Alpha characters can be uppercase, lowercase, or a mixture of both. Any printable character can be used except: comma (,), colon (:), semicolon (;), null (), space (), ampersand (&), and equal sign (=).

EXAMPLE

Input:

```
ENT-USER-SECU::BIG:155::CLOUD, ,3;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13
M 155 COMPLD
;
```

This example, tagged as command 155, changes the access level to 3 for user BIG whose password is CLOUD.

COMMAND CODE: INIT-COM

PURPOSE

INITIALIZE COMMUNICATIONS

This command causes the data terminal ready (DTR) signal to drop for 5 seconds on any of the three communication ports (1, 2, or 3). (If a port is provision for TERM1 [no DSR/DTR support], the command will indicate completed but no action will occur.)

INPUT FORMAT

INIT-COM: [<tid>] : <aid> : <ctag> ;

The values in the table below are as follows:

a = 1-3 or ALL

aid	meaning
COM-a	drops the DTR lead on the specified communication port

EXAMPLE

Input:

INIT-COM: : COM-2 : 110 ;

Response:

SANJOSE-114 1997-12-08 15:04:13
M 110 COMPLD
;

This example, tagged as command 110, drops the DTR signal for 5 seconds on port 2.

COMMAND CODE: INIT-LOG

PURPOSE

INITIALIZE LOG

This command clears the system message log. It is sometimes useful to clear the message log after retrieving the messages with the RTRV-LOG command. (After clearing, the first entry in the log will be the initialization of the log.)

INPUT FORMAT

```
INIT-LOG:[<tid>]:<shelf>:<ctag>::LOG;
```

shelf	= shelf to which the command is directed:
(null)	= master shelf
E1	= expansion shelf 1
E2	= expansion shelf 2
E3	= expansion shelf 3 (or remote shelf if equipped with a remote shelf instead of an expansion shelf 3)

EXAMPLE

Input:

```
INIT-LOG:::117::LOG;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13
M 117 COMPLD
;
```

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

COMMAND CODE: INIT-REG

PURPOSE

INITIALIZE REGISTER

This command resets the specified performance-monitoring storage registers (<montype>) on the specified equipment. These registers contain performance monitoring information accumulated in previous intervals. After putting ports into service, it is recommended that this command be used to initialize the performance-monitoring storage registers on those ports to avoid the possibility of invalid data.

INPUT FORMAT

INIT-REG: [<tid>] : <aid> : <ctag> : : <montype> ;

The parameter values in the table below are as follows:

- a = 1-2
- b = 1-4 or ALL
- c = 2-4 (c > b)
- d = 1-11

aid	parameter	value	meaning
MRC-a-b[&&-c]	montype	ALL	all montypes
		BPV	bipolar violations register
		CRC	cyclic redundancy check errors register
PSM-d-b[&&-c]	montype	ALL	all montypes
		BPV	bipolar violations register
		CRC	cyclic redundancy check errors register
		MTIE	MTIE performance monitoring register
		PHASE1M	phase 1-minute register
		SLIPS	slips register
		TDEV	TDEV performance monitoring register

COMMAND CODE: INIT-REG (Contd)

EXAMPLE

Input:

```
INIT-REG::MRC-1-4:143::BPV;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13  
M 143 COMPLD  
;
```

The above example, tagged as command 143, resets the current BPV performance-monitoring register to 0 on span 4 of MRC 1.

COMMAND CODE: INIT-SYS

PURPOSE

INITIALIZE SYSTEM

This command either deletes the card database, resets the MIS card, changes to the alternate MIS card program, or resets all parameters to the factory settings and deletes the card database.

INPUT FORMAT

INIT-SYS:[<tid>]:<aid>:<ctag>::<ph>;

Caution: Before using the INIT-SYS command with a <ph> of 4 or 5, ensure that section 5 of switch SW1 on the MIS card is in the up (ON) position. Failure to observe this caution may result in the loss of all card database information in the MIS card.

parameter	value	meaning
aid	MIS	MIS card
ph	3	deletes the card database (does not affect the SID, security, or communication port parameters)
	4	<p><u>with section 5 of SW1 on the MIS card in the ON position:</u> performs a soft reset on the MIS card (does not affect the SID, security, or communication port parameters); the card database on the MIS card is retained and downloaded from the MIS card to all other cards</p> <p><u>with section 5 of SW1 on the MIS card in the OFF position:</u> performs a soft reset on the MIS card (does not affect the SID, security, or communication port parameters); the card database on the MIS card is retained but <i>not</i> downloaded from the MIS card to all other cards</p>
	5	<p><u>with section 5 of SW1 on the MIS card in the ON position:</u> changes to the alternate MIS card program which may take up to 5 minutes (does not affect the SID, security, or communication port parameters); the card database on the MIS card is retained and downloaded from the MIS card to all other cards</p> <p><u>with section 5 of SW1 on the MIS card in the OFF position:</u> changes to the alternate MIS card program (does not affect the SID, security, or communication port parameters); the card database on the MIS card is retained but <i>not</i> downloaded from the MIS card to all other cards</p>
	9	resets the SID, security, and communication port parameters to the factory settings (refer to the Operations section of this manual for factory settings), and deletes the card database

COMMAND CODE: INIT-SYS (Contd)

EXAMPLE

Input:

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

Response:

```
SANJOSE-114 1997-12-08 15:04:13  
M 110 COMPLD  
;
```

This example, tagged as command 110, resets the SID, security, and communication parameters to factory settings, and deletes the card database.

COMMAND CODE: OPR-ACO-ALL

PURPOSE

OPERATE ALARM CUTOFF ALL

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

INPUT FORMAT

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

shelf	= shelf to which the command is directed:
(null)	= master shelf
E1	= expansion shelf 1
E2	= expansion shelf 2
E3	= expansion shelf 3 (or remote shelf if equipped with a remote shelf instead of an expansion shelf 3)

EXAMPLE

Input:

OPR-ACO-ALL:::111;

Response:

SANJOSE-114 1997-12-08 15:04:13
M 111 COMPLD
;

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

COMMAND CODE: OPR-PROTNSW

PURPOSE

OPERATE PROTECTION SWITCH

This command is only for TO-EA cards that are set for 1-for-1 or 1-plus-1. This command forces a protection switch between a normally working timing output card and a protection timing output card (or visa versa) for maintenance purposes. This command will be denied if the protection type (SET-ATTR-CONT) is not appropriate for the output card(s) requested, or if the protection card is out of service. Before a card is pulled out of a shelf, the appropriate RMV command should be used to avoid alarms.

1-for-1 protection type: There is a working card (odd slot) and a protection card (even slot). A card or port failure on the working card initiates a switch to the protection card. The status of the working card changes from IS-NR-ACT to OOS-MT-FLT and the status of the protection card changes from IS-NR-STBY to IS-NR-ACT. When the failed card is replaced, state of the replacement card is IS-NR-STBY and the state of the protection card remains IS-NR-ACT. Subsequently, the OPR-PROTNSW command can be used to switch back to make the working card in the odd-numbered slot the active card.

If there has never been a failure of either card of the pair, or the protection card has failed and was replaced:

- The OPR-PROTNSW command is used to switch from the active working card to the standby protection card.
- The RLS-PROTNSW is used to switch from the active protection card to the standby working card.

If the working card has failed and was replaced:

- The OPR-PROTNSW command is used to switch from the active protection card to the standby working card.
- The RLS-PROTNSW is used to switch from the active working card to the standby protection card.

Caution: If the OPR-PROTNSW command is used to switch to the protection card and subsequently there is a protection card or port failure, there is no automatic switch to the working card (service is locked to the failed protection card!). To make the working card the active card, the RLS-PROTNSW command is used.

1-plus-1 protection type: The OPR-PROTNSW and RLS-PROTNSW commands are not applicable with this protection type.

To determine the protection configuration of the system use the RTRV-ATTR-CONT command to indicate the protection type, i.e., unprotected, 1-for-1, or 1+1. In addition, use the RTRV-COND-EQPT command to determine which card of a 1-for-1 pair is the working and which is the protection card. The working card is indicated by the <condtype> IS-NR-ACT, whereas the protection card is indicated by the <condtype> IS-NR-STBY.

COMMAND CODE: OPR-PROTNSW (Contd)

INPUT

OPR-PROTNSW:[<tid>]:<aid>:<ctag>::MAN;

The parameter values in the table below are as follows:

a = 1-12

parameter	value	meaning
aid	TO-a	working TO card

EXAMPLE

Input:

OPR-PROTNSW::TO-5:111::MAN;

Response:

SANJOSE-114 95-12-08 15:04:13
M 111 COMPLD
;

This example, tagged as command 111, switches all ports from the working card, TO-5, to the protection output card of the same type in slot 6 (TO-6).

COMMAND CODE: OPR-SYNCNSW**PURPOSE****OPERATE SYNCHRONIZATION SWITCH**

This command forces the timing output cards to use the specified internal synchronization source (software control). The selected source stays in effect until released by the RLS-SYNCNSW command. If the selected source fails, a phase hit will occur on the outputs. Subsequent source selection is determined by the setting of the SET-ATTR-CONT command. This command will be denied if the source being selected is not valid.

This command applies to all TO cards in all shelves in the system. If the selected source fails while this command is active (not canceled by the RLS-SYNCNSW command), all TO cards will use the next available reference source in this order: CLK1, CLK2, IN1, IN2. If the selected source then becomes active (after failing) while this command is active (not canceled by the RLS-SYNCNSW command), all TO cards will switch to the selected source.

