

Environmental Record Editing and Printing
Program (EREP)
3.5

Reference



Note

Before using this information and the product it supports, read the information in [“Notices” on page 357](#).

This edition applies to Version 3 Release 5 of EREP and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this document

The *EREP Reference* applies to EREP Version 3, Release 5.

The following operating systems can run EREP:

- DOS/VS, DOS/VSE, VSE/ESA™, and VSE/Advanced Functions—known collectively in this book as **VSE systems**.
- VS2, MVS/370, MVS/XA™, MVS/ESA™, OS/390®, and z/OS®—known collectively in this book as **MVS™ systems**.
- VM/370, VM/SP™, VM/SP/HPO, VM/XA, VM/ESA®, and z/VM®—known collectively in this book as **VM systems**.

If EREP 3.5 is not installed on your system, some of the information in this book may not apply. You can find out which level of EREP your system supports by checking the release number of the EREP tape last installed; the release number is in the System Control Programming Specifications, which accompany the EREP tape.

Note: New releases of EREP are always *downward compatible*. That is, the latest version of EREP always runs on your system. New releases also include new functions that you can only use if you have the latest version of your operating system; but generally, old functions are not eliminated. The same is true of this book, although some very old versions of EREP (for example, IFCEREPO) are no longer supported.

Who Should Read This Publication

This publication is for people who manage and maintain data processing equipment in a system installation.

USER	DESCRIPTION
System programmers	Who set up and run EREP
IBM service representatives	Who use the EREP reports to diagnose problems in the installation's hardware devices
IBM systems engineers (SE)	Who are called when there is a problem with the running of EREP
Note: It is also for anyone who wants to find out what EREP is and how it works.	

When reading this publication, you will find a working knowledge of the operating system EREP runs under very helpful; familiarity with the system job control and entry language is also helpful, but not necessary.

Organization and Contents

The information on EREP is divided into two manuals:

MANUAL	DESCRIPTION
EREP User's Guide	Introductory and explanatory information about EREP and detailed process information for the person who may not know how to set up a job to run EREP.
EREP Reference	Reference information in quick-look-up format—for the person who is familiar with EREP and the process of setting it up, but who wants to check out syntax, message wording, or coding rules.

The information in this manual is divided into the following topics:

- [Part 1, “General Reference Information,” on page 1](#) provides detailed information on how to create, use, and correct problems with EREP reports. It contains:
 - [Chapter 1, “Introduction to EREP Controls,” on page 3](#), provides a preview of the information in the topics of part 1.
 - [Chapter 2, “EREP Parameters,” on page 5](#), presents the syntax and coding rules for all EREP keyword parameters.
 - [Chapter 3, “EREP Control Statements,” on page 45](#), presents the format and coding rules for EREP control statements.
 - [Chapter 4, “Error Records for EREP,” on page 65](#), presents general information about the records that EREP uses, showing format and contents.
 - [Chapter 5, “Correcting EREP Job Set-Up Problems,” on page 77](#), provides information about methods to identify and correct EREP job set up problems.
 - [Chapter 6, “EREP Messages,” on page 83](#), lists the IFC-prefixed messages as they appear in EREP output with explanations and recommended responses. Also included are such problem determination aids as the EREP return codes, standard problem determination tables, and the DEBUG parameter.
 - [Chapter 7, “Codes for Control Units, OBRs, and MDRs,” on page 107](#), lists the control unit codes, outboard record (OBR) codes, and miscellaneous data record (MDR) codes.
- [Part 2, “Examples of Output from Reports,” on page 115](#) provides descriptions and examples of each report to help you select the reports you need to adequately monitor your installation.
 - [Chapter 8, “System Summary Report,” on page 117](#), provides an overview of errors for each of your installation’s principal parts or subsystems: processors (CPU), channels, subchannels, storage, operating system control programs (SCPs), and I/O subsystems.
 - [Chapter 9, “Trends Report,” on page 125](#), presents the pattern and frequency of errors on a daily basis. You can use this performance trend to see when the errors began, their pattern, and when they end.
 - [Chapter 10, “Event History Report,” on page 131](#), consists of one-line abstracts of selected information from each record. The event history report shows errors in a time sequence that allows you to see how often and in what order errors occur.
 - [Chapter 11, “System Exception Report Series,” on page 137](#), is a series of reports that list software and hardware error data in a variety of ways to help you identify problems within your subsystems.
 - [Chapter 12, “Threshold Summary Report,” on page 219](#), shows all the permanent read/write errors, temporary read/write errors, and media statistics for each volume mounted, using the OBR and MDR records, for 3410, 3420, and 8809 tape devices. The system exception series is a replacement for the threshold summary. Consider switching to the system exception series.
 - [Chapter 13, “Detail Edit and Summary Reports,” on page 225](#), provide environmental information, hexadecimal dumps and summaries of errors to determine their nature and causes.
- [Part 3, “Product-Dependent Information,” on page 299](#) contains information specific to particular IBM[®] machines and device types supported by EREP. The product-dependent information is presented by product group, as follows:
 - [Chapter 14, “Supported Devices,” on page 301](#)
 - [Chapter 15, “Card Readers and Punches,” on page 311](#)
 - [Chapter 16, “Consoles and Displays,” on page 313](#)
 - [Chapter 17, “Direct-Access Storage Devices \(DASD\),” on page 315](#)
 - [Chapter 18, “Diskette Unit,” on page 325](#)
 - [Chapter 19, “Magnetic Tape Devices,” on page 327](#)
 - [Chapter 20, “OCR/MICR Devices,” on page 333](#)
 - [Chapter 21, “Optical Devices,” on page 335](#)

- [Chapter 22, “Printers,” on page 337](#)
- [Chapter 23, “Processors \(CPUs\),” on page 341](#)
- [Chapter 24, “Punched Tape Devices,” on page 345](#)
- [Chapter 25, “Teleprocessing \(TP\) Devices,” on page 347](#)
- [Chapter 26, “Other Devices,” on page 349](#)

Note: This publication also includes a *Glossary* of terms and a list of the IBM publications mentioned or associated with the use of EREP.

z/OS information

This information explains how z/OS® references information in other documents and on the web.

When possible, this information uses cross document links that go directly to the topic in reference using shortened versions of the document title. For complete titles and order numbers of the documents for all products that are part of z/OS, see *z/OS Information Roadmap*.

To find the complete z/OS library, go to [IBM Documentation \(www.ibm.com/docs/en/zos\)](http://www.ibm.com/docs/en/zos).

How to send your comments to IBM

We invite you to submit comments about the z/OS product documentation. Your valuable feedback helps to ensure accurate and high-quality information.

Important: If your comment regards a technical question or problem, see instead [“If you have a technical problem”](#) on page xxi.

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To help us better process your submission, include the following information:

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- Contact your IBM service representative.
- Call IBM technical support.

Summary of changes

This document contains terminology, maintenance, and editorial changes. Technical changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

Ninth Edition

This version has received editorial and terminology updates.

Eighth Edition

This version has received editorial and terminology updates.

Seventh Edition

This book has the following changes:

- A new record type, 4E, see [Table 9 on page 73](#)
- A new DASD SIM example, see [Figure 57 on page 229](#)
- Support for processor model 2818.

Part 1. General Reference Information

This part of the EREP Reference provides detailed information on how to:

- Create EREP reports
- Use EREP reports
- Correct problems with EREP reports

Read the topics as you need them for information about the reports you are creating.

The *EREP Reference, Part 1* covers the following subjects:

Topic
Chapter 1, “Introduction to EREP Controls,” on page 3
Chapter 2, “EREP Parameters,” on page 5
Chapter 3, “EREP Control Statements,” on page 45
Chapter 4, “Error Records for EREP,” on page 65
Chapter 5, “Correcting EREP Job Set-Up Problems,” on page 77
Chapter 6, “EREP Messages,” on page 83
Chapter 7, “Codes for Control Units, OBRs, and MDRs,” on page 107

Chapter 1. Introduction to EREP Controls

You communicate with EREP using keyword parameters and control statements.

Parameters tell EREP which report to run, which records to use for the report, and what to do with the records when the report is complete.

Control statements tell EREP what your hardware configuration is like, how many processors you have, whether or not your I/O devices are shared by more than one processor, and exactly where the devices are. Control statements also give EREP other information, such as limits on the number of errors included in any report.

All operating systems use the same parameters and controls to tell EREP what specific information to print in the reports.

If you run EREP using *no controls at all*, EREP produces detail summary reports (and data reduction reports, if your installation includes 3370 DASD) of all the records on the ERDS. The reports do not combine the records from shared I/O devices, nor do they identify the records as being from shared devices. EREP writes the records to a history file if one is available to receive them; if none is available, EREP issues an error message and the job or step abends.

Syntax Rules and Conventions

Common notations (rules) are used to define the syntax and format of EREP control statements and parameters. The following syntax rules define what is required for the specific report you are requesting.

Use the following alphanumeric characters and symbols when you write procedures that create EREP reports:

- Code *uppercase letters*, *numbers*, and this set of *symbols* exactly as they are shown.

SYMBOL	DESCRIPTION
'	apostrophe
*	asterisk
,	comma
=	equal sign
-	hyphen
()	parentheses
.	.
period	
A–Z	alphabetic
0–9	numeric
\$ # @	national

- Substitute specific information for *variables* appearing as *lowercase letters* and *other symbols*.

For example: If the variable *serial* appears in the parameter or control statement syntax, substitute a specific serial number value (such as 012345 or 503B) in the parameter or control statement.

- Code a *hyphen* or a *dash* between two entries to indicate a range.

For example:

Syntax Rules

hhmm-hhmm

indicates a range of time.

addr-addr

indicates a range of continuous addresses.

Conventions for Syntax Rules

The following set of symbols describe the syntax of the parameter and control statements in this book. Never put these symbols in the parameter or control statements.

SYMBOL	DESCRIPTION	How to read these symbols
{ }	braces	Group related items, such as alternatives. For example: ALPHA=({A|B|C},D) indicates that you <i>must</i> choose one of the items enclosed within the braces. If you choose A, code ALPHA=(A,D).
[]	brackets	Group related items; however, everything within the brackets is optional and may be omitted. For example: ALPHA=([A|B|C],D) indicates that you <i>may</i> choose one of the items within the brackets or omit all of them. If you select only D, code ALPHA=(,D).
...	ellipses	Indicate that the preceding item or group of items can be repeated more than once in succession. For example: ALPHA [,BETA] ... indicates that ALPHA can appear alone or can be followed by ,BETA any number of times in succession.
—	underscore	Indicates a default option. You only need to specify the parameter if you do not want the underscored default option.
|	vertical bar	Represents logical OR, and means that you can code one or the other of two alternatives. For example: KEYWORD=[ALPHA|BETA] indicates that you can code either ALPHA or BETA as the value for KEYWORD.

Chapter 2. EREP Parameters

You can direct EREP processing and tailor EREP reports with the following keyword parameters: report, selection, and processing parameters.

Because none of the parameters are required, you can allow EREP to operate entirely by default. However, you must check the default options in [Table 2 on page 11](#) to be sure they are the ones you want.

See [Part 3, “Product-Dependent Information,” on page 299](#) for more information on using the EREP parameters with specific devices.

Refer to the following topics in the [EREP User's Guide](#) for more information on using EREP parameters with each operating system.

Topic
Running EREP under MVS
Running EREP under VM
Running EREP under VSE

The following general coding rules apply to all the EREP parameters. The parameter string must be limited to 100 characters. EREP will reject any parameter strings over 100 characters.

Rules	Examples
Parameters consist of a keyword followed by an equal sign and one or more values. Some parameters require parentheses around the value field.	<pre> : : DATE=(82136,82143) : </pre>
When the allowed value of a parameter is <i>Y</i> or <i>N</i> , you may omit = <i>Y</i> and code only the keyword. EREP always interprets this as specifying <i>YES</i> regardless of the default value.	<pre> : : HIST=Y,ACC=N : : or : : HIST,ACC=N : </pre>
Use commas to separate the parameters if they are on the same line. There can be no spaces in a parameter expression or parameter field. However, when entering parameters as CPEREPXA operands, you can separate them by commas or by one or more blanks.	<pre> : : PRINT=PS,TYPE=MC,HIST,ACC=N ENDPARM : </pre>
If parameters and control statements are in the same file, you must code ENDPARM to indicate the end of parameters before coding any control statements.	<pre> : : TRENDS,HIST,ACC=N,DATE=(89032,89056) ENDPARM : control statements : </pre>
If you code the parameters as in-stream data, they can be entered as individual records.	<pre> : : TRENDS HIST ACC=N DATE=(89032,89056) ENDPARM control statements : </pre>

Report Parameter Summary

Use the following report parameters to select which kind of report you want EREP to produce. You can request only one type of report each time you execute the EREP command for your system, but you may produce any number of different type reports by including additional EREP commands with the associated parameters and control statements.

REPORT PARAMETERS	WHAT THEY DO	REFER TO
EVENT	Produces a <i>three part event history report</i> that lists errors chronologically. This report is used to establish a pattern and diagnose problems.	“EVENT — Event History (Report Parameter)” on page 24
PRINT	Produces a <i>series of detail edit or summary reports</i> , or both, for the selected record types. The number of reports depends on the input and selection parameters. Note: PRINT=SD is the default report parameter. The other options are shown in the syntax for the print parameter: PRINT={AL | DR | NO | PS | PT | <u>SD</u> | SU} The only way to run EREP without producing any report output is to code PRINT=NO.	“PRINT — Print reports (report parameter)” on page 30
SYSEXN	Produces a <i>system exception report series</i> covering processors, channels, DASD, optical and tape subsystems.	“SYSEXN — System Exception Reports (Report Parameter)” on page 33
SYSUM	Produces a <i>condensed two part system summary report</i> of all errors for the principle system elements: CPU, channels, storage, SCP, I/O subsystem.	“SYSUM — System Summary (Report Parameter)” on page 34
THRESHOLD	Produces a <i>summary</i> of a 3410, 3420, or 8809 tape subsystem, including media statistics and permanent errors that exceed the limits set on the parameter.	“THRESHOLD — Threshold Summary (Report Parameter)” on page 36
TRENDS	Produces a <i>two part trends report</i> that presents error records logged for the various system elements during a maximum of 30 days. This report presents the errors in chronological order by Julian date.	“TRENDS — Trends Report (Report Parameter)” on page 38

Table 1 on page 10 shows parameters that *cannot* be used together.

Selection Parameter Summary

Use the following selection parameters to select records for EREP to use in the report.

SELECTION PARAMETERS	TELLS EREP TO:	REFER TO
CPU (Processor serial and machine type numbers)	Use only the records associated with this particular processor.	“CPU — Central Processing Unit (Selection Parameter)” on page 14
CPUCUA (Processor serial number and device address)	Use only the records associated with this device attached to this processor.	“CPUCUA — CPU/Channel/Unit Address (Selection Parameter)” on page 16
CUA (Device address or number)	Use only the records associated with this particular device address or device number.	“CUA — Channel/Unit Address (Selection Parameter)” on page 17
DATE	Use only the records created during this date range.	“DATE — Date Range (Selection Parameter)” on page 18

SELECTION PARAMETERS	TELLS EREP TO:	REFER TO
DEV (Device type)	Use only the records associated with this particular device type; or, conversely, do not use the records associated with this device type.	“DEV — Device Type (Selection Parameter)” on page 20
DEVSER (Device serial number)	Use only the OBR records associated with this tape device serial number. (Use only for the THRESHOLD report and only with the 3410, 3420, and 8809 tape OBR records.)	“DEVSER — Device Serial Number (Selection Parameter)” on page 22
ERRORID (Error identifier)	Use only the MCH and MVS software records containing this particular error identifier.	“ERRORID — Error Identifier (Selection Parameter)” on page 23
LIA/LIBADR (Line interface [base] address)	Use only the 3705, 3720, 3725, 3735 or 3745 communication controller records containing this line interface address.	“LIA/LIBADR — Line Interface Base Address (Selection Parameter)” on page 25
MOD (Processor model)	Use only the records containing this processor machine type (number).	“MOD — Processor Model (Selection Parameter)” on page 28
MODE (370 or 370XA)	Use only the records created in this operating mode.	“MODE — Operating Mode (Selection Parameter)” on page 29
SYMCDE (Fault symptom code)	Use only the 33XX DASD records containing this particular fault symptom code.	“SYMCDE — Fault Symptom Code (Selection Parameter)” on page 32
TERMN (Terminal name)	Use only the VTAM OBR records containing this terminal name.	“TERMN — Terminal Name (Selection Parameter)” on page 35
TIME	Use only the records created during this time range.	“TIME — Time Range (Selection Parameter)” on page 37
TYPE (Record type)	Use only the records of the specified types.	“TYPE — Record Type (Selection Parameter)” on page 39
VOLID (Volume serial number)	Use only the 33XX DASD or 34XX tape records containing this volume serial number.	“VOLID — Volume Identifier (Selection Parameter)” on page 41

[Table 1 on page 10](#) shows the parameters that *cannot* be used together.

Processing Parameter Summary

Use the following processing parameters to control the way EREP processes the records you have selected:

PROCESSING PARAMETERS	WHAT THEY DO	REFER TO
ACC (Accumulate)	Tells EREP to copy the records used for the report into an output history file.	“ACC — Accumulate Records (Processing Parameter)” on page 14
HIST (History)	Tells EREP that its input consists of records on a history file.	“HIST — History Input (Processing Parameter)” on page 25
LINECT (Line count)	Tells EREP that each page of the report output must contain this number of lines.	“LINECT — Line Count (Processing Parameter)” on page 26
LINELEN (Line length)	Tells EREP that each line of the system summary report output may contain up to this number of characters.	“LINELEN — Line Length (Processing Parameter)” on page 27
MERGE (Merge)	Tells EREP that its input consists of records from both the ERDS and a history file.	“MERGE — Merge Input Data Sets (Processing Parameter)” on page 28
SHORT (Short OBR)	Tells EREP to print out short form OBR records in detail edit report output.	“SHORT — Print Short OBR Records (Processing Parameter)” on page 31
TABSIZE (Table size)	Tells EREP that the sort table it uses for internal processing must be this size.	“TABSIZE — Sort Table Size (Processing Parameter)” on page 34
ZERO (Zero ERDS)	Tells EREP that when this report is complete, to change the header pointer to allow the ERDS to be overwritten with newly collected errors.	“ZERO — Clear the ERDS (Processing Parameter)” on page 42

Table 1 on page 10 shows the parameters that *cannot* be used together.

EREP Parameter Combinations

To help you to avoid using invalid parameter combinations, Table 1 on page 10 shows the parameters that cannot be used together. An X in a column indicates which two parameters cannot be used together;

for example the ACC and the threshold parameters cannot be used together. Numbers in the column are identified in the notes following the table.

Table 1. EREP Selection, Processing, and Report Parameter Combinations																							
	Processing Parameters								Selection Parameters														
	A C C	H I S T	L I N E C T	L I N E L E N	M E R G E	S H O R T	T A B S I Z E	Z E R O	C P U	C P U C U A	14 C U A	D A T E	D E V	D E V S E R	E R R O R I D	L I A / L I B A D R	M O D	M O D E	S Y M C D E	T E R M N	T I M E	T Y P E	15 V O L I D
REPORT																							
EVENT						X								X									
PRINT			1			2								X									
SYSEXN						X								X									
SYSUM						X								X									
THRESHOLD	X					X		X	X	X			3		X	X	X		X	X		X	
TRENDS						X								X									
PROCESSING																							
ACC	X							4						X									
HIST		X			X			X															
LINECT			X																				
LINELEN				X																			
MERGE		X			X									X									
SHORT						X																	
TABSIZE							X							X									
ZERO	4	X						X	X	X	X	X	X		X	X	X	5	X	X	X	X	X
SELECTION																							
CPU								X	X	X							X						
CPUCUA								X	X	X	X			X			X					6	
CUA 14								X		X	X											6	
DATE								X				X											
DEV								X					X	7		8						9	10
DEVSER	X				X		X			X			7	X	X	X	X		X	X		11	12
ERRORID								X						X	X							12	
LIA/LIBADR								X					8	X		X			X	X			X
MOD								X	X	X				X			X						
MODE								5										X					
SYMCDE								X						X		X			X	X		11	X
TERMN								X						X		X			X	X		11	X
TIME								X													X		
TYPE								X		6	6		9	11	12				11	11		X	13
VOLID 15								X					10	12		X			X	X		13	X

Note:

1. Invalid when PRINT=NO.

2. Invalid when PRINT=DR, NO, SD, or SU.
3. Invalid except for DEV=(34XX, 3410, 3420, or 8809).
4. Invalid for ZERO=Y if ACC=N.
5. Invalid except when you code or default MODE=ALL, which indicates no record selection.
6. Only affects the selection of record types that contain a CUA: CCH(C), DDR(D), MDR(T), MIH(H), and OBR(O).
7. DEVSER is only used for the threshold report summary, so the following are the only devices allowed: 3410, 3420, 8809, and 34XX.
8. LIA/LIBADR applies only to TP communication controllers, so the following are the only valid devices: 3705, 3720, 3725, and 3745.
9. DEV is valid with only the following record types: DDR(D) MIH(H), OBR(O), MDR(T), and A3(A).
10. VOLID applies only to 33XX DASD and 34XX tape devices.
11. Only affects the selection of record types that contain a symptom code: OBR(O).
12. Only affects the selection of record types that contain an error ID: MCH(M) and SFT(S).
13. Only affects the selection of record types that contain a volume ID: OBR(O) and MDR(T).
14. The CUA parameter is not supported for A2 and A3 records.
15. The VOLID parameter is not supported for A3 records, even if they contain a volume ID.

Default Actions for EREP Parameters

Table 2 on page 11 shows the default values that EREP uses when you do not include a parameter in the controls for an EREP run.

Table 2. When You Omit EREP Parameters	
PARAMETER	IF YOU OMIT THIS PARAMETER
ACC	EREP assumes ACC=Y, except when you request a threshold report. Then, the default is ACC=N.
CPU	EREP processes records from all processors.
CPUCUA	EREP processes all available records.
CUA	EREP uses the records from all device addresses.
DATE	EREP uses all the records in the input data set, regardless of when they were created except for the trends report. For the trends report, if you do not code the DATE parameter, the default is to process 30 days of error data.
DEV	EREP processes records associated with all device types.
DEVSER	EREP uses records for the threshold summary regardless of the device serial numbers they contain.
ERRORID	EREP processes all MCH and SFT records, regardless of their error identifiers.
EVENT	Unless you specifically code EVENT or EVENT=Y, EREP does not produce an event history report.
HIST	EREP assumes HIST=N and uses the ERDS as input.
LIA/LIBADR	EREP uses 3705, 3720, 3725, 3735, and 3745 TP communication controller records regardless of the line interface base address they contain.
LINECT	For MVS, and VM, 50 lines per page; for VSE systems, the default is the number of lines per page set for SYSLST at SYSGEN.
LINELEN	132.
MERGE	EREP assumes MERGE=N and uses records from only one input file.
MOD	EREP processes records regardless of which kind of processor they were created on.
MODE	EREP uses all available records, regardless of whether they were recorded in 370 or 370XA mode.