INPUT FORMAT

```
OPR-SYNCNSW: [ <tid> ] : TO-ALL : <ctag> : : <switchto> ;
```

parameter	value	meaning
switchto	CLK1	clock card 1
	CLK2	clock card 2
	IN1	system input card 1
	IN2	system input card 2

EXAMPLE

Input:

```
OPR-SYNCNSW: : TO-ALL : 134 : : CLK2 ;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13
M 134 COMPLD
;
```

This example, tagged as command 134, causes the timing output cards to use the clock 2 card as a source.

COMMAND CODE: RLS-PROTNSW

PURPOSE

RELEASE PROTECTION SWITCH

This command is only for TO-EA cards that are set for 1-for-1 or 1-plus-1. This command switches from a protection to a working timing output card. The switch to the working timing output card is performed only if the original switch was initiated by the OPR-PROTNSW command.

To determine the protection configuration of the system use the RTRV-ATTR-CONT to indicate the protection type (unprotected, 1-for-1, or 1+1). In addition, use the RTRV-COND-EQPT command to determine the status of any or all of the card slots. Refer to the description under the OPR-PROTNSW command for additional information.

INPUT FORMAT

RLS-PROTNSW: [<tid>] : <aid> : <ctag> : : MAN ;

The parameter values in the table below are as follows:

a = 1-12

parameter	value	meaning
aid	TO-a	working TO card

EXAMPLE

Input:

RLS-PROTNSW: : TO-5 : 111 : : MAN ;

Response:

SANJOSE-114 95-12-08 15:04:13
M 111 COMPLD
;

This example, tagged as command 111, switches all ports from the protection output card back to TO-5.

COMMAND CODE: RLS-SYNCNSW**PURPOSE****RELEASE SYNCHRONIZATION SWITCH**

This command cancels the OPR-SYNCNSW command and returns to (hardware control) revertive or nonrevertive selection mode as determined by the SET-ATTR-CONT command.

INPUT FORMAT

```
RLS-SYNCNSW: [<tid>]:TO-ALL:<ctag>;
```

EXAMPLE

Input:

```
RLS-SYNCNSW::TO-ALL:134;
```

Response:

```
    SANJOSE-114 95-12-08 15:04:13  
M 134 COMPLD  
;
```

This example, tagged as command 134, puts the system in hardware control mode.

COMMAND CODE: RMV-EQPT

PURPOSE

REMOVE EQUIPMENT

This command removes a card from service into a maintenance state.

INPUT FORMAT

RMV-EQPT:[<tid>]:<aid>:<ctag>;

The parameter values in the table below are as follows:

a = 1-2 b = 1-11 c = 1-12 (1-10 for TOTA-5)

parameter	value	meaning
aid	CLK-a	specified CLK card
	GTI-a	specified GTI card
	LTI-a	specified LTI card
	MRC-a	specified MRC card
	PSM-b	specified PSM card
	TO-c	specified TO card

EXAMPLE

Input:

RMV-EQPT::PSM-5:134;

Response:

SANJOSE-114 1997-12-08 15:04:13
M 134 COMPLD
;

This example, tagged as command 134, removes PSM-5 from service.

COMMAND CODE: RMV-PORT**PURPOSE****REMOVE PORT**

This command removes a port from service, and places it into a maintenance state. When used on a timing output card, this command squelches the output of the removed port.

INPUT FORMAT

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

The parameter values in the table below are as follows:

a	= 1-2	e	= 1-12 (1-10 for TOTA-5)
b	= 1-4 or ALL	f	= 1-10 or ALL
c	= 2-4 (c > b)	g	= 2-10 (g > f)
d	= 1-11		

parameter	value	meaning
aid	MRC-a-b[&&-c]	specified port on specified MRC card
	PSM-d-b[&&-c]	specified port on specified PSM card
	TO-e-f[&&-g]	specified port on specified TO card

EXAMPLE

Input:

```
RMV-PORT::PSM-3-3:133;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13
M 133 COMPLD
;
```

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

COMMAND CODE: RST-EQPT

PURPOSE

RESTORE EQUIPMENT

This command puts a card into service from a maintenance state.

INPUT FORMAT

RST-EQPT:[<tid>]:<aid>:<ctag>;

The parameter values in the table below are as follows:

a = 1-2 b = 1-11 c = 1-12 (1-10 for TOTA-5)

parameter	value	meaning
aid	CLK-a	specified CLK card
	GTI-a	specified GTI card
	LTI-a	specified LTI card
	MRC-a	specified MRC card
	PSM-b	specified PSM card
	TO-c	specified TO card

EXAMPLE

Input:

RST-EQPT::PSM-5:134;

Response:

SANJOSE-114 1997-12-08 15:04:13
M 134 COMPLD
;

This example, tagged as command 134, restores PSM-5 to service.

COMMAND CODE: RST-PORT

PURPOSE

RESTORE PORT

This command puts a port into service from a maintenance state. When used on a timing output card, this command enables (turns on) the output signal for the restored port.

INPUT FORMAT

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

The parameter values in the table below are as follows:

a	= 1-2	e	= 1-12 (1-10 for TOTA-5)
b	= 1-4 or ALL	f	= 1-10 or ALL
c	= 2-4 (c > b)	g	= 2-10 (g > f)
d	= 1-11		

parameter	value	meaning
aid	MRC-a-b[&&-c]	specified port on specified MRC card
	PSM-d-b[&&-c]	specified port on specified PSM card
	TO-e-f[&&-g]	specified port on specified TO card

EXAMPLE

Input:

```
RST-PORT::PSM-5-3:134;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13
M 134 COMPLD
;
```

This example, tagged as command 134, restores span 3 of PSM-5 to service.

COMMAND CODE: RTRV-ALM

PURPOSE

RETRIEVE ALARMS

This command lists all active alarms on any card or port in a system (RTRV-ALM-ALL), specific equipment alarms (RTRV-ALM-EQPT), or specific facilities (RTRV-ALM-PORT). 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.

INPUT FORMAT

RTRV-ALM- { ALL | EQPT | PORT } : [<tid>] : <aid> : <ctag> ;

The following values can be used for the variables in the table below:

- a = 1-2
- b = 1-11
- c = 1-12 (1-10 for TOTA-5)
- d = 1-4 or ALL
- e = 2-4 (e > d)
- f = 1-10 or ALL
- g = 2-10 (g > f)

command	aid
RTRV-ALM-ALL	SHELF
RTRV-ALM-EQPT	CLK-a
	GTI-a
	LTI-a
	MRC-a
	PSM-b
	SHELF
	TO-c
RTRV-ALM-PORT	MRC-a-d[&&-e]
	PSM-b-d[&&-e]
	TO-c-f[&&-g]

COMMAND CODE: RTRV-ALM (Contd)

RESPONSE FORMAT

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

```

    <sid> <date> <time>
M  <ctag> COMPLD
    "<aid>:<ntfcncde>,<condtype>,<srveff>,<ocrdat>,<ocrtm>,,:
                                     <conddescr>," ...
;

```

Refer to Table A and Table F for parameter values.

EXAMPLE

Input:

```
RTRV-ALM-PORT::MRC-1-4:145;
```

Response:

```

SANJOSE-114 1997-12-08 15:04:13
M 145 COMPLD
    "MRC-1-4:MN,FFREQ,NSA,12-07,05:24:03,,/*FRACTIONAL FREQUENCY
                                     THRESHOLD EXCEEDED*/"
;

```

This example, tagged as command 145, retrieves alarms from port 4 of MRC 1. Alarm returned was a minor alarm, nonservice affecting alarm indicating a fractional frequency threshold was exceeded on Dec 7 at 5:24:03 AM.

COMMAND CODE: RTRV-ATTR-CONT

PURPOSE

RETRIEVE ATTRIBUTE CONTROL

This command displays the output protection type for TO-EA cards and the output source selection mode for the shelf.

INPUT FORMAT

RTRV-ATTR-CONT: [<tid>] : <aid> : <ctag> ;

aid	meaning
TO-ALL	output protection type for TO-EA cards (as set by the SET-ATTR-CONT command)
SHELF	output source selection mode (revertive or nonrevertive) for timing output source selection for master and all expansion shelves

OUTPUT FORMAT

```

    <sid> <date> <time>
M <ctag> COMPLD
  "<aid>:<conttype>"
;
    
```

EXAMPLE

Input:

```
RTRV-ATTR-CONT::SHELF:145;
```

Response:

```

SANJOSE-114 1997-12-08 15:04:13
M 145 COMPLD
  "SHELF:RVRT"
;
    
```


COMMAND CODE: RTRV-ATTR-PORT (Contd)

EXAMPLE

```
RTRV-ATTR-PORT::MRC-1-4:153;  
  
SANJOSE-114 1997-02-08 15:04:14  
M 153 COMPLD  
"MRC-1-4:MN,AIS"  
"MRC-1-4:MN,BPV"  
"MRC-1-4:MN,CRC"  
"MRC-1-4:MN,FFREQ"  
"MRC-1-4:MN,LOS"  
"MRC-1-4:MN,OOF"  
  
;
```

This example, tagged as command 153, retrieves the notification code associated with all condition types on port 4 of MRC 1.

COMMAND CODE: RTRV-COM

PURPOSE

RETRIEVE COMMUNICATION

This command displays configuration information for the specified communications ports.