Table 2. When You Omit EREP Parameters (continued)

PARAMETER	IF YOU OMIT THIS PARAMETER
PRINT	If you do not code any report parameter at all, EREP assumes PRINT=SD, which produces a detail summary and, if applicable, a data reduction report for each record and device type you select. If you code PRINT without any keyword value, it is a syntax error.
SHORT	EREP does not print out short OBR records for detail edit reports. It does print them out for detail summaries, however.
SYMCDE	EREP uses all OBR records, regardless of the fault symptom codes they contain.
SYSEXN	Unless you specifically code SYSEXN or SYSEXN=Y, EREP does not produce a system exception report series.
SYSUM	Unless you specifically code SYSUM or SYSUM=Y, EREP does not produce a system summary.
TABSIZE	For MVS, and VM, EREP's internal sort table is 24KB; for VSE systems, it is 4KB.
TERMN	EREP processes VTAM OBR records regardless of the terminal name they contain.
THRESHOLD	Unless you specifically code THRESHOLD and some threshold values, EREP produces no threshold summary.
TIME	EREP uses all available records, regardless of the time they were created.
TRENDS	Unless you specifically code TRENDS or TRENDS=Y, EREP produces no trends report.
TYPE	EREP uses all types of records.
VOLID	EREP uses certain DASD and tape records regardless of the associated volume serial numbers.
ZERO	EREP does not clear the ERDS after completing the report. The default is ZERO=N.

Parameter Descriptions

Use the following syntax summaries of the EREP parameters to find complete parameter descriptions.

SYNTAX	REFER TO
ACC [=Y] | =N	“ACC — Accumulate Records (Processing Parameter)” on page 14
CPU=({nnnnnn | Xnnnnn | XXnnnn} .model[, ...])	“CPU — Central Processing Unit (Selection Parameter)” on page 14
CPUCUA=(serial . {cua | cuX} [, serial . {cua | cuX}] ...)	“CPUCUA — CPU/Channel/Unit Address (Selection Parameter)” on page 16
CUA=({ [N]addr | [N]addr - [N]addr } [, ...])	“CUA — Channel/Unit Address (Selection Parameter)” on page 17
DATE=({yyddd [, yyddd] | yyddd [-yyddd] })	“DATE — Date Range (Selection Parameter)” on page 18
DEBUG=(nn [, nn] ...)	“DEBUG — Debug (Diagnostic Parameter)” on page 19
DEV=(type | Ntype [, type | Ntype] ...)	“DEV — Device Type (Selection Parameter)” on page 20
DEVSER=(serial [, serial] ...)	“DEVSER — Device Serial Number (Selection Parameter)” on page 22
ERRORID=(seqno [, cpuid, asid, hh, mm, ss, t])	“ERRORID — Error Identifier (Selection Parameter)” on page 23
EVENT [=Y] | =N	“EVENT — Event History (Report Parameter)” on page 24

SYNTAX	REFER TO
HIST[=Y] | =<u>N</u>	“HIST – History Input (Processing Parameter)” on page 25
LIA | LIBADR= <i>address</i>	“LIA/LIBADR – Line Interface Base Address (Selection Parameter)” on page 25
LINECT= <i>nnn</i>	“LINECT – Line Count (Processing Parameter)” on page 26
LINELEN={ <u>132</u> | 165 | 204}	“LINELEN – Line Length (Processing Parameter)” on page 27
MERGE[=Y] | =<u>N</u>	“MERGE – Merge Input Data Sets (Processing Parameter)” on page 28
MOD=(<i>model</i> [, <i>model</i>]...)	“MOD – Processor Model (Selection Parameter)” on page 28
MODE={370 | 370XA | <u>ALL</u> }	“MODE – Operating Mode (Selection Parameter)” on page 29
PRINT={AL | DR | NO | PS | PT | <u>SD</u> | SU}	“PRINT – Print reports (report parameter)” on page 30
SHORT[=Y] | =<u>N</u>	“SHORT – Print Short OBR Records (Processing Parameter)” on page 31
SYMCDE={ <i>nnnn</i> | <i>nnnX</i> | <i>nnXX</i> | <i>nXXX</i> }	“SYMCDE – Fault Symptom Code (Selection Parameter)” on page 32
SYSEXN[=Y] | =<u>N</u>	“SYSEXN – System Exception Reports (Report Parameter)” on page 33
SYSUM[=Y] | =<u>N</u>	“SYSUM – System Summary (Report Parameter)” on page 34
TABSIZE= <i>nnnnK</i>	“TABSIZE – Sort Table Size (Processing Parameter)” on page 34
TERMN= <i>name</i>	“TERMN – Terminal Name (Selection Parameter)” on page 35
THRESHOLD=(<i>xxx</i> , <i>yyy</i>)	“THRESHOLD – Threshold Summary (Report Parameter)” on page 36
TIME=(<i>{hhmm,hhmm | hhmm-hhmm}</i>)	“TIME – Time Range (Selection Parameter)” on page 37
TRENDS[=Y] | =<u>N</u>	“TRENDS – Trends Report (Report Parameter)” on page 38
TYPE= <i>code</i> [<i>code</i>]...	“TYPE – Record Type (Selection Parameter)” on page 39
VOLID=(<i>volser</i> [, <i>volser</i>]...)	“VOLID – Volume Identifier (Selection Parameter)” on page 41
ZERO[=Y] | =<u>N</u>	“ZERO – Clear the ERDS (Processing Parameter)” on page 42

ACC – Accumulate Records (Processing Parameter)

Tells EREP to

Copy the records that passed filtering for the report onto an output data set.

Syntax

ACC [=Y] | =N

Defaults

EREP assumes ACC=Y, except when you request a threshold report. Then, the default is ACC=N.

Coding

Specifying ACC is the same as ACC=Y.

Important: If you request a system summary report using the ERDS as input and code ACC=Y or allow it by default, EREP clears the ERDS even if you code ZERO=N. If your EREP run defines the ACCDEV file as DUMMY, the records are lost.

If you code or imply ACC=Y for an EREP run, you must also code the system control statements needed to define the output data set to hold the records. Refer to the following topics in the *EREP User's Guide* for more details and examples: [MVS System Controls](#), [Defining Files for CPEREPXA](#), and [VSE System Controls](#).

If you code ZERO=Y when requesting PRINT=SU or PRINT=NO, EREP assumes ACC=Y and expects you to define the output file.

Parameter Conflicts

DEVSER THRESHOLD ZERO=Y if ACC=N

Notes

EREP does not zero the ERDS unless *all the records have been accumulated* on an output file.

CPU – Central Processing Unit (Selection Parameter)

Tells EREP to

Use only the records containing the specified model and CPU ID numbers:

- The model number is the machine type.
- The CPU ID number may also be called the serial number in some reports.

The following are valid processor model numbers for the CPU parameter:

Processor		
2003	2097	9373
2064	2098	9375
2066	2817	9377
2084	2818	9672

	Processor	
2086	2827	9673
2094	2964	9674
2096	2965	

Syntax

`CPU=({nnnnnn | Xnnnnn | XXnnnn} .model [, nnnnnn | Xnnnnn | XXnnnn} .model] ...)`

nnnnnn

The six-digit hexadecimal CPU ID number. It defines a single processor in an *n*-way central processor complex.

Xnnnnn

The processor identifier. You may wish to use this form if you want to select *all* the records for an *n*-way central processor complex, single image or physically partitioned, without having to specify all the processor addresses individually. For example: 012345, 112345, 212345.

XXnnnn

The processor identifier. You may wish to use this form if you want to select *all* the records for a logical partitioned (PR/SM™ LPAR) central processor complex, whether single image or physically partitioned. See [“PR/SM Feature” on page 343](#).

model

The four-digit decimal processor model number.

Defaults

EREP processes records from all processors.

Coding

Maximum of six entries.

When using PR/SM to create logical partitions, use the logical partition identifier in conjunction with the last four digits of the serial number. See [“PR/SM Feature” on page 343](#) for more information.

Parameter Conflicts

CPUCUA MOD THRESHOLD ZERO

Notes

If you use the CPU parameter, you cannot use ZERO=Y because you have excluded some records from processing.

Examples

```
CPU=(123456.0168,234567.2084)
```

```
CPU=(0A1572.2098,1B1572.2098,2C1572.2098)
```

CPUCUA – CPU/Channel/Unit Address (Selection Parameter)

Tells EREP to

Use only the records containing the serial number and channel unit address specified.

Syntax

CPUCUA=(*serial*. {*cua* | *cuX*} [, *serial*. {*cua* | *cuX*}] ...)

serial

The six-digit hexadecimal CPU serial number.

cua

A unique three- or four-digit hexadecimal channel or unit address (the device number in a 370/XA environment).

cuX

Two or three hexadecimal digits followed by an *X* to denote the range of device addresses with those digits ending in 0 through F.

Defaults

EREP processes all available records.

Coding

Maximum of four entries.

When using PR/SM to create logical partitions, use the logical partition identifier in conjunction with the last four digits of the serial number. See [“PR/SM Feature” on page 343](#) for more information.

Parameter Conflicts

CPU
CUA
DEVSER
MOD
THRESHOLD
ZERO

Notes

- If you use the CPUCUA parameter, you cannot use ZERO=Y because you have excluded some records from processing.
- CPUCUA only affects the selection of record types (TYPE parameter) that contain a CUA:

CCH
DDR
MDR
MIH
OBR

CUA – Channel/Unit Address (Selection Parameter)

Tells EREP to

Use only the records containing (or not containing) the channel or unit address specified.

Syntax

CUA=({ [N] *addr* | [N] *addr*- [N] *addr* } [, ...])

addr

A three- or four-digit hexadecimal address or group of addresses. The format of the address may be *nnXX*, *nnnX*, or *nnnn* (for example: 01XX, 038X, or 049C). *nnXX* means that EREP processes all controller or unit addresses on channel *nn*; *nnnX* means that EREP processes all unit addresses on channel or control unit *nnn*.

Important: The channel identifier can be one or two digits.

addr-addr

A range of contiguous hexadecimal addresses, which may include more than one channel and control unit. The lower address must appear first in the expression. An X in the lower address represents a 0; in the upper address it represents an F.

N

Indicates *not*; it excludes CUAs from the report. *NnnXX* means that EREP processes all controller or unit addresses *not* on channel *nn*; *NnnnX* means that EREP processes all unit addresses *not* on channel or control unit *nnn*.

Defaults

EREP processes records from all devices (CUAs).

Coding

Maximum of eight entries.

You cannot select and exclude CUAs on the same CUA parameter; CUA=(123-320,N12C) is invalid.

Parameter Conflicts

CPUCUA ZERO

Notes

- If you use the CUA parameter, you cannot use ZERO=Y because you have excluded some records from processing.
- CUA only affects the selection of record types (TYPE parameter) that contains a CUA:

CCH
DDR
MDR
MIH
OBR

Exception: A2 and A3 records cannot be selected by CUA.

- If there are alternate paths to a device, and you want EREP to process all the records for the device, you must specify the CUAs for all the alternate paths.

Examples

To *select* records from a specific CUA or range of CUAs:

```
CUA=(012C)
```

```
CUA=(0123,032X,04XX)
```

```
CUA=(123-320,04XX)
```

```
CUA=(123-320,4B0-C00)
```

To *exclude* records from a specific CUA or range of CUAs:

```
CUA=(N012C)
```

```
CUA=(N0123,N032X,N04XX)
```

```
CUA=(N123-N320,N04XX)
```

```
CUA=(N123-N320,N4B0-NC00)
```

DATE — Date Range (Selection Parameter)

Tells EREP to

Select records created during the specified date range.

Syntax

```
DATE=( {yyddd[,yyddd] | yyddd[-yyddd] } )
```

yyddd

The year *yy* and the Julian day *ddd*.

The first *yyddd* is the year and day when the date range begins; the second *yyddd* is the ending year and day. The second date is optional; you can select records from a single date as well as from a range of dates. To select a single date, code only one *yyddd*.

When you code a date range, the second *yyddd* must be greater than or equal to the first. If it is not, EREP issues a syntax-error message.

Defaults

If you do not code the DATE parameter, all the records in the ERDS or history file will be selected for all the reports except for the trends report. For the trends report the default is to process 30 days of error data ending with the current date.

Coding

- DATE is valid with all the report parameters.

- To express a range of 30 days, add 29 to the beginning Julian day.
- DATE is required when you use the TIME selection parameter.

Parameter Conflicts

ZERO

Notes

- If you use the DATE parameter, you cannot use ZERO=Y because you have excluded some records from processing.
- The dates in the PERIOD FROM and TO in the report headings are the dates of the first and the last record found within the date range specified in the DATE parameter.

Examples

```
DATE=(82137)
```

```
DATE=(82136,82143)
```

```
DATE=(89152-89181)
```

DEBUG — Debug (Diagnostic Parameter)

Tells EREP to

Print the record input information indicated by the specified options as part of the EREP report.

Syntax

```
DEBUG=(nn[,nn] ...)
```

nn

The one- or two-digit decimal number assigned to an EREP DEBUG option.

The following DEBUG options are available for customer use:

Number

Meaning

4

Print the name and compile date of all control modules. Print the start and stop times of each routine called by IFCEREP1. The information appears in the EREP messages file (TOURIST output).

17

Print a hexadecimal dump of every record that passed filtering on the event report. The records appear in the event history report, one following each normal data line.

If you select a print report with DEBUG=(17) a hexadecimal dump of every record that passed filtering appears in the EREP messages file (TOURIST output).

Defaults

None. Debugging information is not normally printed.

Coding

No special considerations

Parameter Conflicts

None.

Notes

- See your IBM service representative before attempting any debugging of the EREP program.
- Because this book is primarily for IBM customers, it includes only those DEBUG options available and recommended for customer use; your IBM service representative can advise you further, if necessary.

DEV — Device Type (Selection Parameter)

Tells EREP to

Select or exclude records associated with the specified generic device types.

The following are valid device types for DEV:

Device Types							
AFP1	1060	2303	2780	327T	3490	3886	9313
BA00	1130	2305	2790	3277	3504	3890™	9332
BCTA	115A	2311	2930	3278	3505	3895	9335
CTCA	1255	2314	2947	3284	3525	3945	9336
ESIO	1270	2321	2955	3286	3540	3968	9345
NMVT	1275	2400	2956	3289	3590	3995	9347
OSA	1285	2495	2970	3310	3670	4245	9348
OSAD	1287	2501	2972	3330	3700	4248	
SCTC	1288	2520	3036	3340	3704	5080	
SWCH	1403	2540	3066	3350	3705	5203	
0671	1419	2560	3138	3370	3720	5424	
1012	1442	2596	3148	3375	3725	5425	
1015	1443	2671	3158	3380	3735	6262	
1017	2020	2701	3168	3390	3745	7340	
1018	2150	2702	3203	3400	3791	7443	
1030	2250	2703	3210	3410	3800	7770	
105D	2260	2715	3211	3420	3820	7772	
105T	2265	2740	3213	3422	3838	83B3	
1050	2280	2741	3215	3424	3848	8809	
1052	2282	2760	3262	3430	3850	9246	
1053	2301	2770	327D	3480	3851	9247	

The following are valid general device classes for DEV:

23XX 27XX 32XX 33XX 34XX 35XX 37XX 38XX ESIO

Syntax

DEV=(*type* | N*type*[, *type* | N*type*]...)

type

A four character field: either a specific device type (3340, 3420) or the representation of a class of devices (33XX, 34XX).

N

Indicates *not*; excludes a device type from the report.

Defaults

EREP processes records associated with all device types.

Coding

- **Maximum of eight entries.**
- The device type numbers must be enclosed in parentheses.
- You cannot select and exclude devices on the same DEV parameter; DEV=(3330,N2400) is invalid.
- DEV=(NMVT) selects NMVT records from all devices.
- DEV=(ESIO) selects the I/O units that are supported in EREP on the ESCON[®] links. See [“ESIO I/O Connected to an ESCON Link” on page 351](#) for more information.

Parameter Conflicts

ZERO

Notes

- If you use the DEV parameter, you cannot use ZERO=Y because you have excluded some records from processing.
- The only record types affected by the DEV parameter are the following:

Record types

A3 (A)	MDR (T)
CCH (C)	MIH (H)
DDR (D)	OBR (O)

- Special restrictions apply if you use the DEV parameter with any of the following parameters:
 - DEVSER
 - LIA/LIBADR
 - TYPE
 - THRESHOLD
 - VOLID

See the other parameter descriptions and [Part 3, “Product-Dependent Information,” on page 299](#) for the special restrictions.

- If a device is emulating another device, use the device type number of the emulated device on the DEV parameter.
- EREP interprets some DEV entries to mean more than just the device you have coded; see [Part 3, “Product-Dependent Information,” on page 299](#) for additional device-specific considerations.

Examples

To select records from specific devices or a class of devices:

```
DEV=(3420)
```

```
DEV=(33XX,3705)
```

To exclude the records from specific devices or a class of devices:

```
DEV=(N3420)
```

```
DEV=(N33XX,N3705)
```

DEVSER — Device Serial Number (Selection Parameter)

Tells EREP to

Select for the threshold summary only those OBR records that contain the specified device serial numbers.

Syntax

```
DEVSER=(serial [,serial] ...)
```

serial

A six-digit decimal device serial number from the service data.

Defaults

EREP selects OBR records without regard for the device serial numbers they contain.

Coding

Maximum of eight entries.

DEVSER is used only for the threshold summary report.

Parameter Conflicts

Parameters				
ACC	EVENT	PRINT	SYSEXN	TRENDS
CPUCUA	LIA/LIBADR	SHORT	SYSUM	ZERO
ERRORID	MOD	SYMCDE	TERMN	

Notes

- EREP forces the DEV and TYPE parameters when you use the DEVSER parameter. See [“Threshold Summary Report Information” on page 328 in Part 3, “Product-Dependent Information,” on page 299.](#)
- The device serial number is a value in a 2-byte field of a tape OBR record that corresponds to the external serial number of the device. If the external serial number is greater than 65535, only the four low-order digits (decimal) are correct for the device serial. To use DEVSER to specify numbers larger than 65535, do the following:
 1. Convert the external serial number to binary
 2. Reconvert the low-order (rightmost) 16 bits to decimal
 3. Pad the resulting number with leading zeros to make a six-digit decimal number.

Examples

DEVSER=(013455,113455,213455)

ERRORID — Error Identifier (Selection Parameter)

Tells EREP to

Select for the requested report only the records containing the specified error identifier.

Syntax

ERRORID=(*seqno* [,*cpuid*,*asid*,*hh*,*mm*,*ss*,*t*])

seqno

A 5-digit decimal error identifier from an MCH record or an MVS software (SFT) record.

cpuid

A 2-digit hexadecimal processor (CPU) identifier.

asid

A 4-digit hexadecimal address space identifier.

hh

A 2-digit decimal value representing the hour.

mm

A 2-digit decimal value representing the minute.

ss

A 2-digit decimal value representing the second.

t

A single decimal digit indicating tenths of the second.

Defaults

EREP processes all MCH and SFT records, regardless of their error identifiers.

Coding

- Coding only the sequence number *seqno* causes EREP to process all records with the same error ID, regardless of when or where they were recorded.

- If you code the time-stamp values on the ERRORID parameter, you must also code the DATE parameter.
- If you use the ERRORID parameter, you cannot use ZERO=Y because you have excluded some records from processing.
- The only records that contain an error ID are machine check (MCH) records and software (SFT) records produced by MVS. Therefore, the only record TYPE values you can code with the ERRORID parameter are M and S.

Parameter Conflicts

DEVSER THRESHOLD ZERO

Examples

```
ERRORID=(01234)
```

```
ERRORID=(23456,01,0012,06,21,31,6)
```

EVENT — Event History (Report Parameter)

Tells EREP to

Produce an event history report (one-line abstracts of selected records in chronological order).

Syntax

EVENT [=Y] | =N

Defaults

EREP does not produce an event history report.

Coding

EREP produces an event history report only when you specifically code EVENT.

Specifying EVENT is the same as EVENT=Y.

Parameter Conflicts

DEVSER SHORT

Notes

If you do not code any selection parameters with EVENT, EREP processes all available records for the report. The default value of ZERO=N means that EREP does not clear the ERDS unless you specifically request it.

HIST — History Input (Processing Parameter)

Tells EREP to

Use the records in a history file for the requested report, instead of those in the ERDS.

Syntax

HIST[=Y] | =N

Defaults

EREP assumes HIST=N and uses the ERDS as input, if you omit this processing parameter.

Coding

- Specifying HIST is the same as HIST=Y.
- HIST is valid for all the report parameters.
- You must code the system control statements to define the input file and a temporary work file. Refer to the following topics in the *EREP User's Guide* for more details and examples: [MVS System Controls](#), [Defining Files for CP/EREPA](#), and [VSE System Controls](#).
- To use more than one data set as the history input under MVS concatenate DD statements for the other data sets to the ACCIN DD statement. For VM and VSE, the history input must be in a single data set.

Parameter Conflicts

MERGE ZERO

Notes

When creating history dataset, HIST means write records to ACCDEV ddname (see 1st step in SYS1.SAMPLIB(IFBEREPS)).

LIA/LIBADR — Line Interface Base Address (Selection Parameter)

Tells EREP to

Select MDR records according to the specified line interface base address. See [Chapter 25, “Teleprocessing \(TP\) Devices,” on page 347 in Part 3, “Product-Dependent Information,” on page 299.](#)

Syntax

LIA | LIBADR=*address*

address

A four-digit hexadecimal line interface base address.

Defaults

EREP processes all available records.

Coding

You can use LIA or LIBADR; EREP accepts both forms.

Parameter Conflicts

DEVSER SYMCDE TERMN THRESHOLD VOLID ZERO

Notes

- If you use the LIA/LIBADR parameter, you cannot use ZERO=Y because you have excluded some records from processing.
- If you code the DEV parameter with any device other than a 3705, 3720, 3725, 3735, or 3745 communications controller, a parameter conflict occurs. See [Chapter 25, “Teleprocessing \(TP\) Devices,” on page 347](#) in Part 3, “Product-Dependent Information,” on page 299.

LINECT — Line Count (Processing Parameter)

Tells EREP to

Print this many lines on each page of output.

Syntax

LINECT=*nnn*

nnn

One-to-three decimal digits.

Defaults

For VSE systems, the number of lines set for SYSLST at SYSGEN.

For MVS, and VM systems, 50 lines per page.

Coding

Minimum value is 25.

For large installations, with more than 42 processors, LINECT=60 is recommended.

Parameter Conflicts

PRINT=NO

Notes

If the value you specify for LINECT is less than 25, EREP ignores it and uses the default value instead.

LINELEN — Line Length (Processing Parameter)

Tells EREP to

Print up to this many characters in each line of output.

Syntax

LINELEN=*nnn*

nnn

indicates the maximum number of characters to be printed on each line of output.

132

Standard print

165

High-density print, 3800 printer only, paper width≥12 inches.

204

High-density print, 3800 printer only, paper width≥14 7/8 inches.

Defaults

132

Coding

- Only LINELEN=132, LINELEN=165, or LINELEN=204 are valid.
- When you code LINELEN=204, the EREPPT DD statement must be coded to indicate high-density print is requested via the CHARS option:

```
//EREPPT DD SYSOUT=A,CHARS=(GSC,GFC,GUC)
```

OR

```
//EREPPT DD SYSOUT=A,CHARS=DUMP
```

Parameter Conflicts

None.

Notes

- This parameter is valid only for the system summary report. It is not useful for the following reports:

EVENT
PRINT={AL DR NO PS PT SD SU}
SYSEXN
THRESHOLD
TRENDS

- This parameter applies only if your installation has a 3800 printer and you are running under an MVS operating system.