INPUT FORMAT

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

parameter	value	meaning
aid	COM-1	communication port 1 (backplane D connector)
	COM-2	communication port 2 (backplane D connector or front panel RJ connector)
	COM-3	communication port 3 (backplane D connector)
	COM-ALL	all communication ports

RESPONSE FORMAT

```
<sid> <date> <time>
M <ctag> COMPLD
  "<aid>" ...
  /*BAUD=<value>,MONMSG=<value>,KEEPALIVE=<value>,COMTYPE=<value>
    ,ENDOFTEXT=<value>,ECHO=<value>,COMPRI=<value>
    ,HWCONTROL=<value>,SWCONTROL=<value>
    ,DUR=<value> ...*/
;
```

Note: For Software Release 5.02.01, the “,DUR=<value>” parameter will not appear.

parameter	value	meaning
baud	1200	1200 baud
	9600	9600 baud
monmsg	ALW	this port is allowed to view communication messages associated with other communication ports in real-time
	INH	this port is inhibited from viewing communication messages associated with other communication ports in real-time
keepalive	ALW	this port is allowed to autonomously output a COMPLD message every 15 to 20 minutes
	INH	this port is inhibited from autonomously outputting a COMPLD message every 15 to 20 minutes

COMMAND CODE: RTRV-COM (Contd)

RESPONSE FORMAT (Cont)

parameter	value	meaning
comtype	X25	this port is set for PAD
	MODEM	this port is set for modem
	TERM1	dumb terminal (VT100 with no DSR/DTR support and message buffering disabled)
	TERM2	dumb terminal (VT100 with DSR/DTR support and message buffering enabled)
	REMOTE	allows communication with a remote shelf via the specified communication port
endoftext	0-9F	this hexadecimal number sets an additional character as the end-of-text message. 0 indicates no end-of-text message. This character does not replace the TL1 end-of-text terminator (:)
echo	ALW	local echo is allowed on this port
	INH	local echo is inhibited on this port
compri	INH	communication through a port with this designation is inhibited (INH is not allowed on COM2)
	ALW0	allows normal communication; autonomous messages are not sent out a port with this priority level
	ALW1	allows normal communication; autonomous messages are always sent out this port regardless of the priorities of the other ports (this is the highest port priority)
	ALW2	allows normal communication; autonomous messages are sent out this port only if there are no ports with a priority level of ALW1 (this is the second-highest port priority)
	ALW3	allows normal communication; autonomous messages are sent out this port only if there are no ports with a priority level of ALW1 or ALW2 (this is the lowest port priority)
hwcontrol	ALW	external equipment is allowed to stop the DCD system from sending messages by setting the clear to send (CTS) lead low, or continue messages by setting the CTS lead high
	INH	external equipment is inhibited from controlling DCD system messages by manipulation of the clear to send (CTS) lead
swcontrol	ALW	user is allowed to use a Control-s key combination to stop the DCD system from sending messages; also allows the user to use a Control-q key combination to cause the DCD system to continue sending messages
	INH	the use of the Control-s and Control-q key sequences to stop and start messages is inhibited
dur	0-45	time in minutes after which a user is logged off if there is no activity

COMMAND CODE: RTRV-COM (Contd)

EXAMPLE

Input:

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

Response:

```
SANJOSE-114 1997-12-08 16:01:04
M 115 COMPLD
"COM-1"
/*BAUD=9600,MONMSG=ALW,KEEPAIVE=ALW,COMTYPE=TERM1,
ENDOFTEXT=0,ECHO=INH,COMPRI=ALW1,HWCONTROL=INH,
SWCONTROL=INH,DUR=25*/
;
```

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

COMMAND CODE: RTRV-COND

PURPOSE

RETRIEVE CONDITIONS

This command displays the current standing alarms, events, or state associated with one or more specified equipment units or facilities.

INPUT FORMAT

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

The following values can be used for the variables in the table below:

- | | | | | | |
|---|--------------------------|---|---------------|---|----------------|
| a | = 1-2 | d | = 1-4 or ALL | g | = 1-10 or ALL |
| b | = 1-11 or ALL | e | = 2-4 (c > d) | h | = 2-10 (h > g) |
| c | = 1-12 (1-10 for TOTA-5) | f | = 1-11 | | |

command	aid
RTRV-COND-EQPT	CLK-a
	GTI-a
	LTI-a
	MRC-a
	PSM-b
	SHELF
	TO-c
RTRV-COND-PORT	MRC-a-d[&&-e]
	PSM-f-d[&&-e]
	TO-c-g[&&-h]

RESPONSE FORMAT

```

<sid> <date> <time>
M <ctag> COMPLD
  "<aid>:<ntfcncde>,<typerep>,<srveff>,<conddescr>"...
;
    
```

Refer to Table A and Table F for parameter values.

COMMAND CODE: RTRV-COND (Contd)

EXAMPLE

Input:

```
RTRV-COND-PORT::MRC-1-1:113;
```

Response:

```
SANJOSE-114 1997-02-08 15:04:14  
M 113 COMPLD  
"MRC-1-1:NA,BPV,NSA,/*BPV THRESHOLD EXCEEDED*/"  
;
```

This example, tagged as command 113, retrieves the status of port 1 of MRC-1.

COMMAND CODE: RTRV-EQPT

PURPOSE

RETRIEVE EQUIPMENT

This command retrieves framing, trouble code, port severity, oscillator 1 (OSCA) and 2 (OSCB) type, and the alarm integration time information (where applicable).

INPUT FORMAT

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

The parameter values in the table below are as follows:

- a = 1-2
- b = 1-11 or ALL
- c = 1-12 (1-10 for TOTA-5)

parameter	value	meaning
aid	CLK-a	specified CLK card
	GTI-a	specified GTI card
	LTI-a	specified LTI card
	MRC-a	specified MRC card
	PSM-b	specified PSM card
	SHELF	all aids for this command
	TO-c	specified TO card

RESPONSE FORMAT

```

<sid> <date> <time>
M <ctag> COMPLD
  "<aid>:[<framing>],[<troublecode>],[<portseverity>],
                                     [<oscl>],[<osc2>],[<integration>]" ...
;
    
```

COMMAND CODE: RTRV-EQPT (Contd)

RESPONSE FORMAT (Contd)

aid	parameter	value	meaning
CLK-a	framing	(null)	(not applicable)
	troublecode		
	portseverity		
	osc1		
	osc2		
	integration		
GTI-a	framing	CAS	channel assigned sequence
		CAS4	channel assigned sequence with frame aligned sequence with cyclic redundancy check 4
		CRC4	frame alignment sequence framing with cyclic redundancy check 4
		D4	D4 framing format
		ESF	ESF framing format
		FAS	frame alignment sequence framing
	troublecode	INH	all outputs are squelched when card has major alarm
		ALW	AIS is sent on all outputs when card has major alarm
	portseverity	(null)	(not applicable)
	osc1	RB	oscillator 1 (OSC A) is rubidium clock
		QTZ	oscillator 1 (OSC A) is quartz clock
	osc2	RB	oscillator 2 (OSC B) is rubidium clock
		QTZ	oscillator 2 (OSC B) is quartz clock
	integration	1	see Table E
		2	see Table E
		3	see Table E
4		see Table E	
LTI-a	framing	(null)	(not applicable)
	troublecode		
	portseverity		
	osc1		
	osc2		
	integration		

COMMAND CODE: RTRV-EQPT (Contd)

RESPONSE FORMAT (Contd)

aid	parameter	value	meaning
MRC-a	framing	(null)	(not applicable)
	troublecode		
	portseverity		
	osc1	RB	oscillator 1 (OSCA) is rubidium clock
		QTZ	oscillator 1 (OSCA) is quartz clock
		NONE	oscillator 1 (OSCA) is not equipped
	osc2	RB	oscillator 2 (OSCB) is rubidium clock
		QTZ	oscillator 2 (OSCB) is quartz clock
		NONE	oscillator 2 (OSCB) is not equipped
	integration	(null)	(not applicable)
PSM -b	framing	(null)	(not applicable)
	troublecode		
	portseverity		
	osc1		
	osc2		
	integration		
TO-c	framing	CAS	channel assigned sequence
		CAS4	channel assigned sequence with frame aligned sequence with cyclic redundancy check 4
		CRC4	frame alignment sequence framing with cyclic redundancy check 4
		D4	D4 framing format
		ESF	ESF framing format
		FAS	frame alignment sequence framing
	troublecode	INH	all outputs are squelched upon card failure
		ALW	AIS is sent on all outputs upon card failure
	portseverity	MJ	port failure causes major alarm
		MN	port failure causes minor alarm
	osc1	(null)	(not applicable)
	osc2		
	integration		

COMMAND CODE: RTRV-EQPT (Contd)

EXAMPLE

Input:

```
RTRV-EQPT::TO-5:134;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13  
M 134 COMPLD  
"TO-5:FAS,INH,MN,,,;
```

This example, tagged as command 134, displays port 5 of timing output card 5 as: framing = FAS, all outputs will be squelched upon card failure, and a minor alarm will be generated upon port failure.

COMMAND CODE: RTRV-GPS-STAT

PURPOSE

RETRIEVE GPS STATISTICS

This command displays the operating statistics of the GPS. This command may take up to 40 seconds to execute.

INPUT FORMAT

RTRV-GPS-STAT: [<tid>] : <aid> : <ctag> ;

The parameter values in the table below are as follows:

a = 1-2 or ALL

aid	meaning
GTI-a	specified GTI card

RESPONSE FORMAT

```

    <sid> <date> <time>
M <ctag> COMPLD
"<aid>"
/*
UTC-TIME=a,
LOCATION=b,
SAT-IN-VIEW=c,
[SAT-d=e], ...
GTIMDEV=f,
OSC1FFREQ=g,
OSC2FFREQ=h
*/
;
    
```

Note: The system occasionally returns an SARB error message in response to the RTRV-GPS-STAT command. If this occurs, repeat the command.

COMMAND CODE: RTRV-GPS-STAT

RESPONSE FORMAT (Contd)

variable	meaning
a	universal coordinated time (hours:minutes:seconds)
b	format is ddm-mmm-x-dddmm.mmm-y-aa where ddm-mmm-x is latitude, dddmm.mmm-y is longitude, and aa is altitude (d = degrees, m = minutes, x = N or S, y = E or W, aa is in meters)
c	number of satellites in view
d	satellite number
e	format is d1-d2-sn where d1 = satellite azimuth (degrees relative to true north), d2 = elevation (degrees), and sn = signal-to-noise ratio (dB)
f	GTI modified Allen deviation
g	oscillator 1 fractional frequency
h	oscillator 2 fractional frequency

EXAMPLE

Input:

```
RTRV-GPS-STAT::GTI-1:136;
```

Response:

```
SANJOSE-114 1997-02-08 15:04:14
M 136 COMPLD
"GTI-1"
/*
UTC-TIME=02:04:14,
LOCATION=3724.510-N-12156.866-W-111,
SAT-IN-VIEW=4,
SAT-2=343-71-47,
SAT-7=189-51-46,
SAT-15=76-14-41,
SAT-19=117-23-43,
GTIMDEV=30E-12,
OSC1FFREQ=-21-E9,
OCS2FFREQ=-3873E-12
*/
;
```

This example, tagged as command 136, requests the statistics for GTI 1.

COMMAND CODE: RTRV-HDR**PURPOSE****RETRIEVE HEADER**

This command can be used to verify that the system is operating correctly. If the response is returned, the cable, MIS, and communications link are operating correctly; and the sid, date, and time can be verified.

INPUT FORMAT

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

shelf	= shelf to which the command is directed:
(null)	= master shelf
E1	= expansion shelf 1
E2	= expansion shelf 2
E3	= expansion shelf 3 (or remote shelf if equipped with a remote shelf instead of an expansion shelf 3)

EXAMPLE

Input:

RTRV-HDR:::114;

Response:

```
SANJOSE-121 1997-12-08 15:04:13
M 114 COMPLD
;
```

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

COMMAND CODE: RTRV-INVENTORY**PURPOSE****RETRIEVE INVENTORY**

This command displays the following information about standard cards: card name, card type, part number, CLEI code, serial number, hardware revision, software revision, and software version. For non-standard cards, information that was entered with the ENT-INVENTORY command is displayed.

For standard cards, a null in all fields of the response means that the slot is empty. For nonstandard cards, a null in all fields of the response means that no card information has been entered for that slot using the ENT-INVENTORY command.

INPUT FORMAT

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

The parameter values in the table below are as follows:

a = 1-2 or ALL b = 1-12 or ALL

parameter	value	meaning
aid	ADMIN	MIS card slot
	CLOCK-a	clock slot
	INPUT-a	input slot
	OUTPUT-b	output slot (used for timing output cards, monitoring cards, and clock insertion cards)
	PROT	protection controller slot
	PRS-a	LPR shelf
	SHELF	all aids

COMMAND CODE: RTRV-INVENTORY (Contd)

RESPONSE FORMAT

For MIS card:

```

    <sid> <date> <time>
M <ctag> COMPLD
  "<aid>"
  /*
  CARD=<value>,
  TYPE=<value>,
  PART=<value>,
  CLEI=<value>,
  SERIAL=<value>,
  HARDREV=<value>,
  LOW_BANK_SW=<value>:
    SOFTREV=<value>,
    SOFTVER=<value>,
  HI_BANK_SW=<value>:
    SOFTREV=<value>,
    SOFTVER=<value>
  */
;

```

For cards other than MIS:

```

    <sid> <date> <time>
M <ctag> COMPLD
  "<aid>"
  /*
  CARD=<value>,
  TYPE=<value>,
  PART=<value>,
  CLEI=<value>,
  SERIAL=<value>,
  HARDREV=<value>,
  SOFTREV=<value>,
  SOFTVER=<value>
  */
;

```

COMMAND CODE: RTRV-INVENTORY (Contd)

EXAMPLE

Input:

```
RTRV-INVENTORY::ADMIN:114;
```

Response:

```
SANJOSE-121 1997-12-08 15:04:13
M 114 COMPLD
"ADMIN"
/*
CARD=MIS-5,
TYPE=STD,
PART=090-45018-05,
CLEI=D0CPBC15AA,
SERIAL=E18951,
HARDREV=6.02.01,
LOW_BANK_SW=ACTIVE:
    SOFTREV=M,
    SOFTVER=5.02.01,
HI_BANK_SW=INACTIVE:
    SOFTREV=N,
    SOFTVER=5.03.01
*/
;
```

This example, tagged as command 114, requests the inventory information for the card in the ADMIN slot. The ADMIN card can contain two programs, one in the low-bank program location and one in the high-bank program location, with either one active. An empty location would be indicated by SOFTREV=NONE and SOFTVER=NONE for that program location.

COMMAND CODE: RTRV-LOG

PURPOSE

RETRIEVE LOG

This command displays all alarmed and non-alarmed events in the system message log. RTRV-LOG does not clear the messages. Up to 256 messages can be stored in the log. (See INIT-LOG to clear the system message log.)

INPUT FORMAT

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

shelf	= shelf to which the command is directed:
(null)	= master shelf
E1	= expansion shelf 1
E2	= expansion shelf 2
E3	= expansion shelf 3 (or remote shelf if equipped with a remote shelf instead of an expansion shelf 3)

RESPONSE FORMAT

```
<sid> <date> <time>
M <ctag> COMPLD
  "LOG"
  /*
  "<date> <time> "
  "<sid>:<ocrdat> <ocrtm> <aid>:<ntfcncde>,<condtype>,<srveff>:
                                     /* <conddescr> */" ...
  "<sid>:<ocrdat> <ocrtm> <aid>:<condtype>,<condeff>:
                                     /* <conddescr> */" ...
  */
;
```

Notes:

1. The line shown as "<date> <time> " in the response format will show an arbitrary date and time when the RTRV-LOG command is used without having ever used the INIT-LOG command. After the INIT-LOG command has been used, that line will appear as follows:

```
"<date> <time> INIT-LOG:::<ctag>::LOG"
```

2. The next-to-the-last line in the response format (begins with "<sid>") is the format for an alarm in the log.
3. The last line in the response format (also begins with "<sid>") is the format for an event in the log.

COMMAND CODE: RTRV-LOG (Contd)

EXAMPLE

Input:

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

Response:

```
SANJOSE-114 1998-01-08 16:11:28
M 115 COMPLD
"LOG"
/*
"1998-01-07 11:06:42 INIT-LOG:::1::LOG"
"SANJOSE-114:1998-01-18 16:35:26 PSM-1-4:MN,OOF,NSA:
/* OOF DETECTED */"
"SANJOSE-114:1998-01-18 16:41:34 CLK-1:ACTIVE,SC:
/* CLOCK IS SUPPLYING SIGNAL */"
*/
;
```

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

COMMAND CODE: RTRV-PM-PORT

PURPOSE

RETRIEVE PERFORMANCE MONITORING PORT

This command displays the current set of PM data for one or more facilities. The PM data may be used to examine events that are not reported by automatic messages, or to evaluate the system after maintenance operations. PM data is retrieved from the specified time period to the current time period.

INPUT FORMAT

RTRV-PM-PORT: [<tid>] : <aid> : <ctag> : : <montype> , , , , [<mondatt>]
 [, <montm1> | , <montm2>] ;

The output parameter values in the table below are as follows:

a = 1-2 b = 1-4 c = 1-11

aid	parameter	value	meaning
MRC-a-b	montype	ALL	all montypes for this <aid>
		BPV	bipolar violations
		CRC	cyclic redundancy check errors
	mondatt	(null)	current day
	montm1	(null)	current time

COMMAND CODE: RTRV-PM-PORT (Contd)

INPUT FORMAT (Contd)

aid	parameter	value	meaning
PSM-c-b	montype	SLIPS	number of slips since the previous midnight (use with mondat and montm1 = null)
		BPV	15-minute bipolar violation counts (used with montm2)
		CRC	15-minute cyclic redundancy check error counts (used with montm2)
		MTIE	900-second MTIE accumulated between monitor time 2 and 1 hour after montm2 (units of measure for MTIE are nanoseconds)
		TDEV	128-second TDEV accumulated between monitor time 2 and 1 hour after montm2 (units of measure for TDEV are nanoseconds)
		PHASE1M	1-minute average phase accumulated between monitor time 2 and 1 hour after montm2 (units of measure for PHASE1M are nanoseconds)
	mondat	(null)	current day
		mm-dd	month-day (mm = 1-12, dd = 1-31)
	montm1	(null)	current time
	montm2	hh-00	hh = 00-23 (hour of the day)
		hh-15	15 minutes past hour hh
		hh-30	30 minutes past hour hh
		hh-45	45 minutes past hour hh

Notes:

1. BPVs and CRCs are reported in 15-minute bins and can be retrieved for the past 24 hours. Each 15-minute bin is reinitialized to zero counts at the start of each 15-minute bin.
2. The time specified in montm2 is the start of a 15-minute period.
3. If the start time to the present time is less than 1 hour, only full 15-minute periods will be displayed.