MERGE — Merge Input Data Sets (Processing Parameter)

Tells EREP to

Use the records from both the ERDS and a history file as input for the requested report.

Syntax

MERGE [=Y] | =N

Defaults

EREP assumes MERGE=N and uses records from only one input file if you omit this processing parameter.

Coding

- Specifying MERGE is the same as MERGE=Y.
- You must make sure the system control statements needed to define both of the input files are present. Refer to the following topics in the *EREP User's Guide* for more details and examples: [MVS System Controls](#), [Defining Files for CPEREPXA](#), and [VSE System Controls](#)

Parameter Conflicts

HIST

Notes

- If you do not use the MERGE (or HIST) parameter, you are telling EREP that the ERDS is its only input.
- Under MVS, the history input can be in more than one data set. See [“HIST — History Input \(Processing Parameter\)”](#) on page 25.
- Under VSE, the input and output files should be assigned to different EXTENTS.

MOD — Processor Model (Selection Parameter)

Tells EREP to

Select for the requested report only those records containing the specified CPU (processor) model numbers.

The following are valid processor model numbers for the MOD parameter:

Processor models						
0115	0155	2066	2098	3062	9021	9373
0125	0158	2084	2964	4321	9081	9375
0135	0165	2086	2965	4331	9083	9377
0138	0168	2094	3031	4341	9121	9672
0145	2003	2096	3032	4361	9190	9673
0148	2064	2097	3033	4381	9221	9674

Syntax

MOD=(*model* [, *model*] ...)

model

A three- or four-digit decimal processor model number.

Defaults

EREP processes records regardless of which kind of processor they were created on.

Coding

Maximum of four entries.

Parameter Conflicts

CPU CPUCUA DEVSER THRESHOLD ZERO

Notes

- MOD is the processor equivalent of the DEV parameter.
- If you use the MOD parameter, you cannot use ZERO=Y because you have excluded some records from processing.

Examples

MOD=(168, 3031)

MODE – Operating Mode (Selection Parameter)

Tells EREP to

Select for the requested report only those records created while the system was operating in the specified mode.

Syntax

MODE={370 | 370XA | ALL}

370

means 370 mode only.

370/XA

means 370XA and 370/ESA modes only.

ALL

means 370, 370XA and 370/ESA modes.

Defaults

If you omit this selection parameter, EREP assumes MODE=ALL and processes all available records, regardless of the mode they were recorded in.

Coding

- ZERO=Y is valid only with MODE=ALL.
- If you code:
 - MODE=370 and TYPE=C, EREP processes CCH records
 - MODE=370XA and TYPE=C, EREP processes SLH and CRW records
 - MODE=ALL and TYPE=C, EREP processes all available CCH, SLH, and CRW records

Parameter Conflicts

None.

Notes

- If EREP is running under any MVS system except MVS/XA, it treats software (SFT) records produced by MVS/XA as unknown records. Therefore, the combination of MODE=370XA or MODE=ALL and TYPE=S is meaningful only if the records were produced by MVS/XA.
- If a device is supported in 370XA mode, any detail summary reports you request for the device reflect that mode, regardless of what you specify on the MODE parameter.

PRINT — Print reports (report parameter)

Tells EREP to

Produce the PRINT reports specified (or PRINT=NO to produce no report output).

Syntax

PRINT={AL | DR | NO | PS | PT | SD | SU}

AL

requests all the detail (PRINT) reports: detail edits of the records, detail summaries, and, if applicable, data reduction reports.

DR

requests only data reduction reports.

NO

requests that no reports be generated at all.

PS

requests both detail edit and detail summary reports.

PT

requests only detail edit reports.

SD

requests detail summaries and data reduction reports.

SU

requests only detail summary reports.

Defaults

If you do not code any report parameter at all, EREP assumes PRINT=SD, which produces a detail summary and, if applicable, a data reduction report for each record and device type you select.

Coding

- If you code PRINT without a keyword value, it is a syntax error. You cannot code PRINT alone.
- If you code ZERO=Y and either PRINT=NO or PRINT=SU, EREP assumes ACC=Y; make sure the ACCDEV output file is present to receive the accumulated records.
- If you do not want any report output, code PRINT=NO.
- If you want EREP to clear the ERDS you must change the value of the ZERO parameter YES. The default value for the ZERO parameter is NO with PRINT.
- If you use selection parameters with PRINT, you cannot clear the ERDS because not all the records have been processed for the report.

Parameter Conflicts

DEVSER

SHORT — Print Short OBR Records (Processing Parameter)

Tells EREP to

Include short OBR records in a requested detail edit (PRINT) report.

Syntax

SHORT [=Y] | =N

Defaults

If you omit this processing parameter, EREP assumes SHORT=N and suppresses the detail printing of short OBR records.

Coding

Specifying SHORT is the same as SHORT=Y.

Parameter Conflicts

DEVSER EVENT PRINT=DR PRINT=NO PRINT=SD PRINT=SU SYSEXN SYSUM TRENDS THRESHOLD

Notes

The OBR detail summary always includes the information in short OBR records (unless they are VTAM OBR records.)

SYMCDE – Fault Symptom Code (Selection Parameter)

Tells EREP to

Select for the requested report only those 33XX DASD records having the specified fault symptom code. The symptom code consists of the bit settings in a two-byte field of the sense data in an OBR record for a 33XX DASD.

Syntax

SYMCDE={nnnn | nnnX | nnXX | nXXX}

n
is a hexadecimal digit.

Defaults

EREP processes 33XX records regardless of their symptom code bit settings.

Coding

No special considerations.

Parameter Conflicts

Parameters	
DEVSER	THRESHOLD
LIA/LIBADR	VOLID
TERMN	ZERO

Notes

- If you use the SYMCDE parameter, you cannot use ZERO=Y because you have excluded some records from processing.
- The SYMCDE parameter only affects TYPE=O records that contain a symptom code.
- The combination of digits and Xs on the parameter indicate how specific you are being: if you code 4032, you want EREP to select only the records containing that exact symptom code; if you code 40XX, you want EREP to select the records containing symptom codes that begin with 40.

Examples

Following are some ways to code SYMCDE, and the resulting bit setting EREP looks for in the OBR sense data.

Parameter Value
Bit Setting

SYMCDE=4032
0100 0000 0011 0010

SYMCDE=193X

0001 1001 0011 xxxx

SYMCDE=92XX

1001 0010 xxxx xxxx

SYMCDE=9XXX

1001 xxxx xxxx xxxx

x indicates either a **0** or **1** is valid.

SYSEXN — System Exception Reports (Report Parameter)

Tells EREP to

Produce the system exception report series (several reports covering various aspects of your processing and I/O subsystems).

Syntax

SYSEXN[=Y] | =N

Defaults

EREP does not produce a system exception report series.

Coding

- EREP only produces a system exception report series when you specifically code SYSEXN.
- Specifying SYSEXN is the same as SYSEXN=Y.
- Take care when specifying TYPE with SYSEXN because the report results can be misleading.
- You may need the DASDID, SYSIMG, and LIMIT control statements to customize the system exception reports. See [Chapter 3, “EREP Control Statements,” on page 45](#)

Parameter Conflicts

DEVSER SHORT

Notes

- See Part 3, “Product-Dependent Information,” on [page 299](#), for device-specific information about the system exception report series.
- Unless you use DATE or TIME or both with SYSEXN, EREP processes all the available records.
- EREP requires a large internal sort table to create the system exception reports (512KB is a reasonable TABSIZE value). The increase in TABSIZE probably requires a corresponding increase in the virtual storage (partition or region size) available to EREP. Refer to the following topics in the [EREP User's Guide](#) for more details and examples: [MVS Storage Requirements](#) and [VSE Storage Requirements](#).

SYSUM — System Summary (Report Parameter)

Tells EREP to

Produce a system summary (a comprehensive report of errors for each of your system's principle elements: CPU, channel, subchannel, storage, SCP, and I/O subsystem).

Syntax

`SYSUM[=Y] | =N`

Defaults

EREP does not produce a system summary.

Coding

- EREP produces a system summary only when you specifically code SYSUM.
- Specifying SYSUM is the same as SYSUM=Y.
- Take care when specifying TYPE with SYSUM as report results can be misleading.

Parameter Conflicts

DEVSER SHORT

Notes

- When you request a system summary EREP accumulates the records to an output (ACCDEV) file and zeroes the ERDS if the following are true:
 - The input records are on the ERDS
 - The record selection is not restricted by date and time
 - The default value for ACC of YES is not changed to NO
 - The default value for ZERO of YES is not changed to NO

Important: When you code ACC=Y with SYSUM, EREP always clears the ERDS, even if you code ZERO=N.

- If you do not define an output (ACCDEV) file, EREP ABENDs.

TABSIZE — Sort Table Size (Processing Parameter)

Tells EREP to

Use a sort table of the specified size to process the records selected for the report.

The sort table is EREP's internal work space, where it arranges the records into the order required for a given report.

Syntax

`TABSIZE=nnnnK`

nnnn

is a 1–4 digit decimal number.

K

The value is in thousands of bytes.

Defaults

Op.Sys.	Virtual Storage	Sort Table	Records Processed
MVS	100KB	24KB	2400
VM	100KB	24KB	2400
VSE	100KB	4KB	400

Coding

No special considerations.

Parameter Conflicts

None.

Notes

- EREP requires at least 100KB of virtual storage for its internal sort table. Depending on the kind of report you are running, and on the number of records involved, you might have to increase the sort table size for a single EREP run or for all your EREP reports. Refer to the following topics in the *EREP User's Guide* for information on increasing the table size: [MVS Storage Requirements](#) and [VSE Storage Requirements](#).
- The approximate maximum practical table size beyond which EREP may terminate due to insufficient storage is shown in the following table:

Op.Sys.	Sort Table Size	Region Size
MVS	1500KB	8 MB
VM	2500KB	16 MB

- Requests for a table size greater than 3328KB may exceed EREP's addressing capability.

TERMN — Terminal Name (Selection Parameter)

Tells EREP to

Select for the requested report only those VTAM OBR records that contain the specified terminal name.

VTAM OBR records are created only for local teleprocessing devices. The terminal name in these records is the NCP, or major node name. Remote attached TP devices produce only MDR records, which contain the minor node name. See Chapter 25, "Teleprocessing (TP) Devices," on page 347 in Part 3, "[Product-Dependent Information](#)," on page 299, for the devices to which this parameter applies.

Syntax

TERMN=*name*

name

The valid one-to-eight character alphanumeric name assigned to a particular terminal.

Defaults

EREP processes VTAM OBR records regardless of the terminal name they contain.

Coding

No special considerations.

Parameter Conflicts

Parameters	
DEVSER	THRESHOLD
LIA/LIBADR	VOLID
SYMCDE	ZERO

Notes

- If you use the TERMN parameter, you cannot use ZERO=Y because you have excluded some records from processing.
- Although TERMN applies only to VTAM OBR records, EREP processes other types of records for the report unless you also code the appropriate DEV value and TYPE=O. See [Chapter 25, “Teleprocessing \(TP\) Devices,”](#) on page 347.

Examples

```
TERMN=T001
```

```
TERMN=TERM0025
```

THRESHOLD — Threshold Summary (Report Parameter)**Tells EREP to**

Produce a threshold summary for your 3410, 3420, and 8809 tape devices. The report includes only those records with read/write error counts equal to or greater than the values specified on the parameter.

Syntax

THRESHOLD=(xxx,yyy)

xxx

The one-to-three digit decimal (leading zeros not required) threshold value for temporary read errors. Maximum value is 255.

yyy

The one-to-three digit decimal (leading zeros not required) threshold value for temporary write errors. Maximum value is 255.

Defaults

Unless you specifically code THRESHOLD and some threshold values, EREP produces no threshold summary.

Coding

- You cannot code THRESHOLD alone; you also need the threshold values on the parameter.
- If you do not specifically code DEV=(3410), DEV=(3420), or DEV=(8809), EREP processes records from all three device types. If you code DEV=(34XX), EREP processes records from all three device types.
- You cannot code ACC=Y with THRESHOLD.
- You cannot code ZERO=Y with THRESHOLD; not all the records are used for the report, so EREP does not clear the ERDS even if you request it.

Parameter Conflicts

Parameters					
ACC	CPUCUA	LIA/LIBADR	SHORT	TERMN	ZERO
CPU	ERRORID	MOD	SYMCDE	TYPE	

Notes

- The threshold summary uses only OBR and MDR records; you cannot select records by type.
- For this report, EREP accumulates STARTIO (SIO) counts for records flagged as demount records.

Examples

```
THRESHOLD=(1,5)
```

```
THRESHOLD=(005,015)
```

TIME — Time Range (Selection Parameter)

Tells EREP to

Select only those records created during the specified time period.

Syntax

```
TIME=( {hhmm, hhmm | hhmm-hhmm} )
```

hhmm

Is a valid time period, hours and minutes.

Defaults

EREK selects records regardless of when they were created.

Coding

- You must always code DATE when you code TIME.
- You code **hhmm** using a 24-hour clock (for example: 1400 for 2 p.m.).

Parameter Conflicts

ZERO

Notes

- If you use the TIME parameter, you cannot use ZERO=Y because that excludes some records from processing.
- If the second *hhmm* value is greater than or equal to the first, the time interval pertains to each day of the date range specified on the DATE parameter. For example:

```
DATE=(89031,89033) ,TIME=(1000,1100)
```

tells EREP to select records from 10:00 to 11:00 on each of three successive days.

- If the second *hhmm* value is less than the first, EREP assumes that the time interval crosses a day boundary. The interval is then regarded as two sub-intervals, one ending at 2400 and the other beginning at 0000. For example:

```
DATE=(89031-89033) ,TIME=(1100-1000)
```

tells EREP to select records from 1100 to 2400 on day 89031; from 000 to 1000 and 1100 to 2400 on day 89032; and from 000 to 1000 on day 89033.

TRENDS — Trends Report (Report Parameter)

Tells EREP to

Produce a trends report that shows the pattern and frequency of errors on a daily basis.

Syntax

TRENDS[=Y] | =N

Defaults

EREK produces no trends report.

Coding

EREK produces a trends report only when you specifically code TRENDS.

Specifying TRENDS is the same as TRENDS=Y.

Parameter Conflicts

DEVSER SHORT

Notes

- SIM generating devices will not be included in trends reports. (These devices include all of the devices in the 3390, 9345, and subsequent families.)
- If you request a trends report without specifying a date range on the DATE parameter, EREP processes the last 30 days of data, ending with the current date.
- If you do specify a date range, it cannot exceed 30 days.
- The default value for the ZERO parameter is NO with TRENDS; you must change the value of the ZERO parameter if you want EREP to clear the ERDS.

TYPE — Record Type (Selection Parameter)

Tells EREP to

Select only the specified types of records.

Syntax

TYPE=*code*[*code*]...

Each *code* is one of the following:

Code

Record Type

A

A1 through AF records

B

B1 through BF records

C

CCH/CRW/SLH: Channel check/channel report word/subchannel logout records

D

DDR: Dynamic device reconfiguration records

E

System termination (EOD): End of day and other terminating events

F

F0 through FF records

H

MIH: Missing interrupt records

I

System initialization (IPL): Initial program load

M

MCH: Machine check records

O

OBR: Outboard records; unit checks

S

Software (SFT): System abends and other software events

T

MDR (formerly TPR): Miscellaneous data records

- X**
C0 through CF records
- Y**
D0 through DF records
- Z**
E0 through EF records

Defaults

EREP uses all types of records for the report.

Coding

Do not include parenthesis, commas, or blanks when coding TYPE.

Parameter Conflicts

THRESHOLD ZERO

Notes

- Take care when specifying TYPE with SYSUM or SYSEXN as report results can be misleading.
- If you use the TYPE parameter, you cannot use ZERO=Y because you have excluded some records from processing.
- Some other EREP selection parameters are meaningful with only some of the record types. The following table shows these parameters and the record-type codes they work with:

Parameter	Record Types
CPUCUA	C, D, H, O, T
CUA	C, D, H, O, T
DEV	A, C, D, H, O, T
DEVSER	O
ERRORID	M, S
LIA/LIBADR	T
SYMCDE	O
TERMN	O
VOLID	O, T

Coding these selection parameters by themselves does not fully limit the types of records EREP processes; you also need the TYPE parameter to improve EREP's processing efficiency.

For example:

If you want a report using CCH records selected by CPUCUA, you must code TYPE=C as well as the CPUCUA parameter. Otherwise, EREP will use all the record types that contain a CPUCUA, which are DDR, MCH, MDR, MIH, and OBR, as well as CCH.

- If you use the TYPE selection parameter, EREP does not process records that are invalid or unknown.

Examples

To select machine-check and channel-check records:

```
TYPE=MC
```

To select all software-generated records:

```
TYPE=EIS
```

VOLID — Volume Identifier (Selection Parameter)

Tells EREP to

Select only those DASD and tape records associated with the specified volume identifiers.

Syntax

VOLID= (*volser* [,*volser*] ...)

volser

A valid volume identifier (or serial number) that can be from one-to-six alphanumeric characters long.

Defaults

EREP selects DASD and tape records regardless of their volume identifiers.

Coding

Maximum of four entries.

No special considerations.

Parameter Conflicts

LIA/LIBADR SYMCDE TERMN ZERO

Notes

- The VOLID parameter is meaningful only for devices providing volume serial numbers.
- The VOLID parameter is not supported for A3 records, even if they contain a volume ID.
- If you use the VOLID parameter, you cannot use ZERO=Y, because you have excluded some records from processing.
- When you are using VOLID for a threshold summary, EREP assumes you want to see records from all your 34XX tape devices unless you specifically code DEV=(3410), DEV=(3420), or DEV=(8809).

Examples

```
VOLID=(TPONE,TPE2),DEV=(3420),THRESHOLD=(01,15)
```

```
VOLID=(TAPE5,CLPACK),PRINT=PS
```

ZERO – Clear the ERDS (Processing Parameter)

Tells EREP to

Reset the pointers in the ERDS header record so the operating system writing the records can start writing at the beginning of the ERDS (overwriting old, previously processed records). EREP uses the ERDS header record to know where to start and stop reading to get only the records written since the last time the ERDS pointers were reset.

Syntax

ZERO[=Y] | =N

Defaults

EREP does not clear the ERDS.

Coding

EREP clears the ERDS when you code ZERO (specifying ZERO is the same as ZERO=Y).

A few circumstances exist where EREP does not clear the ERDS even when you code ZERO=Y:

- If an overflow occurs in the sort table or work data set
- If you coded ACC=Y, but the output file cannot be opened
- If you coded ACC=Y, but EREP cannot process all the records because of table overflow

Important: Allow read-only users to read ERDS without a RACF ABENDs913 if ZERO=N is specified or defaulted. If a user requests a system summary report using the ERDS as input and codes ACC=Y or allows it by default, EREP clears the ERDS, even if ZERO=N is specified. This means that when users generate a system summary report, they must have update-access instead of read-only access. If ACCDEV is defined as DUMMY, the records are lost.

If you code ZERO=Y when requesting PRINT=SU or PRINT=NO, EREP assumes ACC=Y and expects you to define the output file.

Parameter Conflicts

Parameters			
ACC=N if ZERO=Y	DEV	MOD	TYPE
CPU	DEVSER	SYMCDE	VOLID
CPUCUA	ERRORID	TERMN	
CUA	HIST	THRESHOLD	
DATE	LIA/LIBADR	TIME	

Notes

MODE is a conflict except when ZERO=Y and MODE=ALL, which indicates no record selection.

Chapter 3. EREP Control Statements

Use EREP control statements in addition to EREP parameters to direct EREP processing. Control statements give EREP more information about your hardware configuration and about how you want it to organize the report you are requesting.

This topic covers the following subjects:

TOPIC
“Coding Control Statements” on page 45
“Summarizing Control Statements” on page 46
“Using Control Statements with Reports” on page 47
“Control Statement Syntax” on page 48
“CONTROLLER Control Statement” on page 49
“DASDID Control Statement” on page 51
“LIMIT Control Statement” on page 56
“SHARE Control Statements” on page 57
“SYSIMG Control Statement” on page 62

Coding Control Statements

Here are some considerations and recommendations to keep in mind when coding control statements:

- Several control statements are required for each EREP run.
- The same control statements may apply to several EREP runs.
- EREP ignores statements that do not apply.
- The control statements usually change only when your configuration changes.
- Some EREP control statements require considerable preparation.
- Putting control statements in a file is preferable to entering the statements in the input data stream.

Each EREP control statement has its own coding rules. Here are a few general coding rules that you must follow:

- Using ENDPARM

Control statements cannot be mixed with EREP parameters. If parameters and control statements are in the same file, you must code ENDPARM to indicate the end of parameters before coding any control statements. ENDPARM must begin on column 1.

- Entering Control Statements

The following table shows the operating system specific guidelines you must follow.

OP. SYSTEM	ERP CONTROL STATEMENT GUIDELINES
MVS	<p>The ERP control statements must always be entered as SYSIN data.</p> <ul style="list-style-type: none"> – You can enter the control statements as in-stream data. – You can put the control statements into a separate file specified by the SYSIN JCL statement. <p>Refer to the SYSIN DD statement description in MVS System Controls and Coding the JCL in the <i>ERP User's Guide</i> for more information and examples.</p>
VM	<p>There are several ways to enter control statements:</p> <ul style="list-style-type: none"> – You can enter CPERPXA on the command line and supply the parameters and then the control statements in response to its prompting messages. – You can put the parameters and control statements in a file that is called as an operand to CPERPXA. – You can use the CMS EXEC &STACK control statement to enter the parameters and then the control statements as in-stream data before coding the CPERPXA EXEC. <p>Refer to Entering CPERPXA Operands in the <i>ERP User's Guide</i> for more information and examples.</p>
VSE	<p>You must always code control statements as in-stream data in the SYSIPT data statement. Refer to Assignments at Initialization in the <i>ERP User's Guide</i> for more information.</p>

Continuing Control Statements

You cannot continue a control statement from one line to the next. However, you can code several control statements by repeating complete statements on new lines in order to convey your information to the ERP program. See the control statement descriptions for more details.

CPU Serial Number Restriction

The combined number of CPUs or system images specified on all of the control statements for an ERP run cannot exceed 16.

Use the SYSIMG statement to expand ERP's capabilities.

The SYSIMG statement allows ERP to process records from an *n*-way processor so that those processors operating in the same system image are reported under the CPU serial number. See ["SYSIMG Control Statement"](#) on page 62 for additional information.

Summarizing Control Statements

ERP control statements provide information about your configuration and set overall criteria for the way you want ERP to create a report. The following table lists the types of control statements and describes how each affects the ERP run.

CONTROL STATEMENTS	WHAT THEY DO	REFER TO
CONTROLLER	Tells ERP to combine the error records associated with this particular control unit and its attached devices. This control statement only applies to the system summary and threshold reports.	"CONTROLLER Control Statement" on page 49

CONTROL STATEMENTS	WHAT THEY DO	REFER TO
DASDID	Tells EREP that this is the configuration of the 33XX DASDs within each subsystem; identifies those that do not provide physical IDs for the system exception report series. This control statement applies only to the system exception report series.	“DASDID Control Statement” on page 51
ENDPARM	Tells EREP that this is the end of the in-stream EREP parameters; the in-stream data that follows consists of EREP control statements.	
LIMIT	Tells EREP to produce output for the system exception reports only when the number of megabytes processed per error is less than the megabytes specified by the error frequency value and the number of times the error occurs is greater than or equal to the number specified by the count value. This control statement applies only to the system exception report series.	“LIMIT Control Statement” on page 56
SHARE	Tells EREP to combine the records for these devices that are shared between systems. This control statement applies to all the reports that generate I/O device summaries.	“SHARE Control Statements” on page 57
SYSIMG	Tells EREP to modify the CPU serial numbers for <i>n</i> -way processors so that those processors operating in the same system image are reported under the same CPU serial number.	“SYSIMG Control Statement” on page 62

Using Control Statements with Reports

Some EREP control statements are general-purpose, applying to most of the reports and most kinds of devices. Others are quite report-specific and product-specific.