RESPONSE FORMAT

For SLIPS and PHASE1M:

```

<sid> <date> <time>
M <ctag> COMPLD
  "<aid>:<montype>,<monval>,,,,,<mondat>,<montm>"...
;

```

For BPV and CRC:

```

<sid> <date> <time>
M <ctag> COMPLD
  "<aid>:<montype>,<monval>,<vldty>,,,,,<mondat>,<montm>"...
;

```

COMMAND CODE: RTRV-PM-PORT (Contd)

RESPONSE FORMAT (Contd)

For MTIE and TDEV:

```

    <sid> <date> <time>
M <ctag> COMPLD
    "<aid>:<montype>,<monval-1>,<vldty-1>,<monval-2>,<vldty-2>
        ,<monval-3>,<vldty-3>,<monval-4>,<vldty-4>
        ,,,,<mondatt>,<montm>"...
;

```

Each line displays one hour of data. The four monvals and corresponding four vldtys are for the four 15-minute periods following the montm shown at the end of each line. The -1, -2, -3, and -4 indicate the first, second, third, and fourth 15-minute period after the montm shown at the end of the line.

EXAMPLE

For SLIPS (PHASE1M will appear similarly):

Input:

```
RTRV-PM-PORT::PSM-1-4:141::SLIPS,,,,,;
```

Response:

```

TOP523 1997-09-06 13:47:09
M 141 COMPLD
    "PSM-1-4:SLIPS,2,,,,,1997-09-06,13:45:00"
;

```

The above example, tagged as command 141, retrieves the number of slips accumulated between the previous midnight and 1:45 PM on Sept. 6, 1997 for port 4 of PSM-1.

COMMAND CODE: RTRV-PM-PORT (Contd)

EXAMPLE

For BPV (CRC will appear similarly):

Input:

```
RTRV-PM-PORT::PSM-1-4:141::BPV,,,,,12-45;
```

Response:

```
TOP523 1997-09-06 13:37:09
M 141 COMPLD
"PSM-1-4:BPV,3,,,,,1997-09-06,12:45:00"
"PSM-1-4:BPV,0,,,,,1997-09-06,13:00:00"
"PSM-1-4:BPV,0,,,,,1997-09-06,13:15:00"
"PSM-1-4:BPV,2,P,,,,,1997-09-06,13:30:00"
;
```

The above example, tagged as command 141, retrieves the bipolar violation performance monitoring data for port 4 of PSM-1 for 1 hour after 12:45 PM on Sept. 6, 1997. (The times shown are the beginning time of the 15-minute accumulation period, hence 12:45 indicates the interval from 12:45 to 13:00.)

Note: The first 15-minute period shows that 3 BPVs were counted, the second and third 15-minute periods show no BPVs, and the fourth 15-minute period shows 2 BPVs. Because the fourth period was not a complete 15-minute period, the data shown is only partially (P) complete.

COMMAND CODE: RTRV-PM-PORT (Contd)

EXAMPLE

For MTIE (TDEV will appear similarly):

Input:

```
RTRV-PM-PORT::PSM-1-4:141::MTIE,,,,,12-00;
```

Response:

```

TOP523 1997-09-06 13:47:09
M 141 COMPLD
"PSM-1-4:MTIE1,3,,2,,2,,2,,,,,1997-09-06,12:00:00"
"PSM-1-4:MTIE4,6,,4,,4,,5,,,,,1997-09-06,12:00:00"
"PSM-1-4:MTIE16,7,,5,,5,,7,,,,,1997-09-06,12:00:00"
"PSM-1-4:MTIE64,7,,8,,9,,8,,,,,1997-09-06,12:00:00"
"PSM-1-4:MTIE128,10,,8,,9,,9,,,,,1997-09-06,12:00:00"
"PSM-1-4:MTIE512,13,,9,,10,,12,,,,,1997-09-06,12:00:00"
"PSM-1-4:MTIE900,16,,10,,10,,12,,,,,1997-09-06,12:00:00"
;
```

The above example, tagged as command 141, retrieves the MTIE performance monitoring data for port 4 of PSM-1 for 1 hour after 12:00 PM on Sept. 6, 1997.

COMMAND CODE: RTRV-PORT

PURPOSE

RETRIEVE PORT

This command displays the framing, priority, reference type, and signal type for a port.

INPUT FORMAT

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

The parameter values in the table below are as follows:

a	= 1-2	e	= 1-12 (1-10 for TOTA-5)
b	= 1-4 or ALL	f	= 1-10 or ALL
c	= 2-4 (c > b)	g	= 2-10 (g > f)
d	= 1-11		

aid	meaning
MRC-a-b[&&-c]	specified port(s) on specified MRC card
PSM-d-b[&&-c]	specified port(s) on specified PSM card
TO-e-f[&&-g]	specified output(s) on the specified timing output card

RESPONSE FORMAT

```
<sid> <date> <time>
M <ctag> COMPLD
  "<aid>:<framing>,<priority>,<reference type>,"
                                     <signal type>" ...
;
```

Note: If the framing type has never been set for a port on an MRC or PSM card, the retrieved framing type for that port will indicate AUTO. If this occurs, use the ENT-PORT command (if the port has not been entered) or the ED-PORT command (if the port has been entered) to set the framing type for the specified port.

COMMAND CODE: RTRV-PORT (Contd)

RESPONSE FORMAT (Contd)

aid	parameter	value	meaning
MRC-a-b	framing	AUTO	port automatically frames to incoming signal (see note previous page)
		CAS	channel assigned sequence
		CAS4	channel assigned sequence with frame aligned sequence with cyclic redundancy check 4
		CRC4	frame alignment sequence framing with cyclic redundancy check 4
		D4	D4 framing format
		ESF	ESF framing format
		FAS	frame alignment sequence framing
	priority	1-4	priority of the reference, 1 is highest priority
	reference type	GPS	global positioning system reference
		LORAN	LORAN reference
		CEISIUM	cesium reference
		NETWORK	network reference
	signal type	ANALOG	analog signal
DIGITAL		digital signal	
PSM-d-b	framing	AUTO	port automatically frames to incoming signal (see note previous page)
		CAS	channel assigned sequence
		CAS4	channel assigned sequence with frame aligned sequence with cyclic redundancy check 4
		CRC4	frame alignment sequence framing with cyclic redundancy check 4
		D4	D4 framing format
		ESF	ESF framing format
		FAS	frame alignment sequence framing
	priority	(null)	(not applicable)
	reference type	(null)	(not applicable)
	signal type	ANALOG	analog signal
DIGITAL		digital signal	
TO-e-f	framing	(null)	(not applicable)
	priority		
	reference type		
	signal type	ANALOG	analog signal
		DIGITAL	digital signal

COMMAND CODE: RTRV-PORT (Contd)

EXAMPLE

```
RTRV-PORT::MRC-1-2:154;  
  
SANJOSE-114 1997-02-08 15:04:14  
M 154 COMPLD  
"MRC-1-2:FAS,1,GPS,DIGITAL"  
;
```

This example, tagged as command 154, displays the port parameters for span 2 of MRC-1.

COMMAND CODE: RTRV-REPTMODE-PORT

PURPOSE

RETRIEVE REPORT MODE PORT

This command displays the message type (REPT-ALM-PORT or REPT-ALM-EQPT) used to report autonomous port-alarm messages.

Note: This command is not supported in software release 5.02.01.

INPUT FORMAT

RTRV-REPTMODE-PORT:[<tid>]::<ctag>;

OUTPUT FORMAT

```

    <sid> <date> <time>
M <ctag> COMPLD
  "REPTMODE: <modetype>"
;
    
```

parameter	value	meaning
modetype	ALW	automatic port-alarm messages are reported as a REPT-ALM-PORT messages
	INH	automatic port-alarm messages are reported as a REPT-ALM-EQPT messages

Note: Automatic equipment-alarm messages are always reported as REPT-ALM-EQPT messages.

EXAMPLE

Input:

RTRV-REPTMODE-PORT:::119;

Response:

```

    SANJOSE-114 1997-12-08 15:04:13
M 119 COMPLD
  "REPTMODE: ALW"
;
    
```

This example, tagged as command 119, shows that automatic port-alarm messages will be reported as REPT-ALM-PORT messages.

COMMAND CODE: RTRV-TH-PORT

PURPOSE

RETRIEVE THRESHOLD PORT

This command 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.