Table 3 on [page 47](#) shows which control statements you can use with the various EREP report parameters.

<i>Table 3. Valid Combinations of Control Statements and Report Parameters</i>					
PARAMETERS	CONTROLLER	DASDID	LIMIT	SHARE (1)	SYSIMG
EVENT				YES	YES
PRINT = AL				(2)	(3)
PRINT = DR				YES	(3)
PRINT = NO					(3)
PRINT = PS				(2)	(3)
PRINT = PT					(4)
PRINT = SD				(2)	(3)
PRINT = SU				YES	(3)
SYSEXN		YES	YES	(5)	YES
SYSUM	YES			YES	YES
THRESHOLD	YES			YES	YES

Table 3. Valid Combinations of Control Statements and Report Parameters (continued)

PARAMETERS	CONTROLLER	DASDID	LIMIT	SHARE (1)	SYSIMG
TRENDS				YES	YES
Notes: <ol style="list-style-type: none"> 1. SHARE statements are not used for DASD devices that provide product identifiers within their sense. 2. These PRINT options include detail summaries, which can include shared I/O devices. 3. Do not use if data is from the ERDS. 4. Use of the SYSIMG parameter does not affect the PRINT=PT parameter. The PRINT=PT parameter allows the processing of an unlimited number of CPUs; there is no need to alter serial numbers. 5. Use only for tape devices and DASD devices that do <i>NOT</i> provide product identifiers within their sense data. 					

Control Statement Syntax

The following table summarizes the syntax of individual EREP control statements and shows where to find the complete control statement descriptions.

SYNTAX	REFER TO
CONTROLLER=(<i>cpuser</i> .{ <i>ccua</i> | <i>ccuX</i> | <i>ccua-ccua</i> }[, <i>cpuser</i> .{ <i>ccua</i>|<i>ccuX</i> | <i>ccua-ccua</i> }]...)	"CONTROLLER Control Statement" on page 49
370: DASDID CPU= <i>nnnnnn</i> ,CH= <i>xx</i> ,SCU= <i>ss</i> ,STR= <i>ccuu</i> ,STR= <i>ccuu</i> ,STR= <i>ccuu</i> ,STR= <i>ccuu</i> ,...	"DASDID Control Statement" on page 51
370XA: DASDID CPU= <i>Xnnnnn</i> ,CHP= <i>xx</i> ,SCU= <i>ss</i> ,STR= <i>ccddddd</i> ,STR= <i>ccddddd</i> ,STR= <i>ccddddd</i> ,STR= <i>ccddddd</i> ,...	"DASDID Control Statement" on page 51
LIMIT { <i>dasd</i> , <i>dkeyword</i> [, <i>dkeyword</i>]... | <i>tape</i> , <i>tkeyword</i> [, <i>tkeyword</i>]... | <i>cpu</i> , <i>ckeyword</i> [, <i>ckeyword</i>]...}	"LIMIT Control Statement" on page 56
SHARE=([<i>XA</i> .] <i>cpuser</i> .{ <i>ccua</i>|<i>ccuX</i> | <i>ccua-ccua</i> }[, [<i>XA</i> .] <i>cpuser</i> .{ <i>ccua</i> | <i>ccuX</i> | <i>ccua-ccua</i> }]...)	"SHARE Control Statements" on page 57
SYSIMG BASESN={ALL | <i>sssss</i> [,CPCTYPE= <i>tttt</i>][,CP= <i>n.n...</i>]}	"SYSIMG Control Statement" on page 62

Program Syntax Diagrams

Program syntax diagrams describe the syntax of the control statements. The following table contains samples and explanations of some of the syntax diagram elements:

PROGRAM SYNTAX DIAGRAM	DESCRIPTION
Required sequence 	Required sequence of variables
Required followed by required 	Required keyword followed by a required variable
Optional 	Optional sequence of variables

PROGRAM SYNTAX DIAGRAM	DESCRIPTION
<p>Required choice</p>	Required choice between these variables
<p>Repeatable required</p>	Required variable that can be repeated after a separator character

CONTROLLER Control Statement

The CONTROLLER control statement provides EREP with channel control unit addresses (CUAs) or device numbers for the I/O devices attached to a control unit, allowing EREP to total the error counts for the control unit.

CONTROLLER control statements are:

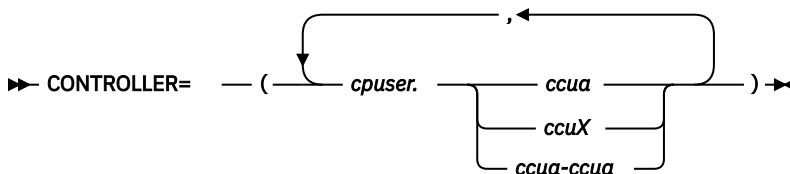
- Used with the system summary report and the threshold report.
- Necessary when there are more than 16 devices on a control unit.
- Not used for DASD devices that provide product identifiers within their sense.

Indicates

The CUAs attached to a control unit.

Syntax

CONTROLLER control statement



cpuser

Is a six-digit hexadecimal CPU serial number (digits 0–F).

ccua

Is a three- or four-digit hexadecimal channel CUA or device number (digits 0–F). The first digit is the channel designated to the operating system as the primary CUA for the device.

ccuX

Is a two- or three-digit hexadecimal channel-control unit number with X indicating all the device addresses attached to that control unit.

ccua-ccua

Is a range of continuous addresses. The low end of the range must be first. The range must be at least one, and cannot exceed 32.

Defaults

None.

Coding

- CONTROLLER must be the first word in the statement, followed by an equal sign and the desired values in parentheses. No embedded blanks are allowed.
- Each entry on the CONTROLLER statement defines a controller grouping (the range of devices on a particular control unit). Additional entries on this and other CONTROLLER statements define other controller groupings.
- The combined number of CPUs (*cpuser*), specified on all of your control statements cannot exceed 16.
- Each control unit summary is limited to 16 device addresses unless CONTROLLER statements indicate otherwise.
- You can specify up to 32 CUAs for a single control unit.
- Every entry on a CONTROLLER statement must define the complete set of devices attached to that control unit.
- When a CONTROLLER statement specifies part of a 0–F range of device addresses and physical devices are attached to addresses in the remaining portion of the range, use another CONTROLLER entry to define the remaining devices, to prevent misleading output.
- You cannot overlap device address ranges on two CONTROLLER statements.
- Specify a range of addresses (*cpuser.ccu*–*ccu*) the same way each time you use it.
- If you specify a processor-device address combination on a CONTROLLER statement, you cannot specify a range that includes that combination on any other CONTROLLER statement.
- When you code a range of device addresses (*ccu*–*ccu*):

If the control unit digit, <i>u</i> , in the low CUA	For Example
Is odd , the high CUA must have the same <i>ccu</i> digits.	0350–0357 is valid 0358–0367 is not valid
Is even , the high CUA must have the same even <i>ccu</i> digits, or the next greater odd <i>u</i> digit.	0368–036F is valid 0368–0377 is valid 0368–0388 is not valid
Note: The channel identifier can be one or two digits.	

Notes

- You can combine CONTROLLER statements with SHARE statements to make EREP combine the errors for shared devices by control unit. See [“SHARE Control Statements” on page 57](#).
- The CPU entries that appear on CONTROLLER statements override the default number identifier assignments EREP makes for processors that appear in reports. See [“How EREP Assigns Numbers to CPUs” on page 61](#) for details.

Examples

The following example illustrates the use of the CONTROLLER statement to define a controller grouping containing the full range of 32 devices:

```
CONTROLLER=(011111.0480-049F)
```

The result of this statement is that EREP combines the errors reported from the devices at addresses 0480 through 049F on CPU 011111 in one report entry.

DASDID Control Statement

The DASDID control statements identify the devices in your installation and the paths to the processors they work with.

You need DASDID control statements to provide EREP with *physical identifiers* for the DASD in your installation that do not provide their own physical IDs. See [Chapter 17, “Direct-Access Storage Devices \(DASD\),” on page 315](#) for these devices.

EREP uses these *physical identifiers* to determine the probable failing unit (PFU) for the system exception report series.

The DASDID statements define the different paths from processors to devices in much the same way as do SHARE statements:

- You can use the DASDID statements to take the place of SHARE statements for the DASD subsystem exception reports.
- You can include the SHARE statements for DASD when you run the system exception report series, but EREP ignores them and uses the DASDID information instead.

Set up the DASDID statements, before you request the system exception report series. See [“Setting up DASDID Controls” on page 53](#) for detailed directions on preparing DASDID controls.

Indicates

The paths from a processor through channels, storage control units and controllers to each drive.

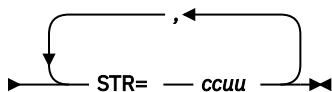
Syntax

DASDID statement formats differ depending on whether the processor is running in 370 or 370XA mode.

The syntax of the *370 DASDID control statement* is:

370 DASDID control statement

➤ DASDID CPU= *nnnnnn* , CH= *xx* , SCU= *ss* , →



nnnnnn

Is a six-digit decimal CPU serial number.

xx

Is a two-digit hexadecimal number identifying the channel (CH) between this CPU and the storage control unit.

ss

Is the physical identifier of the storage control unit (SCU). Each SCU must have a unique ID number.

ccuu

Is a four-digit hexadecimal value representing the controller and unit address for each DASD string (STR). The DASD string is the set of eight unit addresses assigned to one controller (or pair of controllers):

cc

Is the number you assign, in the range of 01–FE, to each controller. Each controller must have a unique ID number; however, controllers with string switch and 3350s with alternate controllers should have only one ID number.

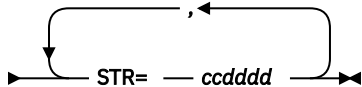
uu

Is the last two digits from the lowest address on the string. The second digit should be zero or eight.

The format of the 370XA DASDID control statement is:

370XA DASDID control statement

➡ DASDID CPU= — *Xnnnnn* — , — CHP= — *xx* — , — SCU= — *ss* — , — ➡



Xnnnnn

Is a five-digit hexadecimal CPU serial number preceded by an *X* in the central processor (CP) identifier position.

xx

Is the two-digit hexadecimal number identifying the channel path identifier (CHP) between this CPU and the storage control unit.

ss

Is the physical identifier of the storage control unit (SCU). Each SCU must have a unique ID number.

ccddd

Is a five- or six-digit hexadecimal value representing the controller device number for each DASD string (STR). The DASD string is the set of eight device numbers assigned to one controller (or pair of controllers):

cc

Is the number you assign, in the range of 01–FE, to each controller. Each controller must have a unique ID number; however, controllers with string switches and 3350s with alternate controllers should have only one ID number.

ddd

Is the lowest device number on the string.

Defaults

None.

If you omit DASDID statements, those DASD that do not provide their own physical IDs are identified on the reports only by device type.

Coding

- DASDID must be the first word in the statement, followed by one blank and the CPU= keyword with its associated value.
- The keywords on this statement are positional and must be separated by commas.

Notes

The combined number of distinct CPUs specified on all of your control statements cannot exceed 256.

Examples

The following sections give you examples:

1. “Setting up DASDID Controls” on page 53 describes how to set up DASDID control statements for your DASD subsystem.
2. “Checking Your DASDID Statements” on page 55 describes how to use the EREP messages file (TOURIST output) to make sure that your DASDID statements match your DASD subsystem configuration.
3. “DASDID Configuration Chart Notes” on page 55 describes how to use the notes that may accompany the DASDID configuration chart and their meanings.

Setting up DASDID Controls

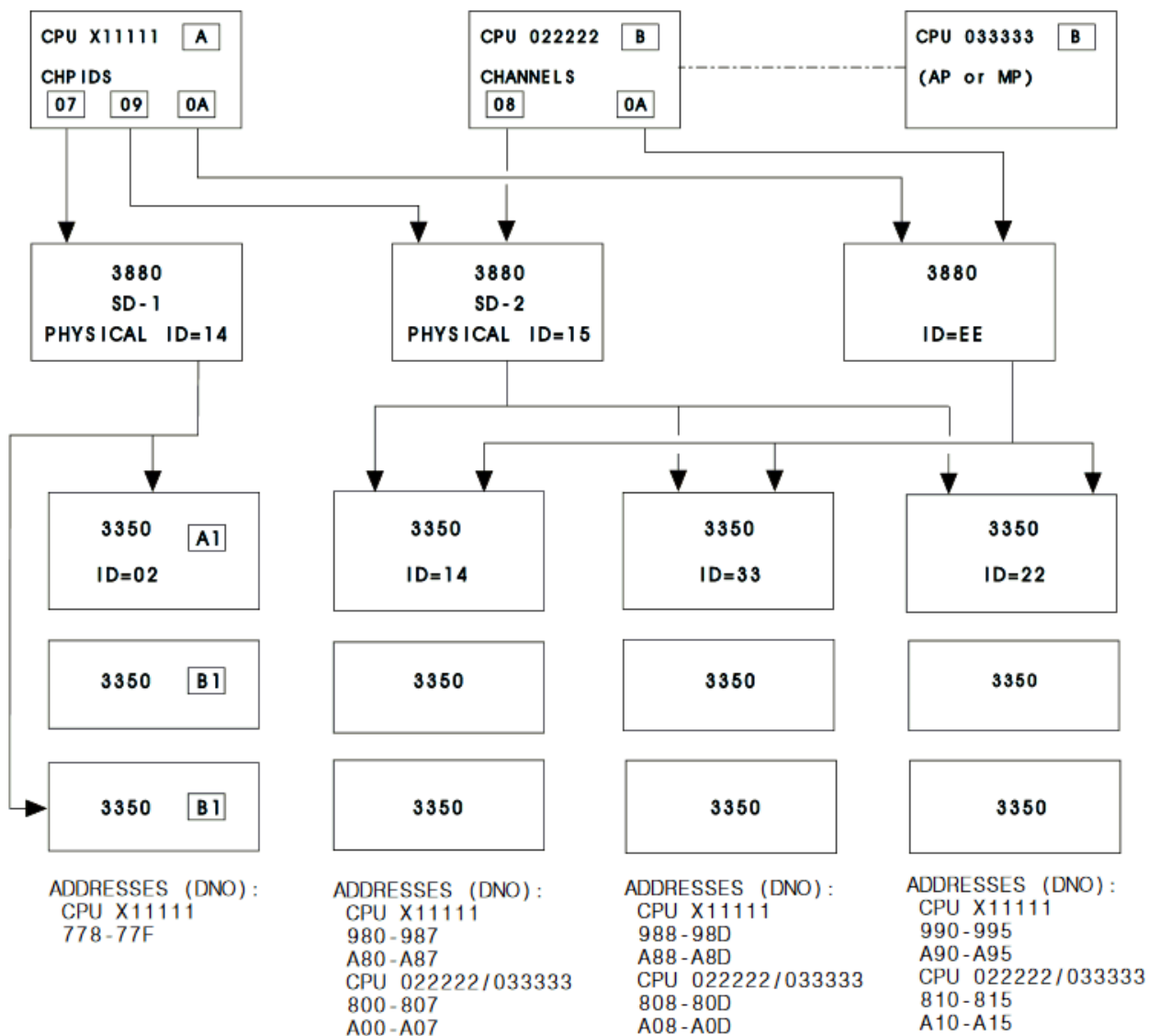
You do not need DASDID statements for DASD that provide their own physical IDs (for example, 3375s and 3380s). If you choose to code control statements for these devices, make sure the physical IDs you create match those switched into the storage directors.

Use the following steps to set up DASDID controls for your DASD subsystem.

STEP	ACTION	
1	Set up a diagram of your DASD configuration (see Figure 1 on page 54).	
	a	Show all connections between DASD controllers, storage control units, and channels.
	b	Include all processors that can record data on the ERDS. See CPU 033333 in Figure 1 on page 54 .
	c	Label each channel or channel path.
	d	Label the devices that have physical IDs.
	e	Create physical IDs for the devices that <i>do not provide their own</i> :
	1)	Assign a unique ID to each 3880. Do not duplicate IDs used on other storage control units.
2	2)	Assign a unique ID to each controller that does not have one. Do not duplicate IDs used on other controllers.
	3)	Determine the lowest unit address (or device number; the last two digits of the device address) for each string, by processor (CPU).
	f	Assign a unique label to each processor in the diagram.
	Create a comment line (as shown in Figure 2 on page 55) for each storage control unit, indicating the connected controllers and the DASD strings connected to them. For example:	
	<pre>*SCU15 CTRL14,33,22 CPU A (980-995) B (800-815)</pre>	
	describes one of the storage control units shown in Figure 1 on page 54 . This is storage control unit 15, that is connected to strings 980–987, 988–98D, and 990–995 from CPU A (X11111); and to strings 800–807, 808–80D, and 810–815 from CPU B (022222). The paths to the devices are through controllers 14, 33, and 22, in that order.	
	a	The comment lines serve two purposes:
3	1)	They outline the DASDID statements.
	2)	They document the DASDID statements in case of future configuration changes.
	b	The STR value in the DASDID statement consists of the controller ID and the lowest address or device number from the string attached through that controller to the CPU.
3	Create DASDID statements according to the comment lines.	
	Figure 2 on page 55 shows the completed comments and DASDID statements for the configuration shown in Figure 1 on page 54 .	

Figure 1 on page 54 shows one way to define the DASD configuration in an installation.

Important: This is an example; *not* a model configuration.



Notes:

1. The PHYSICAL IDs for the 3880s (14 and 15) are those switched into the storage director.
2. The IDs for the 3350s are arbitrary unique numbers that you assign.

Figure 1. DASD Configuration Diagram for DASDID Statements

Figure 2 on page 55 contains examples of the comment lines you create for each storage control unit, showing the controllers and the DASD strings connected to them.

```

:
*****
SYSEXN,TABSIZE=512K,HIST,DATE=84348,ACC=N
ENDPARM
*****
* CPU DEFINITIONS  A=X11111 B=022222 and 033333
* SCU 14          CTRL 02    A(778-77F)
DASDID CPU=X11111,CHP=07,SCU=14,STR=02778
* SCU 15          CTRL 14,33,22    A(980-995) B(800-815)
DASDID CPU=X11111,CHP=09,SCU=15,STR=14980,STR=33988,STR=22990
DASDID CPU=022222,CH=08,SCU=15,STR=1400,STR=3308,STR=2210
DASDID CPU=033333,CH=08,SCU=15,STR=1400,STR=3308,STR=2210
* SCU EE          CTRL 14,33,22    A(A80-A95) B(A00-A15)
DASDID CPU=X11111,CHP=0A,SCU=EE,STR=14A80,STR=33A88,STR=22A90
DASDID CPU=022222,CH=0A,SCU=EE,STR=1400,STR=3308,STR=2210
DASDID CPU=033333,CH=0A,SCU=EE,STR=1400,STR=3308,STR=2210
*****

```

Figure 2. Examples of DASDID Control Statements

Checking Your DASDID Statements

The EREP messages file (TOURIST output) for the system exception report series includes:

- The DASDID statements used
- A table showing the generated configuration

Important: This report must agree with your configuration if you expect the probable failing unit assignments in the system exception reports to be accurate.

To check the accuracy of your DASDID statements, you can do the following:

STEP	ACTION
1	Run EREP, requesting the system exception reports. Refer to Generating System Exception Reports in the <i>EREP User's Guide</i> for the location of examples on how to request these reports under each operating system.
2	Check the configuration chart in the EREP messages file (TOURIST) against your comment lines to be sure that your DASDID statements accurately show your configuration. Figure 5 on page 78 shows the configuration chart produced for the DASDID statements in Figure 2 on page 55 .

DASDID Configuration Chart Notes

Several notes may accompany the DASDID configuration chart.

NOTE

THE SCUs CANNOT BE FORMATTED. CC, CHANNEL, AND UA/DNO ARE GIVEN BY CPU.
THE SCUs INDICATED ABOVE COULD NOT BE FORMATTED FOR THE FOLLOWING REASONS.

1. THE NUMBER OF CONTROLLER IDS DOES NOT EQUAL THE NUMBER OF UA/DNOS FOR A CPU.
2. THE CONTROLLER IDS ARE NOT THE SAME FOR ALL THE CPUS ATTACHED TO THE SCU.
3. THE UA/DNOS FOR A CPU ARE EXPECTED TO CONSECUTIVELY INCREASE BY EIGHT.
THIS MAY NOT NECESSARILY BE AN ERROR.
4. THERE ARE MORE THAN FOUR UA/DNOS FOR A CPU.
5. THERE ARE MORE THAN THREE CHANNELS FOR A CPU IN 370 MODE.
6. THERE ARE MORE THAN FOUR CHANNELS FOR A CPU IN 370XA MODE.
7. THERE ARE MORE THAN FOUR CONTROLLER IDS FOR AN SCU.

Explanation of Notes:

LIMIT Control Statement

1. The program generating the configuration table has found no controller ID for any set of addresses or device numbers. Because the controller ID defines a string of devices, there must be a unique controller ID for each string defined by its lowest unit address/device number. The controller ID is the first two digits of the STR parameter.
2. There should be only one SCU or controller assigned to a specific ID for the installation. The controller ID must be the same for a string no matter which CPU it is accessed from. Check the STR parameters to determine which strings have different controller IDs defined for the same string.
3. In order to format the unit addresses (UAs) or device numbers (DNOs) as a range (for example: 120–12F), the numbers must be consecutive. The numbers in the group have not been increasing consecutively by eight.
4. A maximum of four strings can connect to one SCU (unless a switch is used). At least one CPU is found to have more than four strings defined by controller ID or unit address/device number.
5. The configuration generator provides space in the format for only three channels from one CPU to an SCU, in 370 mode.
6. The configuration generator provides space in the format for only four channel paths from one CPU complex to an SCU, in 370XA mode.
7. Four is the maximum number of strings allowed per SCU.

LIMIT Control Statement

The LIMIT control statement allows you to set error thresholds for EREP to use with the subsystem exception reports:

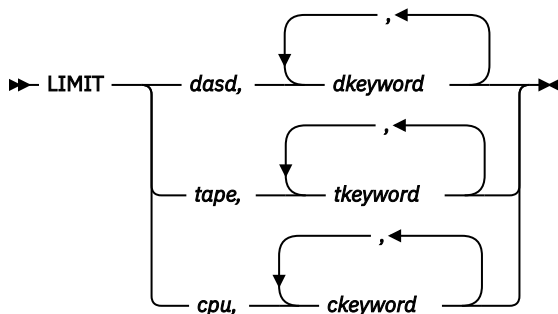
- The values you specify on LIMIT statements control the processing of temporary and soft (nonterminating) errors.
- The reports include data only for devices with errors that equal or exceed limits you specify.
- You can cut down on the number of records EREP uses for the system exception reports by using the LIMIT control statements.

Indicates

The limits you want EREP to apply to temporary or soft errors produced by the device type or processor model for the system exception reports.

Syntax

LIMIT control statement



dasd

Is the device type designation for DASD products.

tape

Is the device type designation for tape products.

cpu

Is the machine type designation for processor products.

dkeyword

Is one or more DASD product-dependent keyword parameters with associated numeric limits.

tkeyword

Is one or more tape product-dependent keyword parameters with associated numeric limits.

ckeyword

Is one or more processor product-dependent keyword parameters with associated numeric limits.

Because the possible device types, keywords, and numeric expressions are product-specific, their descriptions are in [Part 3, “Product-Dependent Information,” on page 299](#). See the LIMIT control statement sections of the device dependent topics shown in the following table for details:

- For DASD, see [“LIMIT Control Statement” on page 321](#)
- For magnetic tape drives, see:
 - [“LIMIT Control Statement” on page 328](#)
 - [“LIMIT Control Statement” on page 331](#)
- For processors, see [“LIMIT Control Statement” on page 341](#)

Defaults

The default action for the LIMIT statement varies according to the product involved. See the discussions of the LIMIT statement in [Part 3, “Product-Dependent Information,” on page 299](#).

Coding

The LIMIT statement is different for each product group. The details are in [Part 3, “Product-Dependent Information,” on page 299](#).

Here are a few general rules that apply:

- LIMIT must be the first word in the statement, followed by one blank, the device or machine type, and the keyword parameters, separated by commas.
- If you code more than one LIMIT statement for a device type, EREP uses the temporary error limits set in the latest LIMIT statement; the values on a second statement override those on a previous one.

Examples

See the DASD, tape, and processor sections of [Part 3, “Product-Dependent Information,” on page 299](#), for the details and examples of using LIMIT statements.

SHARE Control Statements

The SHARE control statement directs EREP to combine errors for any device that is shared between processors or systems. The report associates all the errors for that device with the device address rather than with the different processors.

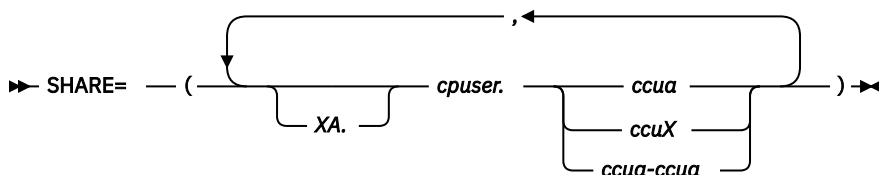
You can use SHARE statements to influence the way EREP assigns hexadecimal identifiers to the processors shown in the reports. See [“How EREP Assigns Numbers to CPUs” on page 61](#) for details.

Indicates

The paths to devices shared by processors.

Syntax

SHARE control statement



[XA.]cpuser

Is a six-digit hexadecimal CPU serial number (digits 0–F). Use *cpuser* to indicate that the processor is running in 370 mode. Use *XA.cpuser* to indicate that the processor is running in 370XA mode.

ccua

Is a three- or four-digit hexadecimal channel-control unit-device address or device number (digits 0–F). The first digit is the channel designated to the operating system as the primary CUA for the device.

ccuX

Is a two- or three-digit hexadecimal channel-control unit number with X indicating all the device addresses (0–F) attached to that control unit.

ccua-ccua

Is a range of continuous addresses. The low end of the range must be first. The range must be at least one, and cannot exceed 32.

Defaults

None.

If you omit this control statement, EREP presents each device's error records by device type.

If a device is shared between processors or systems and you omit this control statement:

- The EREP reports present the error records by processor and device type.
- The message, IFC221I NO SHARE CARD is generated and the job completes with a return code of 4 (RC=4).

Coding

- SHARE must be the first word in the statement, followed by the equal sign and the desired values in parentheses.
- You must put at least two entries (*cpuser.ccua|ccuX|ccua-ccua*) in each statement.
- You may need more than one SHARE statement to show all the possible paths to one device. If so, repeat the first entry in the statements for the remaining paths, because EREP equates all the paths in the SHARE statement to the one you specify first.

For example:

```
SHARE=(011111.01F0,022222.0330,022222.06F0,022222.0FF0)
SHARE=(011111.01F0,033333.03F0,033333.0630,033333.0F30)
```

- The *cpuser* values in SHARE statements override the hexadecimal identifiers assigned by EREP for the CPUs in the report. See [“How EREP Assigns Numbers to CPUs”](#) on page 61 for details.
- Once you have specified a range (*cpuser.ccua-ccua*) in a SHARE statement, you must specify that range the same way each time you use it in any other SHARE statement.
- The combined number of CPUs, *cpuser*, specified in all of your control statements cannot exceed 255.

- When you code a range of device addresses (*ccua-ccua*):

If the control unit digit, <i>u</i> , in the low CUA	For Example
Is odd , the high CUA must have the same <i>ccu</i> digits.	0350–0357 is valid 0358–0367 is not valid
Is even , the high CUA must have the same even <i>ccu</i> digits, or the next greater odd <i>u</i> digit.	0368–036F is valid 0368–0377 is valid 0368–0388 is not valid
Note: The channel identifier can be one or two digits.	

- If more than one address range is specified on one SHARE statement, the total number of addresses specified in each range must match.

Notes

- The SHARE control statements are not used for DASD devices that provide product identifiers within their sense (For example: 3990/3390).
- When you include SHARE statements in your EREP controls, each report indicates whether a particular set of error data represents a device that you have specified in SHARE statements.

Examples

The following sections give you more detailed instructions and examples:

- [“Using SHARE Statements to Combine Data in EREP Reports” on page 59](#) describes how to set up share statements for the devices in your system.
- [“How EREP Assigns Numbers to CPUs” on page 61](#) describes how to control the numbers EREP assigns to the CPUs.

Using SHARE Statements to Combine Data in EREP Reports

Figure 3 on [page 60](#) is an example of the kind of I/O configuration that requires SHARE statements. The text that follows explains how to set up SHARE controls for the illustrated configuration.

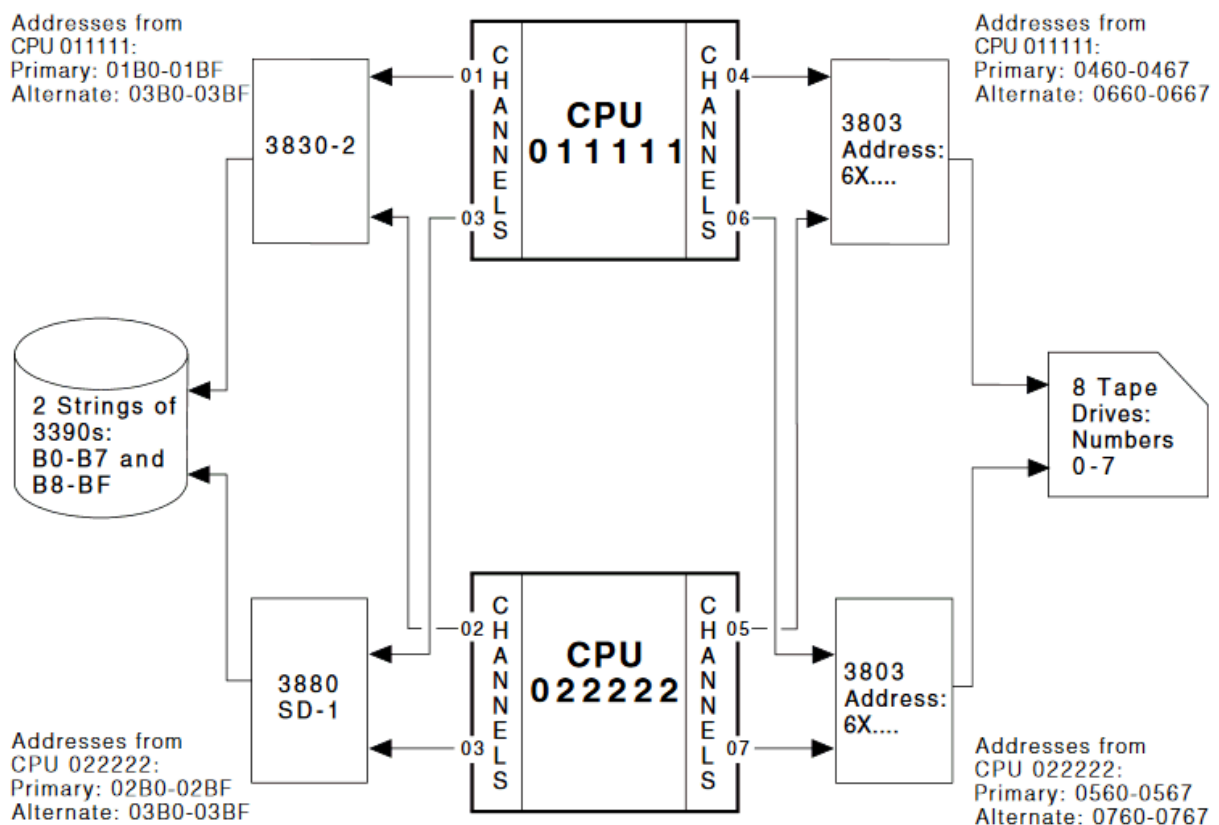


Figure 3. Configuration for SHARE Statements

SHARE Statements for DASD Drives

EREP combines all records for the DASD drives in the strings when you use:

```
SHARE=(011111.01BX,022222.02BX)
```

OR

```
SHARE=(011111.01B0-01BF,022222.02B0-02BF)
```

Either of these SHARE statements causes the records from DASD drive 0 (device addresses/numbers 01B0 and 02B0) to be combined and presented as data for 01B0 on CPU 011111.

Without the SHARE statements the records are presented by the primary channel address for each processor as follows:

- Records for drive 0 on CPU 011111 are presented as 01B0, regardless of whether they have been recorded on channel 01 or 03.
- Records for drive 0 on CPU 022222 are presented as 02B0, regardless of whether they have been recorded on channel 02 or 03.

SHARE Statements for Tape Drives

EREP combines all records for the tape drives in the strings when you use:

```
SHARE=(011111.0460-0467,022222.0560-0567)
```

This SHARE statement causes all records from drive 7 (device address/numbers 0467 and 0567) to be combined and presented as data for 0467 on CPU 011111.

Without the SHARE statements the records are presented by the primary channel address for each processor as follows:

- Records for drive 5 on CPU 011111 are presented as 0465, regardless of whether they have been recorded on channel 04 or 06.
- Records for drive 5 on CPU 022222 are presented as 0565, regardless of whether they have been recorded on channel 05 or 07.

How EREP Assigns Numbers to CPUs

EREP identifies each processor by a two-digit hexadecimal number (00–FF). It assigns the number identifiers separately for each report, based on the model and serial number of each processor and when it is encountered.

Important: You can use SHARE or CONTROLLER control statements to force EREP to assign specific numbers to specific processors, and to use the same number for each processor in all the EREP reports.

EREP always assigns numbers to the processors you have specified on SHARE or CONTROLLER control statements, before reverting to the default method. The default method assigns numbers to processors in the order in which they occur in the input data. These number assignments can change from one report to the next, if the reports use different error records.

EREP assigns numbers to the processors in the following manner:

STAGE	DESCRIPTION
1	EREP examines the <i>first entry on every statement</i> , assigning the next hexadecimal number to each new CPU model or serial number it encounters.
2	After assigning numbers to the CPUs in all the first entries, EREP examines <i>the rest of the entries on each statement in turn</i> , assigning the next hexadecimal number to each new CPU serial number it finds.
3	After completing these assignments, EREP assigns numbers to <i>any processors it encounters in the input data that are not specified on SHARE or CONTROLLER statements</i> , using its default method.

The following example illustrates EREP's hexadecimal number assignments for CPUs that appear on SHARE or CONTROLLER statements:

```
SHARE=(000001.120,000002.120,000006.120)
SHARE=(000003.130,000004.130)
SHARE=(000005.140,000003.140)
```

If EREP also encounters CPU serial number 000007 in the input data. EREP assigns number identifiers to all of these processors as follows:

Number Identifier CPU Serial Number

```
00      000001
01      000003
02      000005
03      000002
04      000006
05      000004
```

SYSIMG Control Statement

The SYSIMG control statement directs EREP to process records by system image rather than CPU address.

Use SYSIMG control statements as follows:

- To request a report with records from a central processor complex (CPC) with more than one internal processor(CP).
- To define the CPs in a physically partitioned CPC as system images.
- To define the physical CPs associated with a logical partition as system images. See [“PR/SM Feature” on page 343](#) for information on logical partitioning.
- When message IFC201I in the EREP messages (TOURIST) indicates that records are being ignored due to an excessive number of CPUs.

An n -way CPC produces up to n different CPU identification numbers. Use the SYSIMG control statement to group the CPU identification numbers into system images. Without a SYSIMG statement, EREP can process records from only 16 CPUs, with the following exceptions:

- PRINT=PT can process records from an unlimited number of CPUs
- EVENT can process records from 256 CPUs
- SYSEXN can process records from 255 CPUs
- SYSUM and TRENDS can group all CPUs after the first 15 under serial number X'FFFFFF'

System image processing involves replacing the CP address with a control digit (either E or F) during record processing. The CP addresses are changed as follows:

- To F for a single-image CPC
- To either F or E depending on the order of the SYSIMG control statements for a physically partitioned CPC

The CPU table at the end of system or subsystem reports reflects these changes. The changes occur in the internal EREP tables and output, no external records are changed.

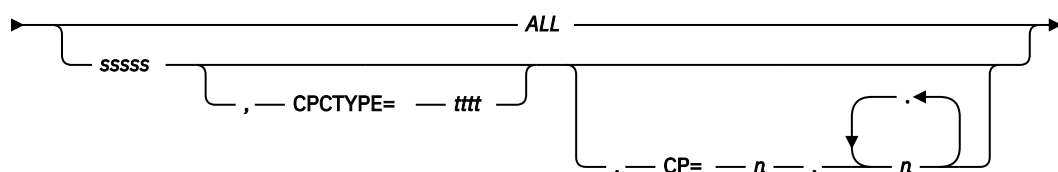
Indicates

That records are processed by specific system images rather than CPU identification number.

Syntax

SYSIMG control statement

➤ SYSIMG BASESN= ➔



ALL

Indicates that all processor complexes are single images (no physical or logical partitions) or all I/O devices have unique identifiers in their sense (unique addresses or device numbers).

sssss

Is the 5-digit serial number of a specific CPC. When the processor resource/system manager (PR/SM) feature is used to create logical partitions the high-order digit must be the same as the PR/SM partition identifier. See [“PR/SM Feature” on page 343](#) for information on logical partitioning.

tttt

Is the 4-digit processor type.

n

A single hexadecimal digit identifying the CPs in this system image.

Defaults

None.

If you omit this control statement EREP processes all records by the CPU identification number and machine type (CPUID).

Coding

- One control statement is sufficient for all system images, when BASESN=ALL is specified.
Important: By coding BASESN=ALL when devices do not have unique physical identifiers or unique addresses, you may cause incorrect or invalid results.
- There are no more than two system images per CPC unless logical partitioning is available.
- Code CPCTYPE= if there are records from processors with different machine types, but the same CPU identification numbers.
- SYSIMG controls apply to all report parameters except PRINT= as follows:
 - SYSIMG controls does not affect the PRINT=PT parameter.
 - SYSIMG controls apply for all other PRINT= selections when records are read from a history file.
 - SYSIMG controls do not apply when PRINT= is specified and records are read from the error recording data set.

Important: No message is issued in this case.

Notes

- BASESN=ALL is particularly useful when producing reports on I/O devices with unique addresses or device numbers.
Important: Do not use BASESN=ALL when reports include software or MIH records from partitioned CPCs.
- If the normal mode of operation is to physically partition the CPC during a reporting interval and the I/O devices do not have unique identifiers, then define each partition as a separate image system.
- The DASDID and SHARE control statements do not require changes when you use SYSIMG. EREP changes the high-order digit of the CPU serial number in the internal tables created by the DASDID and SHARE control statements.
- EREP issues message IFC262I to the EREP messages (TOURIST) informing the user that the CPU serial numbers in the CPU table have been modified as a result of the SYSIMG control statement.

Examples

The following example shows you how to code SYSIMG control statements:

SYSIMG Control Statement

Code as follows if all I/O units in the complex can be identified by unique identifiers within their sense data:

```
SYSIMG BASESN=ALL
```

This defines all CPCs as single images and changes the first two digits of the serial numbers in the CPU table to FF.

Chapter 4. Error Records for EREP

This topic contains reference information about the records EREP uses to produce reports, as recorded by the operating systems. It is intended to help the customer diagnose EREP problems.

Topics
“Error-Recording Process” on page 65
“ERDS Formats” on page 65
“ERDS Header Record” on page 65
“Time-Stamp Record for IPL Records” on page 70
“Information in Error and Operational Records” on page 70

Error-Recording Process

Each operating system writes error and operational records to its error-recording data set (ERDS). The records are created for the hardware (processors and devices) that makes up the environment, although the operating system also creates some records to document its own processing.

The ERDS is different for each operating system.

OP. SYSTEM	ERDS DESCRIPTION
MVS	The system data set ERDS resides on the system residence volume. The default name of the ERDS is SYS1.LOGREC. In MVS releases 5.1 and later, the name can be modified at installation. For MVS/XA* or MVS/ESA*, LOGREC can be another cataloged data set and does not need to be on the system residence volume. The data set is initialized by the IFCDIP00 service aid during system generation and can be reinitialized at IPL. This dataset is not EAS eligible on EAV devices.
VM	The error-recording area is assigned on the system residence volume and initialized during system generation.
VSE	The system logical unit SYSREC (file name IJSYSRC) resides on the SYSRES disk. The data set is initialized by the IPL command SET RF=CREATE.

ERDS Formats

The error-recording data sets have an ERDS header record followed by error and operational records.

Important: The ERDS header records reside only in the ERDS; they do not exist in the HISTORY FILE (generated with the HIST=Y parameter).

The characteristics of each operating system determine the format of the ERDS, but the records on a system's ERDS conform to a standard of both format and content regardless of the system that records them.

ERDS Header Record

The *ERDS header record* provides the following information to the system recording routines about the device on which the ERDS resides:

- Where to write new records

Record Formats

- When the data set is getting full

The tables in this topic show the header records for each system.

The terms used in the table headings are described below:

Offset

Is the numeric address of the field relative to the beginning of the data area.

Dec(hex)

Is the offset in decimal, followed by the hexadecimal equivalent in parentheses. For example: 16(10).

Size (bytes)

Is the field size in bytes.

Alignment (bits)

Shows the bit settings of switch or flag fields, as follows:

....

Indicates the eight bit positions (0–7) in a byte. For ease of scanning, the high-order (left-hand) four bits are separated from the low-order four bits.

x....

Is a reference to bit 0.

1....

Indicates that bit 0 is on.

0....

Indicates that bit 0 is off.

.... ..xx

Is a reference to bits 6 and 7.

The record mappings include significant bit settings. Bits described as *reserved* are not significant for this release.

Field Name

Is a label (acronym) that identifies the field.

Description

Indicates how the field is used:

- Where the field's use relates directly to a value you would code, the coded value is shown.
- Where the hexadecimal code for a particular bit setting may be helpful, it is shown separated from the rest of the description.

MVS Header Record for the ERDS

Table 4 on page 66 shows an example of the MVS header record for the ERDS.

Table 4. MVS ERDS Header Record			
Offset Dec(Hex)	Size(bytes) Alignment(bits)	Field Name	Description
0(0)	2	CLASRC	Header-record identifier. Each bit in this field is set to 1 unless critical data has been destroyed.
2(2)	4	LOWLIMIT	Address of low extent. Track address (in CCHH format) of first extent of SYS1.LOGREC.
6(6)	4	UPLIMIT	Address of high extent. Track address (in CCHH format) of last extent of SYS1.LOGREC.
10(A)	1	MSGCNT	Count of the number of times LOGREC-full message has been issued (maximum is 15).
11(B)	7	RESTART	Address of record entry area, and address of time-stamp record. Starting track address (in BBCCHHR format) of the recording area on SYS1.LOGREC. If a time-stamp record is present, it begins at the address pointed to by this field.

Table 4. MVS ERDS Header Record (continued)			
Offset Dec(Hex)	Size(bytes) Alignment(bits)	Field Name	Description
18(12)	2	BYTSREM	Remaining bytes on track. Number of bytes remaining on the track upon which the last record entry was written.
20(14)	2	TRKCAP	Total bytes on track. Number of bytes that can be written on a track of the volume containing SYS1.LOGREC.
22(16)	7	LASTTR	Address of last record written. Track address (in BBCCHHR format) of last record written on SYS1.LOGREC.
29(1D)	2	TRKSPER	Highest addressable track for each cylinder on volume containing SYS1.LOGREC.
31(1F)	2	EWMCNT	Warning count. Number of bytes remaining on early-warning-message track of SYS1.LOGREC when 90%-full point of data set is reached. When this is detected by a recording routine, it issues a message and turns on the early-warning-message switch at displacement 38.
33(21)	1	DEVCODE	Device code, indicating the device type of the volume on which SYS1.LOGREC resides: Code Device 04 2302 07 2305 MOD II 09 3330 and 3333 MOD I or 3350 operating in 3330-1 compatibility mode 0A 3340 and 3344 0B 3350 native mode 0C 3375 0D 3330 and 3333 MOD II or 3350 operating in 3330-II compatibility mode 0E 3380 0F 3390
34(22)	4	EWMTRK	Early-warning-message track. Track address (in CCHH format) on which 90% full point for data set exists.
38(26)	1 1... .. ..xxx xxxx	EWMSW	Switch byte: 90%-full-point message has been issued. This switch is turned on by the recording routine detecting 90% full point and is turned off by IFCEREP1 when clearing SYS1.LOGREC. Reserved.
39(27)	1	SFTYBYTS	Check byte. Each bit in this field is set to 1; the field is used to check the validity of the header-record identifier.

VM Header Record for the Error Recording Area (Cylinder)

Table 5 on page 67 shows an example of the VM header record for the error-recording area.

Table 5. VM Error Recording Cylinder Header Record			
Offset Dec(Hex)	Size(bytes) Alignment(bits)	Field Name	Description
0(0)	4	RECCCPD	Address of this cylinder.

Table 5. VM Error Recording Cylinder Header Record (continued)			
Offset Dec(Hex)	Size(bytes) Alignment(bits)	Field Name	Description
4(4)	2	RECNXT	Displacement to the next available space for records.
6(6)	1	RECFLAG1	Record usage flags:
	1... ..	RECPAGIU	The page contains valid data.
	.1.. ..	RECPAGFR	The page is cleared. This bit is set by EREP when it clears the error-recording area.
	..1.	RECPAGFL	The page is full. When this bit is set, a message is issued to the operator to clear the error-recording area.
	...1	RECPAGER	The next page is unreadable.
	.... 1...	RECPAGFA	Frame records exist for this page.
	.... .xxx		Reserved.
7(7)	1	RECFLAG2	Record format flags:
	1... ..	RECPAGFM	The cylinder is being formatted. This bit is turned on in the first page of a recording cylinder while the cylinder is being formatted. The field is reset only when all pages are cleared.
	0000 0000	RECPAGDN	The cylinder has been formatted. If this field is nonzero, the cylinder is in the process of being formatted.

VSE Header Record for SYSREC with CKD

Table 6 on page 68 shows the format of the header record when IJSYSRC is on a count-key-data device.