INPUT FORMAT

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

The parameter values in the table below are as follows:

- a = 1-2
- b = 1-4 or ALL
- c = 2-4 (c > b)
- d = 1-11

aid	montype	meaning
MRC-a-b[&&-c]	ALL	all montypes for this <aid>
	BPV	bipolar violations
	CRC	cyclic redundancy check errors
PSM-d-b[&&-c]	ALL	all montypes for this <aid>
	BPV	bipolar violations
	CRC	cyclic redundancy check errors
	MTIE1	1 second threshold
	MTIE4	4 second threshold
	MTIE16	16 second threshold
	MTIE64	64 second threshold
	MTIE128	128 second threshold
	MTIE512	512 second threshold
	MTIE900	900 second threshold
	TDEV1	1 second threshold
	TDEV4	4 second threshold
	TDEV16	16 second threshold
	TDEV64	64 second threshold
TDEV128	128 second threshold	

COMMAND CODE: RTRV-TH-PORT (Contd)

RESPONSE FORMAT

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

thlev	meaning
0-32767	threshold level in decimal numerals

Note for BPV and CRC: Only in-service (restored) ports are sampled; therefore, the BPV or CRC counts displayed correspond to a particular error rate depending on the number of in-service ports. Find the BPV count in one of the tables below that is closest to the displayed BPV or CRC count and in the column which represents the number of ports in service, then follow across to the corresponding error rate. Because the ports are sampled in turn, there is some amount of settling time for the framing circuit. This settling time causes an error of ±4% in the specified error rate. The observation interval is 15 minutes. If an MRC or PSM card has only one port active, no sampling occurs.

Error Rate	BPV or CRC counts for a T1 signal			
	1 port in service	2 ports in service	3 ports in service	4 ports in service
1 x 10 ⁻⁸	14	7	5	4
1 x 10 ⁻⁷	139	70	46	35
1 x 10 ⁻⁶	1390	695	464	348
1 x 10 ⁻⁵	13896	6948	4632	3474
2.35 x 10 ⁻⁵	32767	16384	10922	8192

Error Rate	BPV or CRC counts for an E1 signal			
	1 port in service	2 ports in service	3 ports in service	4 ports in service
1 x 10 ⁻⁸	18	9	6	4
1 x 10 ⁻⁷	184	92	61	46
1 x 10 ⁻⁶	1843	922	614	461
1 x 10 ⁻⁵	18432	9216	6144	4608
2.35 x 10 ⁻⁵	32767	16384	10922	8192

COMMAND CODE: RTRV-TH-PORT (Contd)

EXAMPLE

Input:

```
RTRV-TH-PORT::MRC-1-ALL:136::BPV;
```

Response:

```
SANJOSE-114 1997-02-08 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"  
;
```

COMMAND CODE: RTRV-USER-SECU

PURPOSE

RETRIEVE USER SECURITY

This command displays the access level for a single user or all users.

INPUT FORMAT

RTRV-USER-SECU: [<tid>] : <uid> : <ctag> ;

parameter	value	meaning
uid	user name	a single user
	ALL	all users

RESPONSE FORMAT

```

<sid> <date> <time>
M <ctag> RTRV
  "<uid>: , <uap>" ...
;
    
```

parameter	meaning
uap	user access level

EXAMPLE

Input:

```
RTRV-USER-SECU: :BIG:155;
```

Response:

```

SANJOSE-114 1997-12-08 15:04:13
M 155 RTRV
  "BIG: , 4"
;
    
```

This example, tagged as command 155, displays the user access level of 4 for user BIG.

COMMAND CODE: SET-ATTR-CONT

PURPOSE

SET ATTRIBUTE CONTROL

This command sets the protection control preferences.

1. Output protection type (TO-EA5 only):

- a. No protection
- b. 1-for-1 protection: one timing output card in an even-numbered slot is a standby for one timing output card of the same type in an odd-numbered slot (outputs of standby timing output card are off until working card fails)
- c. 1-plus-1 protection: one timing output card in an even-numbered slot is a hot standby for one timing output card of the same type in an odd-numbered slot (the outputs of both cards are always active)

2. Output source selection mode:

This option sets the timing output source selection mode (revertive or nonrevertive) which determines how the timing output cards select which internal synchronization source to use. This applies to the four sources in the pairs shown below.

Revertive mode: The highest available source is always used.

1st choice:	clock card 1
2nd choice:	clock card 2
3rd choice:	input card 1
4th choice:	input card 2

- If any of the above sources fail, the next available source is used.
- If a higher source is fixed, the system uses that higher source.

Nonrevertive mode: Within the pairs shown below, sources are nonrevertive; between pairs, sources are revertive.

<u>1st pair</u>	<u>2nd pair</u>
clock card 1	input card 1
clock card 2	input card 2

- If clock card 1 fails, clock card 2 will be used.
- If clock card 1 is fixed, clock card 2 continues to be used (nonrevertive).
- If both clock cards fail, input card 1 is used.
- If input card 1 fails, input card 2 is used.
- If input card 1 is fixed, input card 2 continues to be used (nonrevertive).
- If either of the input cards are being used and any clock card is fixed, that clock card will be used.

COMMAND CODE: SET-ATTR-CONT (Contd)

INPUT FORMAT

SET-ATTR-CONT: [<tid>] : <aid> : <ctag> : : <conttype> ;

The parameter values in the table below are as follows:

a = 1-12

Note: When configuring cards for 1-for-1 or 1-plus-1, both the odd and even slots must be configured identically. The SET-ATTR-CONT command must be issued to each card of the pair, otherwise a data-base mismatch will occur. The 1-for-1 or 1-plus-1 pairing is shelf dependent as follows:

- DCD-519 Master: 2 and 3, 4 and 5, 11 and 12
- DCD-519 Expansion: 1 and 2, 3 and 4, 5 and 6, 7 and 8, 9 and 10, 11 and 12
- DCD-521 Master or Expansion: 1 and 2, 3 and 4, 5 and 6, 7 and 8
- DCD-523 Master or Expansion: 1 and 2, 3 and 4, 5 and 6, 7 and 8, 9 and 10, 11 and 12

aid	conttype	meaning
TO-a	NO	no protection
	1-1	1-for-1 protection
	1+1	1-plus-1 protection
SHELF	RVRT	revertive
	NRVRT	nonrevertive

EXAMPLE

Input:

SET-ATTR-CONT::SHELF:140::1-1;

Response:

SANJOSE-114 1997-12-08 15:04:13
M 140 COMPLD
;

This example, tagged as command 140, sets the timing output cards for 1-for-1 protection.

COMMAND CODE: SET-ATTR-PORT

PURPOSE

SET ATTRIBUTE PORT

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. Non-alarmed events are reported automatically by the REPORT EVT message.

INPUT FORMAT

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

If a parameter is not entered (field left blank), that parameter remains with factory settings. The parameter values in the table below are as follows:

a = 1-2

b = 1-4 or ALL

c = 2-4 (c > b)

d = 1-11

aid	ntfcncde	condtype	meaning
MRC-a-b[&&-c]	CR, MJ, MN, NA, or NR	AIS	alarm indication signal
		BPV	bipolar violations
		CRC	cyclic redundancy check errors
		FFREQ	fractional frequency threshold exceeded
		LOS	loss of signal
		OOF	out of frame errors
		ALL	all condtypes

COMMAND CODE: SET-ATTR-PORT (Contd)

INPUT FORMAT

aid	ntfcncde	condtype	meaning
PSM-d-b[&&-c]	CR, MJ, MN, NA, or NR	AIS	alarm indication signal
		ALL	all condtypes
		BPV	bipolar violations
		CRC	cyclic redundancy check errors
		LOS	loss of signal
		MTIE1	1 second threshold
		MTIE4	4 second threshold
		MTIE16	16 second threshold
		MTIE64	64 second threshold
		MTIE128	128 second threshold
		MTIE512	512 second threshold
		MTIE900	900 second threshold
		TDEV1	1 second threshold
		TDEV4	4 second threshold
		TDEV16	16 second threshold
TDEV64	64 second threshold		
TDEV128	128 second threshold		

EXAMPLE

Input:

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

Response:

```
SANJOSE-114 1997-12-08 15:04:13
M 137 COMPLD
;
```

This example, tagged as command 137, sets the alarm indication signal to a major alarm on span 4 of MRC 1.

COMMAND CODE: SET-REPTMODE-PORT

PURPOSE

SET REPORT MODE PORT

This command sets the message type (REPT-ALM-PORT or REPT-ALM-EQPT) used to report autonomous port-alarm messages.

Note: This command is not supported in software release 5.02.01.

INPUT FORMAT

```
SET-REPTMODE-PORT: [<tid>]::<ctag>::<modetype>;
```

parameter	value	meaning
modetype	ALW	automatic port-alarm messages are reported as REPT-ALM-PORT messages
	INH	automatic port-alarm messages are reported as REPT-ALM-EQPT messages

Note: Automatic equipment-alarm messages are always reported as REPT-ALM-EQPT messages.

EXAMPLE

Input:

```
SET-REPTMODE-PORT:::119::ALW;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13
M 119 COMPLD
;
```

This example, tagged as command 119, sets automatic port-alarm messages to be reported as REPT-ALM-PORT messages.

COMMAND CODE: SET-SID**PURPOSE****SET SOURCE IDENTIFIER**

This command changes the system identification, or source identifier. The <tid> in an input command is the <sid> of the target system. The <sid> is included in every response sent by the system. The <sid> can be up to 20 characters and is case sensitive.

INPUT FORMAT

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

Caution: The letter/number combinations “NO”, “E1”, “E2”, and “E3” cannot be entered *alone* in any field in this command. These combinations can be used if additional characters are entered before or after these combinations.

EXAMPLE

Input:

```
SET-SID:::119::SANJOSE-114;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13  
M 119 COMPLD  
;
```

This example, tagged as command 119, sets the sid as SANJOSE-114.

COMMAND CODE: SET-TH-PORT

PURPOSE

SET THRESHOLD PORT

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.