Table 6. VSE CKD SYSREC Header Record			
Offset Dec(Hex)	Size(bytes) Alignment(bits)	Field Name	Description
0(0)	2	CLASRC	Header record identifier. This field is set to X'FF00' unless critical data has been destroyed.
2(2)	4	LOWLIMIT	Address of low extent. Track address (in CCHH format) of first extent of SYSREC.
6(6)	4	UPLIMIT	Address of high extent. Track address (in CCHH format) of last extent of SYSREC.
10(A)	1	TRKSPER	Highest addressable track for each cylinder on the volume containing SYSREC.
11(B)	7	RESTART	Address of record entry area. Starting track address (in BBCCHHR format) for recording area on SYSREC.
18(12)	2	BYTSREM	Remaining bytes on track: number of bytes remaining on the track upon which the last record entry was written.
20(14)	2	TRKCAP	Total bytes on track. Number of bytes that can be written on a track of the volume containing SYSREC.
22(16)	7	LASTTR	Address of last record written. Track address (in BBCCHHR format) of last record written on SYSREC.
29(1D)	2	PUBNUM	Number of PUBS in the system.
31(1F)	2	EWMCNT	Warning count. Number of bytes remaining on early warning message track of SYSREC when 90% full point of data set is reached. When this is detected by a recording routine, it issues a message and turns on the early-warning-message switch at displacement 38.

Table 6. VSE CKD SYSREC Header Record (continued)			
Offset Dec(Hex)	Size(bytes) Alignment(bits)	Field Name	Description
33(21)	1	DEVCODE	<p>Device code. Code indicating device type of system volume on which SYSREC resides:</p> <p>Code</p> <p>Device</p> <p>01 2311</p> <p>02 2301</p> <p>03 2303</p> <p>04 2302</p> <p>06 2305 MOD 1</p> <p>07 2305 MOD 2</p> <p>08 2314</p> <p>09 3330 and 3333 MOD 1 or 3350 operating in 3330-1 compatibility mode</p> <p>0A 3340 and 3344</p> <p>0B 3350 native mode</p> <p>0C 3375</p> <p>0D 3330 and 3333 MOD 11 or 3350 operating in 3330-11 compatibility mode</p> <p>0E 3380</p> <p>0F 3390</p>
34(22)	4	EWMTRK	Early warning message track. Track address (in CCHH format) on which the 90% full point will be found.
38(26)	1	EWMSW	Switch byte:
	1... ..		90% full point message has been issued. This switch is turned on by recording routine detecting 90% full point and is turned off by IFCEREP1 when clearing SYSREC.
	.1..		An emergency recording has occurred. This switch is turned on when the system terminates because SYSREC is full.
	..1.	FRAMES	Machine-check and channel-check frames exist on SYSREC.
	...X xxxx		Reserved.
39(27)	1	SFTYBYT	Check byte. Each bit in this field is set to 1 (X'FF'); used to check the validity of the header-record identifier.

VSE Header Record for SYSREC with FBA

Table 7 on page 70 shows the format of the VSE header record when IJSYSRC is on a fixed-block-architecture device.

Table 7. VSE FBA SYSREC Header Record			
Offset Dec(Hex)	Size(bytes) Alignment(bits)	Field Name	Description
0(0)	2	CLASRC	Header record identifier. This field is set to X'FF00' unless critical data has been destroyed.
2(2)	4	LOWLIMIT	Address of low extent. Block number of the first extent of SYSREC.
6(6)	4	UPLIMIT	Address of high extent. Block number of the last extent of SYSREC.
10(A)	1		Reserved.
11(B)	4	RESTART	Address of record entry area. Block number of the start of the recording area of SYSREC.
15(F)	7		Reserved.
22(16)	4	LSTREC	Address of last record. Block number of the last record written on the recording area.
26(1A)	7		Reserved.
33(21)	1	DEVCODE	X'0F' Device code for FBA device.
34(22)	4	EWMTRK	Early-warning-message block. Block number on which the 90%-full point will be found.
38(26)	1	EWMSW	Switch byte:
	1...		90%-full-point message has been issued. This switch is turned on by recording routine detecting 90% full point and is turned off by IFCEREP1 when clearing SYSREC.
	.1..		An emergency recording has occurred. This switch is turned on when the system terminates because SYSREC is full.
	..1.	FRAMES	Machine-check and channel-check frames exist on SYSREC.
	...X xxxx		Reserved.
39(27)	1	SFTYBYT	Check byte. Each bit in this field is set to 1 (X'FF'); used to check the validity of the header-record identifier.

Time-Stamp Record for IPL Records

The time-stamp record consists of a standard 24-byte header plus 16 bytes that are reserved for system use. The system date and time fields are at offsets 8 and 12. These fields are updated at preset intervals, to keep the date and time current.

The recording routines take the current date and time from the time-stamp record and put them in the system date and time fields of the IPL record header.

The current date and time information in an IPL record allows you to measure the interval between system termination and reinitialization.

Information in Error and Operational Records

There are two types of records on the system's ERDS:

RECORD TYPE	DESCRIPTION
Hardware and software errors	Reflect the failure and recovery of processors, channels, I/O devices, and operating system software.
Software operational data	Indicate the time and circumstances of the failures and other conditions.

Although the records reflect different events and are of different lengths, they all contain the following kinds of information:

- Relevant system information at the time the record is generated
- Device hardware status at the time the record is generated
- Results of any device or control unit recovery attempt
- Results of any software system recovery attempt
- Statistical data about device usage and recoverable errors

Each record begins with a standard 24-byte header that contains the information to identify the type and origin of the records.

INFORMATION	DESCRIPTION
Type information	Includes the specific type of the record, the specific source of the record, the general reason the record is created, and special record-dependent data.
Origin information	Includes the operating system under which the record is generated, the date and time the record is generated, and the identity of the processor (CPU) on which the record is generated.

Note: For CCH, MCH and OBR records, the processor generating the record is also the processor associated with the error. In a tightly-coupled multiprocessing environment, this is not necessarily true for other types of records.

Hardware I/O errors are divided into the following groups in several of the EREP reports:

TYPE OF ERROR	DESCRIPTION	IN THE OBR
Temporary error	A read or write operation that failed, was retried, and eventually succeeded	Byte 3(Bit 1)=1 AND Byte 3(Bit 3)=0
Permanent error	A read or write operation that failed and was retried several times without success	Byte 3(Bit 1)=0 AND Byte 3(Bit 3)=0
Path error	A permanent error was found on one path and an alternate path was tried	Byte 3(Bit 3)=1
Note: Byte 3(Bit 1) is the temporary error bit and Byte 3(Bit 3) indicates whether or not another channel path has been tried.		

Standard Record Header: Data Common to All Record Types

Table 8 on page 71 shows the contents of the fields that are the same for all records.

Table 8. Header Data Fields Common To All Records			
Offset Dec(Hex)	Size(bytes) Alignment(bits)	Field Name	Description
0(0)	1	xxxKEY1	Class/Source:
1(1)	1	xxxKEY2	System/Format/Version/release level:
	xxx.		System.
	000.		OS/360.
	001.		VSE.
	010.		OS/VS1.
	011.		VM systems.
	100.		OS/VS2 and later MVS systems.
	101.		Transaction processing facility (TPF).
	111.		AIX [®] .
	...X X...		Format (OLD/NEW):

Record Formats

Table 8. Header Data Fields Common To All Records (continued)

Offset Dec(Hex)	Size(bytes) Alignment(bits)	Field Name	Description
2(2)	...0 0...	xxxSMS	OLD Format:
	.... .xxx		Release level 0–7
	...0 1...		NEW Format:
	...1 0...		
	...1 1...		
	...x xx..		Version 2–7.
	.... .xx		Release level 0–3.
	1		Record-independent switches:
	1...		More records follow.
	0...		Last record.
	.x.		Time-of-Day clock instruction issued.
			0
			IBM System/360™.
			1
			IBM System/370™.
			Used in conjunction with date and time values at displacements 8 and 12.
	..1.		Record truncated.
	...1		370XA mode record.
3(3)	...x	xxxRCDCT	XA mode bit:
	...1		AIX: indicates ESA.
	...1		MVS version 3 or higher (NEW FORMAT): indicates ESA.
4(4)	...1	xxxRCDCT	VM version 1 or higher: indicates ESA.
	.... 1...		TIME macro used (MVS).
	.... 0...		Time in timer units (VSE).
5(5)	.... .xxx	Reserved.	Reserved.
	1		Record-dependent data.
	1		Record-dependent data.
6(6)	1	xxxRCDCT	Record-dependent data.
	xxxx		Record count:
	.... xxxx		Sequence number of this physical record.
7(7)	1	xxxRCDCT	Total number of physical records in this logical record.
	1		Reserved.
	1		Record count:
8(8)	xxxx	xxxDT	Sequence number of this physical record.
	.... xxxx		Total number of physical records in this logical record.
	8		System date and time, as:
8(8)	4	xxxDATE	System date of incident.
12(C)	4	xxxTIME	System time of incident.
16(10)	8	xxxCPUID	CPU identification, as:
16(10)	1	xxxVER	Machine version code:
	xxxx xxx.		Reserved.

Table 8. Header Data Fields Common To All Records (continued)

Offset Dec(Hex)	Size(bytes) Alignment(bits)	Field Name	Description
	.... 0		Version I CPUs.
	.... 1		Version II CPUs.
17(11)	3	xxxSER	CPU serial number.
20(14)	2	xxxMOD	CPU machine model number (3033, 4341, ...).
22(16)	2	xxxCEL	Maximum length of machine- (CPU-) dependent machine-check extended logout area.
	2		Reserved.

Record Type/Class Codes

The first field in the standard record header is a 1-byte hexadecimal code that identifies the type (or class) and source of the record.

Important: All of the operating systems create similar records, but they do not all record every possible kind of record. Some record types are not relevant for all operating systems. For information on which types of records are supported by specific products, see [Part 3, “Product-Dependent Information,”](#) on page 299.

Table 9 on page 73 shows the record types that each of the operating systems records on its ERDS, listed according to the record class code.

Important: VM writes records on its own behalf or on behalf of another operating system running in a virtual machine, while MVS creates different versions of some records.

Table 9. Record Types and Systems Recording Them

Description	MVS	VM	VSE
1X Machine check errors			
10 MCH	Y	Y	Y
13 MCH in multiple storage environment	Y	Y ¹	Y
2X Channel check errors			
20 CCH	Y	Y ²	Y
21 CCH in multiple storage environment	Y ³		
23 SLH subchannel logout	Y ⁴		
25 CRW channel report word	Y ⁴		
3X Outboard errors			
30 OBR	Y	Y ¹	Y
34 BTAM OBR (VSE)			Y
36 VTAM OBR	Y		Y
3A DPA OBR	Y		
3C DPS OBR	Y		

Table 9. Record Types and Systems Recording Them (continued)

Description	MVS	VM	VSE
4X Software errors			
40 Software-detected	Y		
42 Hardware-detected	Y		
44 Operator-detected	Y		
48 Hardware-detected hardware	Y		
4C Programming symptom code	Y		
4E Programming symptom code	Y		
4F Lost record	Y		
50 IPL	Y		Y
60 DDR	Y ³	Y ⁵	
7X Missing interrupt handler			
70 MIH	Y ³	Y ²	Y ⁶
71 MIX	Y ⁴	Y ⁴	Y
8X System termination			
80 EOD Normal End of Day	Y		Y
81 Nonrestartable wait state (MCH) Forced	Y ³		
84 EOD Restartable	Y ³		
84 Restartable wait state (IOS) Forced	Y ³		
9X Miscellaneous data record (MDR)			
90 MDR formatted by SVC91	Y		Y
91 MDR	Y	Y ¹	Y
A0 MCH frame	Y	Y	Y
A1 External Time Reference	Y	Y	Y
A2 Link Maintenance Information	Y	Y	Y
A3 Asynchronous Notification	Y	Y	Y
A4 through AF records	Y	Y	
B0 CCH frame	Y	Y	Y
B1 through BF records	Y	Y	Y
C0 through CF records	Y	Y	Y
D0 through DF records	Y	Y	Y

<i>Table 9. Record Types and Systems Recording Them (continued)</i>			
Description	MVS	VM	VSE
E0 through EF records	Y	Y	Y
F0 through FF records	Y	Y	Y
Note: <ol style="list-style-type: none"> 1. For both VM and the virtual machine 2. For VM only; SVC 76 is reflected back to the virtual machine 3. MVS/370 only 4. XA and above only 5. For the virtual machine only 6. VSE/advanced functions only 			

Chapter 5. Correcting EREP Job Set-Up Problems

This topic provides information about methods to use to identify and correct EREP job set up problems.

The following subjects are covered:

HEADING
“Using the EREP Messages File (TOURIST Output)” on page 77
“Problem Determination Aids” on page 78
“Missing Records” on page 81

Using the EREP Messages File (TOURIST Output)

If your EREP job does not run, you can use the EREP messages file (TOURIST output) to see how EREP interprets your control statements and parameters. See [Chapter 6, “EREP Messages,” on page 83](#) for descriptions of the EREP messages. [Figure 4 on page 77](#) is an example of the typical TOURIST output generated for an EREP report.

```

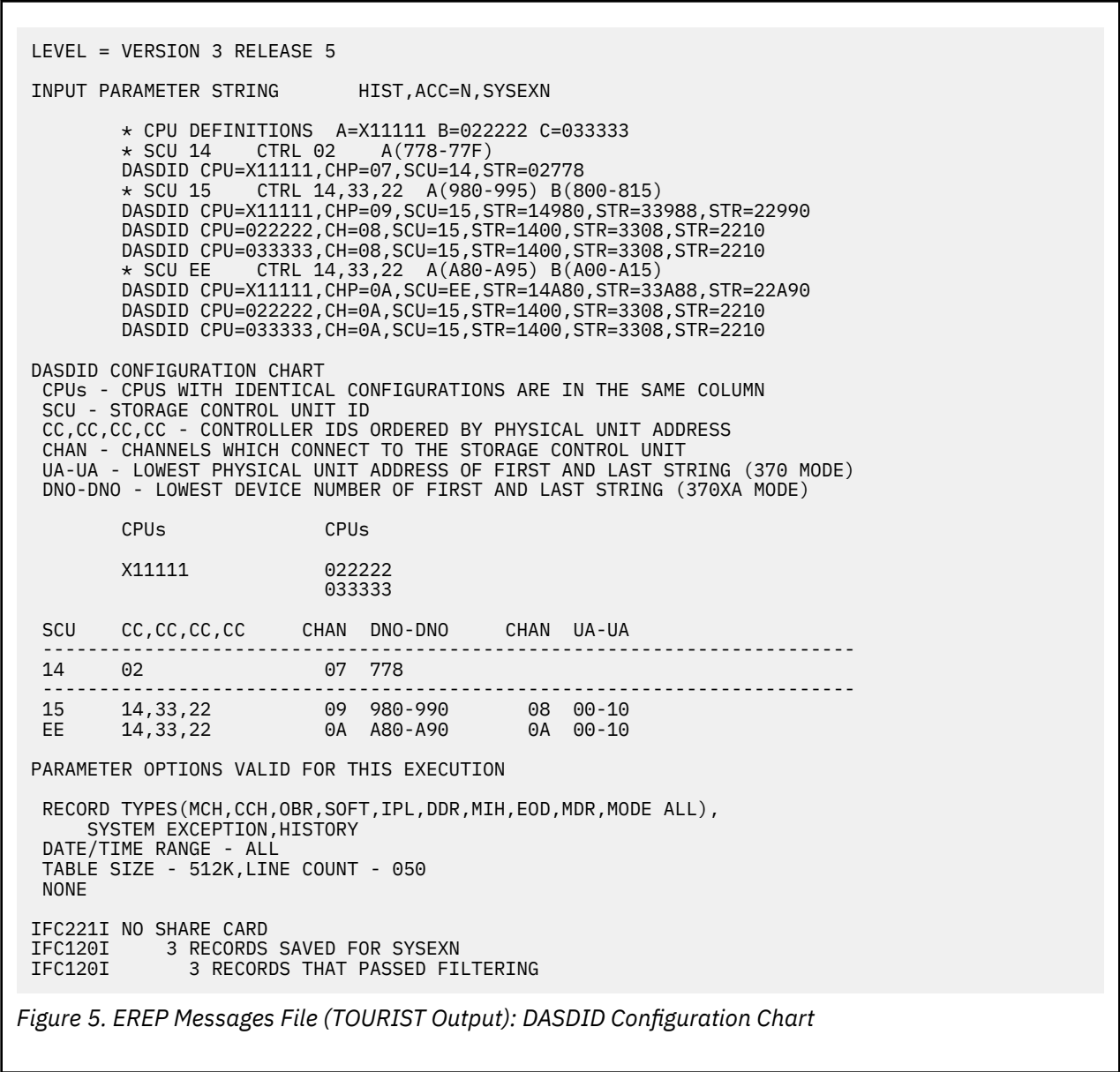
LEVEL = VERSION 3 RELEASE 5                                EREP INFORMATIONAL MESSAGES
INPUT PARAMETER STRING          PRINT=PS,DEV=(3380)

PARAMETER OPTIONS VALID FOR THIS EXECUTION
RECORD TYPES(MCH,CCH,OBR,SOFT,IPL,DDR,MIH,EOD,MDR,AX,BX,CX,DX,EX,FX),MODE ALL
DATE/TIME RANGE - ALL
TABLE SIZE - 0024K,LINE COUNT - 050
LINE LENGTH - 132
DEVICE ENTRIES
DEVICE TYPES(CCH,SLH) -3380(ALL)
DEVICE TYPES(OBR,MIH,DDR) -3380(200E),3380(202E),3380(201E),3380(2021),3380(20
DEVICE TYPES(MDR) -3380(14),3380(1B),3380(1C),3380(21),3380(22),3380(23)
IFC120I          109 RECORDS THAT PASSED FILTERING

```

Figure 4. EREP Messages File (TOURIST Output) from a CPEREP Run

[Figure 5 on page 78](#) shows an example of the EREP messages file using the DASDID configuration chart in [“DASDID Control Statement” on page 51](#).



Problem Determination Aids

Sometimes you must go through the process of problem determination in order to identify a failing hardware unit or program and determine who is responsible for fixing it. The following problem determination aids can help you determine the causes of problems encountered while running EREP jobs:

- EREP return codes
- Problem determination procedures
- Trouble-shooting flowchart
- DEBUG parameter

EREP Return Codes

EREP issues the following return codes whenever it stops processing:

RETURN CODE (Decimal)	MEANING	DESCRIPTION
00	No errors	None.
04	Warning	Processing and the report are complete but the report may not contain all possible records.
08	Severe error (nonterminating)	Processing may or may not continue to the end of the records depending on the kind of error EREP has encountered. If processing continues, the report may be incomplete.
10		
12	Severe error (terminating)	EREP has terminated abnormally and cannot complete the report.
16	Catastrophic error	

EREP (IFCEREP1) issues at least one IFCxxxI message for every return code greater than 04, and issues messages for some situations that produce return codes of 04. The messages appear in the EREP messages file or in the body of the report. See [Chapter 6, “EREP Messages,” on page 83](#) for descriptions of the EREP messages.

Problem Determination Procedures

Use the standard problem determination procedures specified by IBM to help you determine the probable causes of errors that result in EREP messages. The messages are described in [Chapter 6, “EREP Messages,” on page 83](#). The standard problem determination procedures are described in [Table 10 on page 79](#).

Table 10. Standard Problem Determination Procedures	
STEP	ACTION
1	Save the console sheet from the operator console. In systems with a display operator console (DOC), save a copy of the hard copy log.
2	Save the system output associated with the job.
3	Save all the associated output.
4	Contact IBM for programming support.
5	Contact IBM for hardware support.

The standard problem determination procedures are recommended to diagnose problems with a system control program (SCP).

Trouble-Shooting Flowchart

Use the following flowchart to help you determine the probable causes of problems encountered while running EREP jobs.



Using the DEBUG Parameter

If a problem with your EREP run is associated with an input record, you must be able to look at the record. Use an event history report and include the DEBUG parameter with its option 17 in the EREP controls to see the records used, as shown in the following example:


```
EVENT  
HIST  
ACC=N  
LINECT=60  
DATE=(89040-93365)  
DEBUG=(17)
```

The records in the report will appear one line item at a time with an unformatted hexadecimal dump immediately following each line item. See [“DEBUG — Debug \(Diagnostic Parameter\)” on page 19](#) for coding details.

If you select a print report with DEBUG=(17) a hexadecimal dump of every record that passed filtering appears in the EREP messages file (TOURIST output).

The IBM service representative can help you interpret the records, by referring to the maintenance documentation for the device that generated the record.

Missing Records

To check for records you suspect are missing, run an event history report specifying the DEV and TYPE parameters to match the suspected missing records. This report includes data from every record that meets your selection criteria. Another way to look for a particular record is to run a detail edit report specifying DEV, TYPE, DATE, TIME, and any other parameter that narrows the choice.

Chapter 6. EREP Messages

This topic contains the messages issued by the IFCEREP1 program modules. These are the messages that appear in the EREP messages file (TOURIST output).

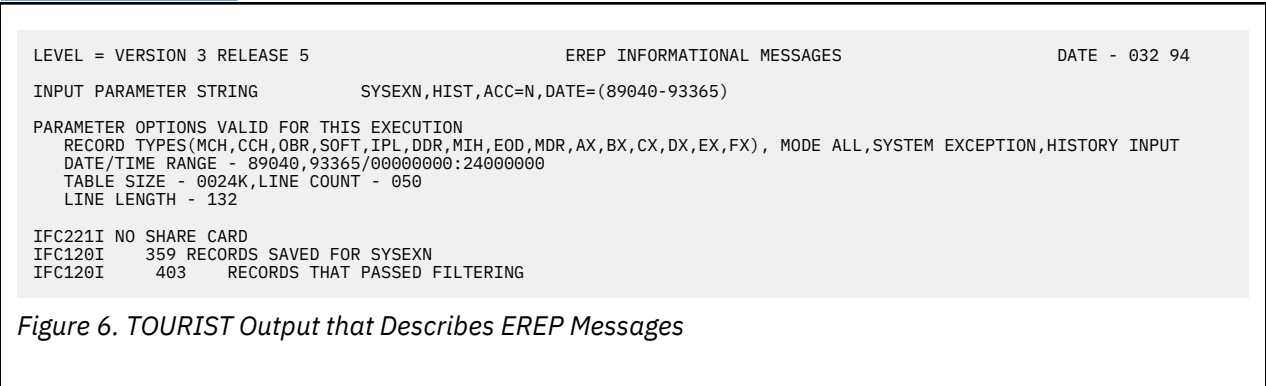
EREP messages begin with the prefix "IFC". EREP message numbers after the IFC prefix are followed by "I", meaning that the messages are informational. However, informational messages can also indicate:

- The status of EREP processing
- The occurrence of a problem with EREP processing
- The occurrence of a problem with your EREP or system controls

The EREP messages are listed in [Chapter 6, “EREP Messages,” on page 83](#) in ascending order by the numbers.

Important: Not all messages apply to all operating systems.

Figure 6 on [page 83](#) is an example of the typical EREP messages file generated for an EREP report.