INPUT FORMAT

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

The parameter values in the table below are as follows:

a = 1-2 b = 1-4 or ALL c = 2-4 (c > b) d = 1-11

aid	montype	thlev	meaning
MRC-a-b[&&-c]	BPV	0-32767	bipolar violations (see note below)
	CRC		cyclic redundancy check errors

Note: Only in-service (restored) ports are sampled; therefore, the BPV or CRC counts entered to obtain a desired error rate depends on the number of in-service ports. Enter a BPV or CRC count from the table below based on the desired error rate and the number of ports in service as the <thlev> parameter in the command.

Error Rate	BPV or CRC counts for a T1 signal			
	1 port in service	2 ports in service	3 ports in service	4 ports in service
1×10^{-8}	14	7	5	4
1×10^{-7}	139	70	46	35
1×10^{-6}	1390	695	464	348
1×10^{-5}	13896	6948	4632	3474
2.35×10^{-5}	32767	16384	10922	8192

COMMAND CODE: SET-TH-PORT (Contd)

INPUT FORMAT (Contd)

Error Rate	BPV or CRC counts for an E1 signal			
	1 port in service	2 ports in service	3 ports in service	4 ports in service
1 x 10 ⁻⁸	18	9	6	4
1 x 10 ⁻⁷	184	92	61	46
1 x 10 ⁻⁶	1843	922	614	461
1 x 10 ⁻⁵	18432	9216	6144	4608
2.35 x 10 ⁻⁵	32767	16384	10922	8192

Because the ports are sampled in turn, there is some amount of settling time for the framing circuit. This settling time causes an error of ±4% in the specified error rate. The observation interval is 15 minutes. If an MRC or PSM card has only one port active, no sampling occurs.

aid	montype	thlev	meaning
PSM-d-b[&&-c]	BPV	0-32767	bipolar violations
	CRC		cyclic redundancy check errors
	MTIE1		1 second threshold
	MTIE4		4 second threshold
	MTIE16		16 second threshold
	MTIE64		64 second threshold
	MTIE128		128 second threshold
	MTIE512		512 second threshold
	MTIE900		900 second threshold
	TDEV1		1 second threshold
	TDEV4		4 second threshold
	TDEV16		16 second threshold
	TDEV64		64 second threshold
	TDEV128		128 second threshold

COMMAND CODE: SET-TH-PORT (Contd)

EXAMPLE

Input:

```
SET-TH-PORT::MRC-1-3:135::CRC,20;
```

Response:

```
SANJOSE-114 1997-12-08 15:04:13  
M 135 COMPLD  
;
```

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

6. AUTONOMOUS MESSAGES

6.01 The autonomous messages that can be issued are listed on the following pages. Each message starts on a separate page with the purpose describing what the message displays.

6.02 The message format shows how the message is formatted and explains the parameters. An example message is provided.

7. ALARMS & EVENTS

7.01 Table F is a summary of the alarms and events which may occur. The aid, condtype, and conddescr are listed for each alarm/event.

8. COMMAND DIFFERENCES

8.01 Table G lists the commands used with MIS card 090-4x018-05 compared to the commands used with MIS card 090-4x018-04. The correlation between the two sets of commands is not exactly one-for-one because some parameters were not settable in earlier versions, the function of two commands was combined into one, etc.

COMMAND CODE: REPT ALM

PURPOSE

REPORT ALARM

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

MESSAGE FORMAT

```

<sid> <date> <time>
<almcde> <atag> REPT ALM {EQPT|PORT}
  "<aid>:<ntfcncde>,<condtype>,<srveff>,<ocrdat>,<ocrtm>:
                                     /* <conddescr> */" ...
;

```

Note: All the parameters between the quotation marks will appear on a single line (the parameters are shown on two lines here due to space restrictions). Refer to Table A and Table F for parameter values.

EXAMPLE

```

SANJOSE-114 1997-12-08 15:41:32
* 14 REPT ALM EQPT
  "CLK-1:MN,HOLDOVER,NSA,1998-03-07,01:32:47:
                                     /* CLOCK IN HOLDOVER */"
;

```

This example, tagged as automatic message 14, shows that clock 1 has a minor alarm, the clock is in holdover, service is not affected, and that the problem occurred at 1:32:47 AM on Mar 7, 1998.

COMMAND CODE: REPT EVT

PURPOSE

REPORT EVENT

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>
A  <atag> REPT EVT {EQPT|PORT}
    "<aid>:<condtype>,<condeff>,<ocrdat>,<ocrtm>:
                                           /* <conddescr> */" ...
    ;

```

Note: All the parameters between the quotation marks will appear on a single line (the parameters are shown on two lines here due to space restrictions). Refer to Table A and Table F for parameter values.

EXAMPLE