IFC101I	REQUEST FOR NON-EXISTENT IO SERVICE	Explanation (MVS and VM) A second open has been requested for a data set that is already open.
Explanation	(MVS, VM, and VSE) An internal request for I/O service specifies an invalid request code.	System action The request is ignored. No further input is processed.
System action	The request is ignored. No further input is processed.	Programmer response Make sure the DD statements or FILEDEFs are correct, and rerun the job. If the problem persists, perform problem determination.
Programmer response	Make sure the system controls are correct, and rerun the job. If the problem persists, perform problem determination.	Problem determination Table 10 on page 79 , items 1, 2, 4.
Problem determination	Table 10 on page 79 , items 1, 2, 4.	
IFC102I	ddname OPEN REQUESTED, ALREADY OPEN	Explanation (MVS and VM) The named data set cannot be opened because the required DD statement or FILEDEF is missing or invalid. For an existing data set, the
		IFC103I ddname DD STATEMENT MISSING OR INCORRECTLY CODED

DD statement or FILEDEF may be correct but the attributes (RECFM, BLKSIZE) invalid. The data set may also be the result of a previous step FILEDEF pointing to the XAEREPIO RECORD file, rather than the SERLOG. SERLOG should always be used. Using XAEREPIO RECORD as input causes unpredictable results. The message will also be issued if the Data Set Name coded on this DD statement resides on Tape.

System action

EREP terminates.

Programmer response

Add or correct the indicated system control and rerun the job.

Problem determination

[Table 10 on page 79](#), items 1, 2, 4.

IFC104I	<i>ddname</i> NOT OPEN WHEN {READ|WRITE} REQUESTED
----------------	---

Explanation

(MVS and VM) The named data set is not open when a read or write is requested.

System action

The request is ignored. No further input is processed.

Programmer response

Make sure the DD statements and FILEDEFS are correct, and rerun EREP. If the problem persists, perform problem determination.

Problem determination

[Table 10 on page 79](#), items 1, 2, 4.

IFC105I	RECORD IGNORED, <i>ddname</i> READ [DIRECT] ERROR
----------------	--

Explanation

(MVS and VM) A permanent I/O error has occurred on the named data set.

System action

Processing continues. The physical record that has caused the error is ignored.

Programmer response

Move the volume containing the data set to another device, or move the data set to another volume, to determine if the problem was caused by a hardware malfunction.



Attention: Move the suspect volume only once to ascertain a fault. Indiscriminate mounting and demounting of the disk pack could cause the destruction of packs and drives.

For MVS systems: If the message does not recur, there probably is a hardware error on the device (or volume) originally used. If the error persists, execute the SPZAP (VS2), or HMASPZAP (VS1) service aid program to obtain a dump of the data set on which the input error has occurred. If the error has occurred on SYS1.LOGREC, execute IFCDIP00 to reinitialize the data set.

For VM systems: If the error has occurred in the error-recording area, issue the CPEREPEXEC, with the CLEAR/CLEARF operand, to reinitialize the cylinders.

Problem determination

[Table 10 on page 79](#), items 1, 2, 4, 5.

IFC106I	<i>ddname</i> CLOSE REQUESTED, <i>ddname</i> NOT OPEN
----------------	--

Explanation

(MVS and VM) The *ddname* data set is not open when a close is requested.

System action

The request is ignored.

Programmer response

Make sure the system controls are correct, and rerun the job. If the problem persists, perform problem determination.

Problem determination

[Table 10 on page 79](#), items 1, 2, 4.

IFC107I	ACCIN RECORD FORMAT NOT V OR VB
----------------	--

Explanation

(MVS and VM) The ACCIN DD statement or FILEDEF that defines the history input data set either:

- Does not specify RECFM, or
- Does not specify the RECFM as V or VB, or

- Specifies a volume or CMS file that does not contain variable format records.

System action

The job step terminates.

Programmer response

Verify that the record format of the data set is V or VB and is properly specified on the DD statement or FILEDEF.

**IFC108I ATTEMPTED TO READ OUTSIDE
SERLOG EXTENT**

Explanation

(MVS) IOS indicates an attempt has been made to read outside the extent on SERLOG (SYS1.LOGREC). The LOGREC header may be bad.

System action

EREP continues processing. The record that has caused the input error is ignored. SYS1.LOGREC is not cleared.

Programmer response

Obtain a copy of the header record to verify the contents of the header. Determine if the problem is caused by a hardware malfunction. If the message does not recur, there probably is a hardware error on the device (or volume). Otherwise, it is probably a programming error. Execute the IFCDIP00 program to reinitialize SYS1.LOGREC.

**IFC109I SERLOG HEADER CANNOT BE
READ**

Explanation

(MVS) The header record on the SYS1.LOGREC data set cannot be read.

System action

The job step terminates.

Programmer response

Obtain a copy of the header record to verify the contents of the header. Then execute the IFCDIP00 program to reinitialize the SYS1.LOGREC data set.

**IFC110I SERLOG HEADER CHECK BYTE
INCORRECT**

Explanation

(MVS) A validity check of the header record on SYS1.LOGREC has uncovered an error.

System action

EREP terminates.

Programmer response

Obtain a copy of the header record to verify the contents of the header. Then execute the IFCDIP00 program to reinitialize the SYS1.LOGREC data set.

Problem determination

Table 10 on page 79, items 1, 2, 4.

**IFC111I OPEN REQUESTED, DATA SET NOT
SPECIFIED**

Explanation

(MVS, VM, and VSE) An OPEN has been requested but the data set to be opened is not indicated.

System action

EREP terminates.

Programmer response

Make sure the DD statements or FILEDEFS are correct, and rerun the job. If the problem persists, perform problem determination.

Problem determination

Table 10 on page 79, items 1, 2, 4.

**IFC112I READ REQUESTED, NO DATA SET
OPEN**

Explanation

(MVS, VM, and VSE) EREP cannot perform the requested read operation because no data set is open.

System action

EREP terminates.

Programmer response

Make sure the DD statements or FILEDEFS are correct, and rerun the job. If the problem persists, perform problem determination.

Problem determination

Table 10 on page 79, items 1, 2, 4.

IFC113I	RECORDS IGNORED, INSUFFICIENT SPACE ON DIRECTWK
----------------	--

Explanation

(MVS and VM) Not enough space has been allocated to the DIRECTWK data set to allow EREP to process all the input records. Message IFC114I follows this message.

System action

Processing continues. Output is based on the input read prior to the record that cannot be written on DIRECTWK; no further input will be processed.

Programmer response

For MVS: Increase the space allocation for DIRECTWK and rerun the job.

For VM: Erase unnecessary files on the disk; or access a larger disk, possibly a temporary disk. (See the CP DEFINE command and the CMS FORMAT command.) Then rerun CPEREPI.

IFC114I	LAST RECORD PROCESSED WAS text data...
----------------	---

Explanation

This message follows IFC113I and provides a hexadecimal dump of the first 40 bytes of the last record processed before the space on DIRECTWK is exhausted.

IFC116I	SYS1.LOGREC HEADER CANNOT BE RESET. USE IFCDIP00
----------------	---

Explanation

(MVS) The header record of the SYS1.LOGREC data set cannot be reset because of an uncorrectable output error.

System action

The program terminates normally.

Programmer response

Run the IFCDIP00 program to reinitialize the SYS1.LOGREC data set.

Problem determination

Table 10 on page 79, items 1, 2, 5.

IFC117I	SERLOG CLOSED PREMATURELY. USE IFCDIP00
----------------	--

Explanation

(MVS and VM) When EREP tries to check the ERDS header for records written while processing, it finds that the data set is already closed.

System action

The request is ignored; the ERDS is not cleared.

Programmer response

If you get all the report output you have expected, run IFCDIP00 or CPEREPI with CLEAR/CLEARF to reinitialize LOGREC. Records written on SYS1.LOGREC during processing will be lost.

Problem determination

Table 10 on page 79, items 1, 2, 4.

IFC118I	GETMAIN FAILURE WHILE CLEARING SYS1.LOGREC
----------------	---

Explanation

(MVS) While EREP is clearing LOGREC, it tries to obtain storage for the records written to LOGREC during EREP's previous processing, but the GETMAIN has failed.

System action

Processing continues. However, those records for which EREP cannot obtain storage are lost.

Programmer response

The next time EREP is executed, increase the region size. Investigate the possibility that a large number of error records have been written on SYS1.LOGREC during EREP processing.

IFC119I	RECORDS IGNORED, TABSIZE ALLOCATION TOO SMALL
----------------	--

Explanation

(MVS, VM, and VSE) EREP's internal sort table, controlled by the TABSIZE parameter, is too small for this report.

System action

Processing continues.

Programmer response

Increase the value of the TABSIZE parameter, increase the region, virtual machine storage or partition size if necessary, and rerun the job step. If running IFCOFFLD, you need only increase the region, virtual machine storage or partition size.

IFC120I	nnnnnn {RECORDS SAVED FOR rrrrrrr |RECORDS THAT PASSED FILTERING}
----------------	--

Explanation

(MVS, VM, and VSE)

1. Indicates the number of records that EREP used to generate the requested report; rrrrrrr is one of the following:

SYSEXN
SYSUM PART1
SYSUM PART2
TREND PART1
TREND PART2

2. Indicates the number of records that met the selection criteria (that is, DEV=, TYPE=, ...).

All records that meet the selection criteria pass filtering. It is possible, however, that not all of those records are used to generate the report. Only the records applicable to the report you have requested will be saved.

IFC121I	GETMAIN FAILED FOR ttttttt TABLE
----------------	---

Explanation

(MVS and VM) EREP issues a GETMAIN for the amount of storage indicated by the TABSIZE parameter, but not enough storage is available; ttttttt is one of the following:

DASDID
LIMIT
SHARE
SYSTEM IMAGE
SORT
SUMM

System action

EREP terminates.

Programmer response

For MVS: Increase the region size on the job or EXEC statement and rerun the job; or if the TABSIZE value is larger than necessary, rerun with a smaller value for the TABSIZE parameter.

For VM: Rerun CPEREPI in a virtual machine having a larger virtual storage capacity; or if the TABSIZE value is larger than necessary, rerun with a smaller value for the TABSIZE parameter.

IFC122I	nnnnnn RECORDS IGNORED BECAUSE TRUNCATED BIT ON
----------------	--

Explanation

(MVS, VM, and VSE) Indicates the number of records EREP found that have the truncated bit set on.

System action

The records are ignored; when you code the TYPE parameter, EREP does not process truncated or unknown records.

IFC123I	nnnnnn RECORDS IGNORED BECAUSE OF UNKNOWN TYPE
----------------	---

Explanation

(MVS and VM) Indicates the number of records EREP found that are from an unsupported source.

System action

The records are ignored; when you code the TYPE parameter, EREP does not process truncated or unknown records.

Programmer response

For MVS: Execute the SPZAP (VS2), or HMASPZAP (VS1) service aid program to obtain a dump of the output data set to verify the existence of the records of unknown type.

For VM: Try to determine which device triggered the error records.

IFC129I	nnnnnnnnn RCDS IGNORED BECAUSE DIRECTWK READ ERRORS
----------------	--

Explanation

(MVS and VM) Indicates the number of records EREP cannot process because of I/O errors in reading the DIRECTWK data set.

System action

Processing continues.

Programmer response

Rerun the job. If the problem persists, check the DASD device or CMS disk on which the DIRECTWK data set resides.

Problem determination

Table 10 on page 79, items 1, 2, 5.

IFC130I	UNABLE TO FIND MODULE SPECIFIED BY USERPGM
----------------	---

Explanation

(MVS) EREP is unable to find the requested program via the USERPRG parameter.

System action

EREP terminates.

Programmer response

Verify that the requested user program is correct, and that the program is in SYS1.LINKLIB.

IFC131I	SYNTAX ERROR AT *
----------------	--------------------------

Explanation

(MVS and VM) The EREP controls that appear above this message contain a syntax error. The error is in the keyword or operand above the asterisk. This message also appears when EREP encounters a device type on the DEV parameter that it does not recognize.

System action

EREP terminates.

Programmer response

Correct the parameter and rerun the job.

IFC132I	DUPLICATION AT *
----------------	-------------------------

Explanation

(MVS and VM) The EREP controls that appear above this message contain a duplicate keyword or operand. The duplicate is above the asterisk.

System action

EREP terminates.

Programmer response

Eliminate the duplicate keyword or operand and rerun the job.

IFC133I	PARAMETER CONFLICTS - <i>parameter text</i>
----------------	--

Explanation

(MVS and VM) The EREP controls appearing above this message contain parameters, either specified or implied, that are mutually exclusive.

System action

EREP terminates.

Programmer response

Eliminate the conflicting parameters and rerun the job.

IFC134I	{EXCESSIVE CPUS ENCOUNTERED - sssssss MORE THAN {10 13 16} CPUS ENCOUNTERED - sssssss MORE THAN 16 CPUS SPECIFIED WITH SHARE CARDS SHARE CARDS SPECIFY EXCESSIVE CPUS FOR THIS REPORT}
----------------	---

Explanation

(MVS, VM, and VSE) The number of CPUs is excessive; sssssss is the serial number of the first excess CPU. The following are possible reasons for the message:

- The data sets being processed contain records from an excessive number of CPUs, and the EREP controls do not include a valid combination of CPU or MOD selection parameters or SYSIMG control statements.

OR

- EREP has found CONTROLLER, DASDID or SHARE statements specifying too many processors (CPUs) for the requested report.

The system summary report defaults to a maximum of 10 processors; all other reports can show up to 16, with the following exceptions:

- System exception reports on a maximum of 255 processors
- Event history reports on a maximum of 256 processors
- PRINT=PT reports on an unlimited number of processors
- Threshold reports on an unlimited number of processors

To increase the maximum number of processors for system summary to 16, see “[LINELEN — Line Length \(Processing Parameter\)](#)” on page 27.

System action

If it is a case of the data sets being processed containing records from an excessive number of CPUs, processing continues but the output does not show all possible processors, only the maximum allowed for the requested report.

If it is a case of CONTROLLER, DASDID or SHARE statements specifying too many processors, processing is terminated.

Programmer response

If excessive CPUs have been encountered, code the SYSIMG control statement and rerun the job. This reduces the number of CPUs to the actual number of system images. If you still have excessive CPUs, you may have to code the CPU or MOD selection parameter in addition to the SYSIMG control statement. This restricts the number of processors whose records can be processed.

If too many CPUs are defined in the control statements, recode the control statements using only one CPU serial number per system image and rerun the job. (Refer to the individual control statement descriptions for additional information.)

IFC135I	PROCESSING TERMINATED, ddname {READ|WRITE} ERROR
----------------	---

Explanation

(MVS and VM) A permanent I/O error has occurred on the *ddname* data set.

MVS note: This message can be the result of a queuing situation or an inability to read the file.

VM note: If *ddname* is ACCDEV, the following may have occurred: the user does not want the records accumulated, but has failed to code ACC=N; so the default of ACC=Y is in effect. If tape 181 is not attached to the virtual machine, this I/O error results.

System action

EREP terminates; the records are not accumulated.

Programmer response

For VM: If the situation described in the note applies, rerun the job with ACC=N. Otherwise, move the volume containing the data set to another volume,

to determine if the problem has been caused by a hardware malfunction.

For MVS: If the file was queued by another job, wait for the conflicting job to end and then rerun this job. Otherwise, move the volume or data set to determine if the problem has been caused by a hardware malfunction. If the message recurs, execute the SPZAP (VS2), or HMASPZAP (VS1) service aid program to obtain a dump of the data set on which the input error has occurred. If the error occurs on SYS1.LOGREC, run the IFCDIP00 program to reinitialize the data set.

Problem determination

Table 10 on page 79, items 1, 2, 4, 5.



Attention: Move the suspect volume only once to ascertain a fault. Indiscriminate mounting and demounting of the disk pack can cause the destruction of packs and drives.

IFC136I	CLOSE REQUESTED, NO DATA SET OPEN
----------------	--

Explanation

(MVS, VM, and VSE) EREP has received a request for the CLOSE of a data set, but no data set is open.

System action

EREP terminates.

Programmer response

Make sure the system controls are correct and rerun the job. If the problem persists, perform problem determination.

Problem determination

Table 10 on page 79, items 1, 2, 4.

IFC137I	RECORD WITHOUT CPU SERIAL NUMBER ENCOUNTERED
----------------	---

Explanation

(MVS, VM, and VSE) EREP has encountered a record with a processor serial number of 000000.

System action

The record is ignored.

IFC142I	nnnnnn RECORDS FOUND WITH INVALID DATE FIELD
----------------	---

Explanation

(MVS, VM, and VSE) EREP has encountered one or more records with an invalid date field. The last half byte is not an X'F'.

System action

The record is ignored and processing continues.

**IFC143I INCOMPLETE DASD INPUT
RECORD/DEFINITION**

Explanation

(MVS, VM, and VSE) The following record is missing information for EREP processing.

This message is caused by one of the following conditions:

1. The record was for a non-IBM DASD Contact OEM hardware support.
2. Invalid sense information was generated by the DASD device. Contact your hardware support.
3. The operating system error recording program built the record incorrectly.

System action

Processing continues. This record is included in the report.

Programmer response

Cause

Action

Contact field support to determine where the error occurs.

Contact the IBM Support Center to order the correct level of code for the operating system controlling the recording.

Problem determination

Obtain the following documentation:

- The record following this message.
- The level of EREP on your system, including APAR/PTFs.
- The level of ERP on the system that created the record.

**IFC149I nnnnnn DIRECTWK READ
FAILURES**

Explanation

(MVS and VM) Indicates the number of records that are lost while reading from the DIRECTWK data set.

System action

Processing continues.

Programmer response

Rerun the job. If the problem persists, check the direct access device on which the data set resides.

Problem determination

Save the console spool file. Contact IBM for hardware support.

**IFC150I nnnnnn RECORDS READ FROM
INPUT SOURCE**

Explanation

(MVS, VM, and VSE) Indicates the number of records EREP read for the report.

**IFC152I nnnnnn RECORD(S) FOUND WITH
A ZERO VOLID**

Explanation

(MVS, VM, and VSE) Indicates the number of records EREP has found that contain volume serial number 000000.

**IFC153I {GETMAIN GETVIS} FAILED FOR
MODULE mmmmmmmm**

Explanation

(MVS, VM, and VSE) The region or storage size is too small to contain the tables for this module.

System action

EREP terminates.

Programmer response

Increase the region size or the virtual machine storage size and rerun the job.

**IFC154I SORTBREAK FORCED DUE TO
EXCESSIVE FAULT CODES**

Explanation

(MVS, VM, and VSE) EREP has encountered more different fault symptom codes than the symptom code table can hold.

System action

The DASD device summary for this channel/control unit contains two (or more) reports rather than one.

Programmer response

Increase the region/partition or virtual machine storage size. If the problem continues, limit the amount of data by use of selection parameters.

IFC165I	SORTBREAK FORCED DUE TO EXCESSIVE VOLIDS
----------------	---

Explanation

(MVS, VM, and VSE) EREP has encountered more unique volume identifiers than the VOLID table can hold.

System action

The DASD detail summary for this channel/control unit contains two (or more) reports rather than one.

Programmer response

Increase the region/partition or virtual machine storage size. If the problem persists, restrict the amount of data by use of selection parameters.

IFC166I	ttttttt TABLE IS FULL, INCREASE TABSIZE
----------------	--

Explanation

(MVS, VM, and VSE) The area allocated to the specified table has been filled; *ttttttt* is one of the following:

- DASDID
- LIMIT
- SHARE/CONTROLLER
- SUMM

System action

EREP terminates.

Programmer response

Increase the TABSIZE value and, if necessary, the region/partition or virtual machine storage size as well. Then rerun the job.

IFC167I	CUA RANGE IS INVALID ON A SHARE/CONTROLLER CARD
----------------	--

Explanation

(MVS, VM, and VSE) The range specified on the SHARE or CONTROLLER statement either exceeds the 32-address limit, or crosses an invalid control unit boundary. For example, the range on SHARE=(...130–14F) crosses from an odd to an even CUA and is invalid.

System action

EREP terminates.

Programmer response

Correct the SHARE/CONTROLLER statement and rerun the job.

IFC168I	CUA OVERLAPS WITH ANOTHER SHARE/CONTROLLER ENTRY
----------------	---

Explanation

(MVS, VM, and VSE) The address range on one SHARE or CONTROLLER statement overlaps the range on another SHARE or CONTROLLER statement.

System action

EREP terminates.

Programmer response

Correct the SHARE or CONTROLLER statements and rerun the job.

IFC169I	nnnn RECORDS NOT USED BY module name FOR THIS CUX xxx
----------------	--

Explanation

(MVS, VM, and VSE) Indicates why the number of records used to build the maintenance device code does not equal the number of records present for this channel or control unit: all MDR and OBR records are passed to EREP, but only OBR records with particular fault symptom codes are used for the data reduction report.

System action

Processing continues.

IFC170I	GETVCE FAILURE. LOGICAL UNIT SYSxxx
----------------	--

Explanation

(VSE) The get-device-characteristics SVC has failed. The device type needed to open SYSxxx cannot be obtained.

System action

The job step terminates.

Programmer response

Correct or add the // ASSGN statement for the appropriate logical unit.

IFC171I	INVALID DEVICE TYPE SYSxxx
----------------	-----------------------------------

Explanation

(VSE) The device assigned to logical unit SYSxxx is invalid for the type of processing that must be performed.

System action

The job step terminates.

Programmer response

Correct the // ASSGN statement for SYSxxx.

IFC172I	SEGMENTED RECORD INCOMPLETE (24-byte header)
----------------	---

Explanation

(VSE) A segment of a logical record on SYSREC is missing or incorrect. The first 24 bytes of the record are included in the message.

System action

Not all of the record segments are processed. If the segment involved belongs to a frame or to SYSREC, the entire frame set is deleted, so some MCH and CCH records might not be processed.

Programmer response

Check for a succeeding read error message. You may have to reallocate and reinitialize IJSYSRC. An error-recording transient may be executing incorrectly. Call IBM programming support.

IFC173I	ERROR READING SYSREC, RECORD SKIPPED
----------------	---

Explanation

(VSE) A read error occurred on SYSREC.

System action

Processing continues.

Programmer response

Reallocate IJSYSRC and reinitialize SYSREC using the SET RF=CREATE IPL command.

IFC174I	nnnn RECORDS WITH SB 3 and 4 EQUAL TO SB 8 & 9
----------------	---

Explanation

(MVS, VM, and VSE) OBR records with fault symptom code 191A should not have sense bytes 3 and 4 equal to sense bytes 8 and 9. This message indicates the number that do, nevertheless.

System action

Processing continues. However, these records are not used to determine the maintenance device code.

Programmer response

A hardware problem; notify your CE or other maintenance person.

Problem determination

[Table 10 on page 79](#), item 5.

IFC175I	logical unit OPEN REQUESTED, ALREADY OPEN
----------------	--

Explanation

(VSE) A second open has been requested for a data set that is already open.

System action

The request is ignored. No further input is processed.

Programmer response

Make sure the system controls are correct and rerun the job. If the problem persists, perform problem determination.

Problem determination

Table 10 on page 79, items 1, 2, 4.

IFC176I *logical unit FAILED TO OPEN*

Explanation

(VSE) The specified data set cannot be opened.

System action

The job step terminates.

Programmer response

Add or correct the // ASSGN statement for the specified data set and rerun the job.

IFC177I *logical unit NOT OPEN WHEN
{READ|WRITE} REQUESTED*

Explanation

(VSE) The specified data set is not open when a read or write is requested.

System action

The request is ignored. No further input is processed.

Programmer response

Make sure the system controls are correct and rerun the job. If the problem persists, perform problem determination.

Problem determination

Table 10 on page 79, 1, 2, 4.