```

    SANJOSE-114 1997-12-08 15:41:32
A  2 REPT EVT PORT
    "MRC-1-4:LOS,SC,12-06,04-22-45:
                                           /* REFERENCE INPUT SIGNAL LOSS */"
    ;

```

This example, tagged as automatic message 2, shows that a standing condition has been raised because of a loss of an external input to port 4 of MRC 1 which occurred on Dec 6 at 4:22:45 AM.

Table F. Alarm/Event Summary

<aid>	<condtype>	<conddescr>	Severity						
<p>Notes:</p> <p>1. The severities in this table are defined as follows:</p> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">MN = minor alarm</td> <td style="width: 50%;">SC = standing condition</td> </tr> <tr> <td>MJ = major alarm</td> <td>TC = transient condition</td> </tr> <tr> <td>NA = not alarmed</td> <td></td> </tr> </table> <p>2. Up to 6 minutes may be required to detect and report an unequipped condition (UNEQUIPPED: IMPROPER CARD REMOVAL OR COMM FAILURE) from a GTI or an LTI card. This condition may be caused by card removal, cable removal, or loss of power to the LPR shelf.</p> <p>3. An asterisk (*) next to a severity indicates the following:</p> <ul style="list-style-type: none"> • The severity can be changed using the SET-ATTR-PORT command • The severity shown is the factory setting 				MN = minor alarm	SC = standing condition	MJ = major alarm	TC = transient condition	NA = not alarmed	
MN = minor alarm	SC = standing condition								
MJ = major alarm	TC = transient condition								
NA = not alarmed									
CLK-x (x = 1-2)	ACTIVE	CLOCK IS SUPPLYING SIGNAL	SC						
	DRIFT	INPUT IS DRIFTING	MN						
	FREERUN	CLOCK FREERUNNING	SC						
	HOLDOVER	CLOCK IN HOLDOVER	MN						
	INACTIVE	CLOCK IS NOT SUPPLYING SIGNAL	SC						
	LOCKED	CLOCK CONVERGED ON REFERENCE INPUT	SC						
	NOT-LOCKED	CLOCK NOT CONVERGED ON REFERENCE INPUT	SC						
	TOLERANCE	SYSTEM INPUT TO CLOCK OUT OF TOLERANCE	MN						
GTI-x (x = 1-2)	ACQUIRED	ACQUIRED AT LEAST ONE SATELLITE	SC						
	CONVERGING	TIMING SIGNAL NOT YET STABLE	SC						
	FAIL	CARD FAULT: REFERENCE PLL OUT OF LOCK	MJ						
	FAIL	CARD FAIL: PRIMARY REFERENCE PLL OUT OF LOCK	MJ						
	FAIL	CARD FAIL: OSCILLATOR PLL OUT OF LOCK	MJ						
	FREQ-TOL	GPS FREQUENCY OUT OF TOLERANCE	SC						
	FUSE-x (x = 1-2)	LPR SHELF FUSE BLOWN OR POWER FAIL	MN						
	GPS-INVALID	GPS INVALID	MN/MJ/ SC						
	GTI-OUT-FAIL	LOSS OF TIMING OUTPUT SIGNAL	MN						
	GTR-COMM-LOS	GTR COMMUNICATIONS FAIL	MN						
	GTR-FAIL	GTR FAIL: ANTENNA CURRENT OUT OF TOLERANCE	MJ						
	GTR-FAIL	GTR FAIL:GTR PLL OUT OF LOCK	MJ						
	GTR-FAIL	GTR FAULT: NOT LOCKED TO UTC TIME - GTR OR SKY PROBLEM	MJ						
	GTR-FAIL	GTR FAIL: FLASH MEMORY FAIL	MJ						

Table F. Alarm/Event Summary (Contd)

<aid>	<condtype>	<conddescr>	Severity
GTI-x (Contd)	GTR-FAIL	GTR FAIL: RAM MEMORY FAIL	MJ
	GTR-GPS-LOS	LOSS OF GPS SIGNAL FROM GTR	MN
	GTR-LOCKED	GTR IS LOCKED	SC
	GTR-NOT-LOCKED	GTR IS NOT LOCKED TO GPS SIGNAL	SC
	GTR-PWR-FLT	GTR POWER FAULT	MN
	LOCKED	GTI IS LOCKED	SC
	MISMATCH	CARD INFORMATION DOES NOT MATCH DATABASE	SC
	NO-INPUTS	LOSS OF OSCILLATORS AND INPUT FROM ANTENNA	MJ
	OSC-x-LOS (x = 1-2)	LOSS OF EXTERNAL OSCILLATOR	MN
	OSC-x-TOL (x = 1-2)	EXTERNAL OSCILLATOR OUT OF TOLERANCE	MN
	SATELLITE	INSUFFICIENT SATELLITES IN VIEW < 3	SC
	SEARCH	SEARCHING FOR FIRST SATELLITE	SC
	TRACK	GTI TRACKING	SC
	UNEQUIPPED	IMPROPER CARD REMOVAL OR COMM FAILURE	MN/SC
LTI-x (x = 1-2)	ACQUIRE	LORAN STATION FOUND	SC
	ANTENNA	CURRENT TO ANTENNA IS OUT OF TOLERANCE	MJ
	FAIL	FAIL:TRANSFER OSC PLL OUT OF LOCK	MJ
	FAIL	FAIL:SYNTHESIZER PLL OUT OF LOCK	MJ
	FAIL	FAIL:PRIMARY REFERENCE PLL OUT OF LOCK	MJ
	FAIL	FAIL:LOSS OF SIGNAL TO DSP OR DSP FAIL	MJ
	FAIL	FAIL:PROCESSOR FAIL	MJ
	FUSE-x (x = 1-2)	LPR SHELF FUSE BLOWN OR POWER FAIL	MN
	GRI-LOCKED	LOCKED TO LORAN STATION	SC
	HOLDOVER	LTI IN HOLDOVER	SC
	LOCKED	LTI IS LOCKED	SC
	LOS	LOSS OF TIMING OUTPUT SIGNAL	MN
	NO-INPUTS	LOSS OF OSCILLATORS AND INPUT FROM ANTENNA	MN
	OSC-LOS	LOSS OF BOTH LOCAL OSCILLATOR SIGNALS	MJ
	OSC-x-LOS (x = 1-2)	LOSS OF EXTERNAL OSCILLATOR	MN

Table F. Alarm/Event Summary (Contd)

<aid>	<condtype>	<conddescr>	Severity
LTI-x (Contd)	SEARCH	SEARCHING FOR LORAN STATION	MN
	UNEQUIPPED	IMPROPER CARD REMOVAL OR COMM FAILURE	MN/SC
MIS	RESET	MIS HAS BEEN RESET	TC
MRC-x (x = 1-2)	ACTIVE	CARD IS SUPPLYING A SIGNAL TO THE CLOCK(S)	SC
	ALL-REF	LOSS OF ALL EXTERNAL INPUT REFERENCES	MJ
	CLOCK-x (x = 1-2)	LOSS OF CLOCK SIGNAL	MN
	FAIL	CARD FAIL:CLOCK SYNTHESIZER FAILURE	MJ
	FAIL	CARD FAIL: FRAMER FAILURE	MJ
	FAIL	CARD FAILED	MJ
	FFREQ-x (x = 1-2)	CLOCK DISQUALIFIED:FFREQ THRESHOLD EXCEEDED	MN
	INACTIVE	CARD IS NOT SUPPLYING A SIGNAL TO THE CLOCK(S)	SC
	MISMATCH	CARD INFORMATION DOES NOT MATCH DATABASE	MN
	UNEQUIPPED	IMPROPER CARD REMOVAL	MN/SC
MRC-x-y (x = 1-2, y = 1-4)	AIS	ALARM INDICATION SIGNAL RECEIVED	MN*
	BPV	BPV THRESHOLD EXCEEDED	MN*
	CRC	CRC THRESHOLD EXCEEDED	MN*
	FFREQ	REF INPUT FRACTIONAL FREQ THRESHOLD EXCEEDED	MN*
	LOS	LOSS OF EXTERNAL REFERENCE	MN*
	OOF	OOF DETECTED	MN*
	SWITCH	CARD NOW USING SPECIFIED INPUT SIGNAL	TC
PSM-x (x = 1-11)	CLOCK-x (x = 1-2)	LOSS OF CLOCK SIGNAL	MN
	FAIL	CARD FAIL:CLOCK SYNTHESIZER FAILURE	MJ
	FAIL	CARD FAIL: FRAMER FAILURE	MJ
	FAIL	CARD FAILED	MJ
	MISMATCH	CARD INFORMATION DOES NOT MATCH DATABASE	SC
	UNEQUIPPED	IMPROPER CARD REMOVAL	MN/SC

Table F. Alarm/Event Summary (Contd)

<aid>	<condtype>	<conddescr>	Severity
PSM-x-y (x = 1-11. y = 1-4)	AIS	ALARM INDICATION SIGNAL RECEIVED	MN*
	BPV	BPV THRESHOLD EXCEEDED	MN*
	CRC	CRC THRESHOLD EXCEEDED	MN*
	LOS	LOSS OF EXTERNAL REFERENCE	MN*
	MTIE _x (x = 1, 4, 16, 128, 512, 900)	x SECOND THRESHOLD EXCEEDED (x = 1, 4, 16, 128, 512, 900)	MN*
	OOF	OOF DETECTED	MN*
	TDEV _x (x = 1, 4, 16, 64, 128)	x SECOND THRESHOLD EXCEEDED (x = 1, 4, 16, 64, 128)	MN*
SHELF	ACTIVE	EXPANSION SHELF PRESENT	SC
	DLCMP	DOWNLOAD COMPLETED	TC
	DLIP	DOWNLOAD IN PROGRESS	TC
	FUSE-x (x = 1-2)	FUZE BLOWN OR POWER FAIL	MN
	GP	SHELF INPUT ALARM	MN
	GPMJ	GENERAL PURPOSE MAJOR ALARM ON SHELF	MJ
	GPMN	GENERAL PURPOSE MINOR ALARM ON SHELF	MN
	INACTIVE	EXPANSION SHELF NOT PRESENT	SC
	OVERRIDE	TIMING OUTPUT SOURCE SELECTED BY COMMAND	SC

Table F. Alarm/Event Summary (Contd)

<aid>	<condtype>	<conddescr>	Severity
TO-x (x = 1-12)	CLOCK-x (x = 1-2)	TIMING SIGNAL FROM CLOCK CARD DISQUALIFIED	SC
	FAIL	CARD FAIL:A/D FAILURE	MJ
	FAIL	CARD FAIL:INTERNAL FAILURE	MJ
	FAIL	CARD FAIL:REFERENCE VOLTAGE FAILURE	MJ
	FAIL	CARD FAIL:PLL OUT OF LOCK	MJ
INPUT-x (x = 1-2)		TIMING SIGNAL FROM INPUT CARD DISQUALIFIED	SC
	MISMATCH	CARD INFORMATION DOES NOT MATCH DATABASE	SC
	MISMATCH	PROTECTION CARD CONFIGURATION MISMATCH OR PAIRED CARD MISSING	SC
SOURCE-CLK-x (x = 1-2)		OUTPUT CARD IS USING SPECIFIED CLOCK CARD	SC
SOURCE-INPUT-x (x = 1-2)		OUTPUT CARD IS USING SPECIFIED INPUT CARD	SC
	SWITCH	INPUT SWITCHED	TC
	SWITCH	FAILURE TO SWITCH TO CLK x (x = 1-2)	SC
	SWITCH	FAILURE TO SWITCH TO INPUT x (x = 1-2)	SC
	SWITCH	OUTPUT CARD PROTECTION SWITCH	TC
	UNEQUIPPED	IMPROPER CARD REMOVAL	MN/SC
TO-x-y (x = 1-12, y = 1-10)	PORT	OUTPUT PORT HAS FAILED	MN

Table G. Command Differences

MIS -04 CARD COMMANDS	MIS -05 CARD COMMANDS
ACT-USER	ACT-USER
CANC-USER	CANC-USER
—	COPY-MEM
—	DLT-EQPT
—	DLT-INVENTORY
—	DLT-PORT
DLT-USER-SECU	DLT-USER-SECU
INIT-SYS	ED-COM
SET-DAT	ED-DAT
ED-PRMTR-T1, SET-ATTR-T1	ED-EQPT
—	ED-INVENTORY
ED-SECU-PID	ED-PID
ED-PRMTR-T1	ED-PORT
ED-USER-SECU	ED-USER-SECU
—	ENT-EQPT
—	ENT-INVENTORY
—	ENT-PORT
—	ENT-USER-SECU
ED-EQPT	INIT-COM
SET-ATTR-LOG	INIT-LOG
INIT-REG-T1	INIT-REG
INIT-SYS	INIT-SYS
OPR-ACO-ALL	OPR-ACO-ALL
—	OPR-PROTNSW
—	OPR-SYNCNSW
—	RLS-PROTNSW
—	RLS-SYNCNSW
—	RMV-EQPT
—	RMV-PORT
—	RST-EQPT
—	RST-PORT

Table G. Command Differences (Contd)

MIS -04 CARD COMMANDS	MIS -05 CARD COMMANDS
RTRV-ALM-{ALL EQPT T1}	RTRV-ALM-{ALL EQPT PORT}
—	RTRV-ATTR-CONT
RTRV-ATTR-T1	RTRV-ATTR-PORT
RTRV-EQPT	RTRV-COM
RTRV-COND-{EQPT T1}	RTRV-COND-{EQPT PORT}
—	RTRV-EQPT
—	RTRV-GPS-STAT
RTRV-HDR	RTRV-HDR
—	RTRV-INVENTORY
RTRV-LOG	RTRV-LOG
RTRV-PM-T1	RTRV-PM-PORT
—	RTRV-PORT
—	RTRV-REPTMODE-PORT
RTRV-TH-PORT	RTRV-TH-PORT
RTRV-USER-SECU	RTRV-USER-SECU
—	SET-ATTR-CONT
SET-ATTR-T1	SET-ATTR-PORT
—	SET-REPTMODE-PORT
SET-SID	SET-SID
SET-TH-T1	SET-TH-PORT