IFC178I *RECORD IGNORED; logical unit
READ DIRECT ERROR*

Explanation

(VSE) A permanent I/O error has occurred on the specified data set. EREP has ignored one or more records.

System action

Processing continues. The physical record that caused the error is ignored.

Programmer response

Move the volume containing the data set to another device or move the data set to another volume, to determine if the problem is caused by a hardware

malfunction. If the message does not recur, there probably is a hardware error on the device (or volume) originally used. If the error persists, execute a utility to obtain a dump of the data set on which the error occurred. If the error occurs on SYSREC, re-IPL and issue SET RF=CREATE to reinitialize the data set.



Attention: Move the suspect volume only once to ascertain a fault. Indiscriminate mounting and demounting of the disk pack can cause the destruction of packs and drives.

Problem determination

Table 10 on page 79, items 1, 2, 4, 5.

IFC179I *{ddname logical unit} CLOSE
REQUESTED, logical unit NOT
OPEN*

Explanation

(VSE) The specified data set is not open when a close is requested.

System action

The request is ignored.

Programmer response

Make sure the system controls are correct and rerun the job. If the problem persists, perform problem determination.

Problem determination

Table 10 on page 79, items 1, 2, 4.

IFC180I *SYSREC HEADER CANNOT BE
READ*

Explanation

(VSE) EREP cannot read the header record on SYSREC.

System action

The job step terminates.

Programmer response

Execute a utility to obtain a dump of SYSREC. Then re-IPL and issue SET RF=CREATE to reinitialize the recorder file (SYSREC).

IFC181I *SYSREC HEADER CHECK BYTE
INCORRECT*

Explanation

(VSE) A validity check of the header record on SYSREC has uncovered an error.

System action

The EREP program terminates.

Programmer response

Execute a utility to obtain a dump of SYSREC. Then re-IPL and issue SET RF=CREATE to reinitialize the recorder file (SYSREC).

Problem determination

Table 10 on page 79, items 1, 2, 4.

IFC182I	RECORDS IGNORED; INSUFFICIENT SPACE ON SYS001
----------------	--

Explanation

(VSE) Not enough space was allocated on SYS001 to process all input records. Message IFC183I should follow this message.

System action

Processing continues. The report output includes only the records read prior to the record that cannot be written on SYS001. EREP reads no more records for the report.

Programmer response

Increase the space allocation for SYS001 and rerun the job.

IFC183I	LAST RECORD PROCESSED WAS <i>text data ...</i>
----------------	---

Explanation

(VSE) This message follows IFC1821 and provides a hexadecimal dump of the first 40 bytes of the last record processed before the space on SYS001 is exhausted.

IFC184I	RECORDER FILE HEADER CANNOT BE RESET
----------------	---

Explanation

(VSE) The header record of SYSREC cannot be reset because of an uncorrectable output error.

System action

The program terminates normally.

Programmer response

Re-IPL and issue SET RF=CREATE to reinitialize SYSREC.

Problem determination

Table 10 on page 79, items 1, 2, 5.

IFC185I	{GETVIS|GETVCE} FAILED FOR <i>ttttttt</i>
----------------	--

Explanation

(VSE) A GETVIS has been issued for the value indicated by parameter TABSIZE and the partition GETVIS area is too small; *ttttttt* is one of the following:

<i>ttttttt</i> value	
DASDID TABLE	SYSTEM IMAGE TABLE
LIMIT TABLE	ALIAS LIST
SHARE TABLE	CI BUFFER
SORT TABLE	HEADER BUFFER
SUMM TABLE	

System action

The job step terminates.

Programmer response

Alter the SIZE parameter on the // EXEC statement to increase the partition size and rerun the job.

IFC186I	<i>nnnnnn</i> RECORDS IGNORED BECAUSE OF UNKNOWN TYPE
----------------	--

Explanation

(VSE) EREP has encountered records from an unsupported device.

System action

The records are ignored; not used for the report.

Programmer response

Execute a utility to obtain a dump of the output data set to verify the existence of the unknown records.

IFC187I	<i>nnnnnn</i> RCDs IGNORED BECAUSE SYS001 READ ERRORS
----------------	--

Explanation

(VSE) The message indicates the number of records EREP cannot process because of I/O errors in reading the SYS001 data set.

System action

Processing continues.

Programmer response

Rerun the job. If the problem persists, check the direct access device on which the data set resides.

Problem determination

Table 10 on page 79, items 1, 2, 5.

IFC188I	UNABLE TO FIND MODULE SPECIFIED BY USERPGM
----------------	---

Explanation

(VSE) EREP is unable to find the program requested via the USERPGM parameter.

System action

EREP terminates.

Programmer response

Verify that the user program requested is correct and that the program is on the core image library.

IFC189I	SYNTAX ERROR AT *
----------------	--------------------------

Explanation

(VSE) The EREP controls that appear above this message contain a syntax error. The error is in the keyword or operand above the asterisk. This message also appears when the DEV parameter includes a device type EREP does not recognize.

System action

The job step terminates.

Programmer response

Correct the parameter and rerun the job step.

IFC190I	DUPLICATION AT *
----------------	-------------------------

Explanation

(VSE) The EREP controls that appear above this message contain a duplicate keyword or operand. The duplicate is above the asterisk.

System action

The job step terminates.

Programmer response

Eliminate one of the duplicates and rerun the job step.

IFC191I	PARAMETER CONFLICTS - <i>parameter text</i>
----------------	--

Explanation

(VSE) The EREP controls include parameters that are mutually exclusive.

System action

The job step terminates.

Programmer response

Eliminate the conflicting parameters and rerun the job step.

IFC192I	PROCESSING TERMINATED; <i>logical unit</i> {READ|WRITE} ERROR
----------------	--

Explanation

(VSE) A permanent I/O error has occurred on the specified data set.

System action

The job step terminates; SYSREC is not cleared.

Programmer response

Move the volume containing the data set to another device, or move the data set to another volume, to determine if the problem has been caused by a hardware malfunction. If the message does not recur, there is probably a hardware error on the device (or volume) originally used. If the error persists, execute a utility to obtain a dump of the data set on which the input error has occurred. If the error has occurred on SYSREC, re-IPL and issue SET RF=CREATE to reinitialize the data set.



Attention: Move the suspect volume only once to ascertain a fault. Indiscriminate mounting and demounting of the disk pack can cause the destruction of packs and drives.

Problem determination

Table 10 on page 79, items 1, 2, 4, 5.

IFC199I **nnnnnn DIRECT READ FAILURES**

Explanation

(VSE) EREP lost *nnnnnn* records while reading from SYS001.

System action

Processing continues.

Programmer response

Rerun the job. If the problem persists, check the direct access device on which the data set resides.

Problem determination

Table 10 on page 79, items 1, 2, 5.

IFC200I **NUMBER OF BYTES REPORTED
DIFFERS FROM RECORD COUNT**

Explanation

(MVS, VM, and VSE) The number of sense bytes, or bytes of statistical data, expected is not the same as the number of sense bytes recorded by the device and specified in the OBR record. EREP formats sense bytes according to the original engineering requirements for a device's EREP support. EREP has formatted the number of sense bytes it expects to find in the record.

Programmer response

This message can appear in the report output when either:

- The number of bytes formatted is less than the total number of bytes the device actually recorded in the OBR record. In this case, the message is informational; the unformatted sense bytes are not relevant to the EREP report.

OR

- The number of bytes formatted is greater than the number of bytes the device actually recorded in the OBR record, implying that the byte counts (statistical or sense) were recorded erroneously. In this case, the message indicates a problem.

If you suspect that the second case applies, perform problem determination, focusing on the device as well as on the system recording process.

Problem determination

Table 10 on page 79, items 3 and 4.

IFC201I **nnnn RECORDS IGNORED DUE TO
{EXCESSIVE CPUS|MORE THAN 15
CPUS}**

Explanation

(MVS, VM, and VSE) EREP encountered more than 16 unique CPUs in the input data.

System action

Processing continues.

Programmer response

Code the SYSIMG control statement to reduce the number of CPUs to the actual number of system images. Rerun the job.

If you still have excessive CPUs, you may need to code the CPU or MOD selection parameter in addition to the SYSIMG control statement. This restricts the number of processors whose records are processed.

IFC202I **nnnn RECORDS IGNORED DUE TO
EXCESSIVE DIRECTOR IDS**

Explanation

(MVS and VM) Indicates the number of records EREP has to ignore because they represent more different storage directors than it can handle.

System action

Processing continues.

Programmer response

Increase the region or virtual machine storage size. If the problem persists, limit the amount of data by use of selection parameters.

IFC203I **nnnn RECORDS IGNORED DUE TO
STORAGE DIRECTOR ID = ZERO**

Explanation

(MVS, VM, and VSE) Indicates the number of records EREP cannot use because they contain invalid storage director IDs.

System action

Processing continues.

**IFC204I // ASSGN FOR LOGICAL UNIT
 SYSxxx MISSING OR INVALID**

Explanation

(VSE) The device type needed to open SYSxxx cannot be obtained.

System action

The job step terminates.

Programmer response

Correct or add the // ASSGN statement for the appropriate logical unit.

**IFC210I INVALID REQUEST CODE xx: MOD
 yyyy SER zzzzzz**

Explanation

(MVS, VM, and VSE) EREP receives an invalid request relating to a 303X MCH or CCH detail Summary.

System action

The request is not processed.

Programmer response

Can be a software or hardware error. Rerun the job. If the error persists, perform problem determination.

Problem determination

Table 10 on page 79, items 3 and 4.

**IFC214I CANNOT PROCESS RECORD: TYPE
 OR LENGTH INVALID**

Explanation

(MVS, VM, and VSE) EREP encounters an MCH or CCH record with a logout-length field of zero, or a CCH record produced by a non-IBM system or a system other than MVS, VM or VSE.

System action

This record is not included in the summary.

Programmer response

Check the input record and rerun the job. If the error persists, perform problem determination.

Problem determination

Table 10 on page 79, items 3 and 4.

IFC217I 303X LOAD LIST IS FULL

Explanation

(MVS, VM, and VSE) EREP has found the 303X load list in the summary-table module already full.

System action

EREP terminates summary processing.

Programmer response

Rerun the job. If the error persists, perform problem determination. This can be a hardware or IBM software problem.

Problem determination

Table 10 on page 79, items 3 and 4.

**IFC218I 303X DEFAULT SUMMARY TABLE
 MODULE mmmmmmmm USED**

Explanation

(MVS, VM, and VSE) EREP uses default module mmmmmmmm in place of the missing summary module identified in the previously issued IFC219I message.

System action

EREP continues summary processing using the default summary table module named in the message.

Programmer response

Make sure the latest release of EREP is installed on your system and rerun the job. If the error persists, perform problem determination.

Problem determination

Table 10 on page 79, items 3 and 4.

**IFC219I 303X SUMMARY MODULE
 mmmmmmmm NOT FOUND**

Explanation

(MVS, VM, and VSE) EREP cannot find the selected mmmmmmmm summary module.

System action

EREP omits this record from the summary and continues summary processing using the default summary module named in message IFC218I. If the default summary-table module is missing, EREP terminates summary processing and issues message IFC220I.

Programmer response

If message IFC218I immediately follows this message, see the programmer response for that message. If message IFC220I immediately follows, the proper level of EREP is probably not installed. Check with your software support.

IFC220I	SEVERE ERROR: SUMMARY TERMINATED FOR THIS MODEL
----------------	--

Explanation

(MVS, VM, and VSE) The error mentioned in the immediately preceding message has caused EREP to terminate the summary.

System action

EREP terminates summary processing.

Programmer response

See the message immediately preceding this message for programmer response.

IFC221I	NO SHARE CARD
----------------	----------------------

Explanation

(MVS, VM, and VSE) EREP has found records for more than one processor in the input but has found no SHARE statements.

System action

EREP continues processing; however, the probable failing unit can be incorrect for tape devices.

Programmer response

Provide SHARE statements for tape devices.

IFC223I	THRESHOLD TABLE ERROR
----------------	------------------------------

Explanation

(MVS, VM, and VSE) The table contains a value or other data that EREP does not recognize or does not contain the data EREP expects.

System action

EREP stops processing records.

Programmer response

The table either is incorrect or has been overlaid. Make sure the latest level of EREP is installed and includes all the applicable APAR/PTFs.

If the table has been replaced by PTF, remove the PTF and rerun the job.

In either case, contact your software support.

IFC227I	NO DASDID CARD FOR ENTRIES FLAGGED WITH *
----------------	--

Explanation

(MVS, VM, and VSE) EREP found records for DASD devices for which there are no DASDID statements. The flagged entries are on the DASD subsystem exception report.

System action

EREP continues processing; however, probable failing unit analysis may be incorrect.

Programmer response

Include DASDID statements for your DASD that do not provide their own physical IDs and rerun the job.

IFC229I	MODULE mmmmmmmm, RPA=aaaaaaaa, REQUESTED AN UNSUPPORTED SERVICE FUNCTION; FRF=bbbbbbbb, FCF=cccccccc
----------------	---

Explanation

(MVS, VM, and VSE) The named module made a service request that contains an invalid or unsupported code in the function request flag (FRF) or the function control flag (FCF).

System action

EREP ignores the request and returns control to the calling module at the specified return-point address (RPA). Register 15 contains the return code.

Programmer response

There is an error either in the product-dependent exit module or in the product control table (PCT) for the product. Make sure EREP support is installed for the products included in the module name.

Problem determination

Save any output for analysis.

IFC230I	UNABLE TO TRANSFER CONTROL TO {MOD=mmmmmmmm| PROC pppppppp}; IFCXCST OVERFLOW—CRITICAL ERROR
----------------	---

Explanation

(MVS, VM, and VSE) The transfer-of-control stack table, IFCXCST, is full; EREP cannot transfer control to the named module or procedure as requested.

System action

EREP ignores the request and returns control to the calling module. Register 15 contains the return code.

Programmer response

Call IBM level two service.

IFC231I	UNABLE TO LOAD MODULE mmmmmmmm FOR MODULE xxxxxxxx; LMAT OVERFLOW—CRITICAL ERROR
----------------	---

Explanation

(MVS, VSE, and VM) Module xxxxxxxx requested, via the IFCLOAD or IFCCALL macro, that EREP load module mmmmmmmm. EREP cannot satisfy the request because the load-module-address table (LMAT) is full.

System action

EREP ignores the request and returns control to the calling module. Register 15 contains the return code.

Programmer response

Call IBM level two service.

IFC232I	UNABLE TO GET VIRTUAL STORAGE FOR MODULE mmmmmmmm; VSAT OVERFLOW—CRITICAL ERROR
----------------	--

Explanation

(MVS, VM, and VSE) The named module requests virtual storage via the IFCGETM macro. EREP cannot satisfy the request because its virtual storage address table (VSAT) is full.

System action

EREP ignores the request and returns control to the calling module. Register 15 contains the return code.

Programmer response

Call IBM level two service.

IFC233I	INVALID FUNCTION - STE BUILD MODULE mmmmmmmm
----------------	---

Explanation

(MVS, VM, and VSE) The named module has been asked to do something it cannot do.

System action

Processing continues; EREP does not include this record in the system exception reports.

Programmer response

There is an error either in the product-dependent exit module or in the product control table (PCT) for the product. Make sure EREP support is installed for the products included in the module name.

Problem determination

Save any output for analysis.

IFC234I	GETMAIN FAILED FOR EVTABLE
----------------	-----------------------------------

Explanation

(MVS and VM) EREP is unable to obtain virtual storage for the table of valid CPU serial numbers needed for the event history report.

System action

EREP terminates.

Programmer response

Increase the region or virtual storage size and rerun the job.

IFC235I	GETVIS FAILED FOR EVTABLE
----------------	----------------------------------

Explanation

(VSE) EREP is unable to obtain virtual storage for the table of valid CPU serial numbers needed for the event history report.

System action

EREP terminates.

Programmer response

Increase the partition size and rerun the job.

IFC236I	GETMAIN FAILED FOR TREND TABLE PART 1
----------------	--

Explanation

(MVS and VM) EREP is unable to obtain virtual storage for the table needed to build Part 1 of the trends report.

System action

No more records are processed; EREP produces a partial report.

Programmer response

Increase the region or virtual storage size and rerun the job.

IFC237I	GETVIS FAILED FOR TREND TABLE PART 1
----------------	---

Explanation

(VSE) EREP is unable to obtain virtual storage for the table needed to build Part 1 of the trends report.

System action

No more records are processed; EREP produces a partial report.

Programmer response

Increase the partition size and rerun the job.

IFC238I	GETMAIN FAILED FOR PHYID TABLE
----------------	---

Explanation

(MVS and VM) EREP is unable to obtain virtual storage for the table of physical IDs.

System action

Processing continues; this record is excluded from the report.

Programmer response

Increase the region or virtual storage size and rerun the job.

IFC239I	GETVIS FAILED FOR PHYID TABLE
----------------	--------------------------------------

Explanation

(VSE) EREP is unable to obtain virtual storage for the table of physical IDs.

System action

Processing continues; this record is excluded from the reports.

Programmer response

Increase the partition size and rerun the job.

IFC240I	GETMAIN FAILED FOR ACLAS TABLE
----------------	---

Explanation

(MVS and VM) EREP is unable to obtain virtual storage for the additional-classification table used in building the system summary and trends reports.

System action

Processing continues; EREP does no additional classification of this record.

Programmer response

Increase the region or virtual storage size and rerun the job.

IFC241I	GETVIS FAILED FOR ACLAS TABLE
----------------	--------------------------------------

Explanation

(VSE) EREP is unable to obtain virtual storage for the additional-classification table used in building the system summary and trends reports.

System action

Processing continues; EREP does no additional classification of this record.

Programmer response

Increase partition size and rerun the job.

IFC242I	EXIT MOD mmmmmmmmm COULD NOT OBTAIN ERROR CLASS
----------------	--

Explanation

(MVS, VM, and VSE) Either the named module cannot load the PCT containing the product-dependent data for this record, or the PCT does not contain the expected error class.

System action

Processing continues; this record is excluded from the report.

Programmer response

There is an error either in the product-dependent exit module or in the product control table (PCT) for the product. Make sure EREP support is installed for the products included in the module name.

IFC243I	EXIT MOD <i>mmmmmmmm</i> COULD NOT OBTAIN PHYSICAL ID
----------------	--

Explanation

(MVS, VM, and VSE) Either the named module cannot load the PCT containing the product-dependent data for this record, or the PCT does not contain the expected physical ID.

System action

Processing continues; this record is excluded from the report.

Programmer response

There is an error either in the product-dependent exit module or in the product control table (PCT) for the product. Make sure EREP support is installed for the products included in the module name.

IFC244I	EXIT MOD <i>mmmmmmmm</i> COULD NOT OBTAIN VOLID
----------------	--

Explanation

(MVS, VM, and VSE) Either the named module cannot load the PCT containing the product-dependent data for this record, or the PCT does not contain the expected volume serial number.

System action

Processing continues; this record is excluded from the report.

Programmer response

There is an error either in the product-dependent exit module or in the product control table (PCT) for the product. Make sure EREP support is installed for the products included in the module name.

IFC245I	EXIT MOD <i>mmmmmmmm</i> COULD NOT OBTAIN SYMCDE
----------------	---

Explanation

(MVS, VM, and VSE) Either the named module cannot load the PCT containing the product-dependent data for this record, or the PCT does not contain the expected fault symptom code

System action

Processing continues; this record is excluded from the report.

Programmer response

There is an error either in the product-dependent exit module or in the product control table (PCT) for the product. Make sure EREP support is installed for the products included in the module name.

IFC246I	EXIT MOD <i>mmmmmmmm</i> COULD NOT OBTAIN TERMINAL NAME
----------------	--

Explanation

(MVS, VM, and VSE) Either the named module cannot load the PCT containing the product-dependent data for this record, or the PCT does not contain the expected terminal name.

System action

Processing continues; this record is excluded from the report.

Programmer response

There is an error either in the product-dependent exit module or in the product control table (PCT) for the product. Make sure EREP support is installed for the products included in the module name.

IFC247I	EXIT MOD <i>mmmmmmmm</i> COULD NOT OBTAIN LIA/LIBADR
----------------	---

Explanation

(MVS, VM, and VSE) Either the named module cannot load the PCT containing the product-dependent data

for this record, or the PCT does not contain the expected line interface base address.

System action

Processing continues; this record is excluded from the report.

Programmer response

There is an error either in the product-dependent exit module or in the product control table (PCT) for the product. Make sure EREP support is installed for the products included in the module name.

**IFC248I {GETMAIN GETVIS} FAILED FOR
 SYSUM TABLE PART 1**

Explanation

(MVS, VM, and VSE) EREP is unable to obtain virtual storage for the table needed to build Part 1 of the system summary.

System action

No more records are processed; EREP produces a partial report.

Programmer response

Increase region or virtual storage size and rerun the job.

**IFC250I EXIT MOD mmmmmmmmm COULD
 NOT OBTAIN SFT DATA**

Explanation

(MVS, VM, and VSE) The named module supplies product-dependent data for the event history report. It is unable to find the data for this software (SFT) record.

System action

Processing continues; however, the entry for this record does not include the product-dependent data.

Programmer response

There is an error either in the exit module or in the product control table (PCT) for the product. Make sure EREP support is installed for the products included in the module name.

**IFC251I EXIT MOD mmmmmmmmm COULD
 NOT OBTAIN OBR DATA**

Explanation

(MVS, VM, and VSE)

The named module supplies product-dependent data for the event history report. It is unable to find the data for this OBR record.

The named exit module has detected an error, or there is an error in the product control table (PCT) for this product.

System action

Processing continues; however, the entry for this record does not include the product-dependent data.

Programmer response

Make sure EREP support is installed for the products included in the module name.

**IFC252I EXIT MOD mmmmmmmmm COULD
 NOT OBTAIN CCH DATA**

Explanation

(MVS, VM, and VSE) The named module supplies product-dependent data for the event history report. It is unable to find the data for this CCH record.

System action

Processing continues; however, the entry for this record does not include the product-dependent data.

Programmer response

There is an error either in the exit module or in the product control table (PCT) for the product. Make sure EREP support is installed for the products included in the module name.

**IFC253I EXIT MOD mmmmmmmmm COULD
 NOT OBTAIN MDRDASD DATA**

Explanation

(MVS, VM, and VSE) The named module supplies product-dependent data for the event history report. It is unable to find the DASD-specific data for this MDR record. A hexdump of the record is also printed after the message.

System action

Processing continues; however, the entry for this record does not include the product-dependent data.

Programmer response

There is an error either in the exit module or in the product control table (PCT) for the product. Make sure EREP support is installed for the products included in the module name.

IFC256I	UNABLE TO LOAD MODULE mmmmmmmm FOR MODULE IFCZIMGR
----------------	---

Explanation

(MVS, VM, and VSE) During initialization of the EREP run, the named service module can not be found or loaded.

System action

EREP terminates.

Programmer response

Make sure the named module is included in the library being searched during initialization and try again to run EREP.

IFC257I	UNABLE TO INITIALIZE IFCZIMGR FOR mmmmmmmmm
----------------	--

Explanation

(MVS, VM, and VSE) EREP cannot initialize its system interface manager (IFCZIMGR) for the named module. Either it cannot load a needed service module or it cannot open the TOURIST/SYSLST data set. The reason is indicated in the preceding message.

System action

EREP terminates.

Programmer response

Take the action recommended for the preceding message and try again.

IFC258I	EXIT MOD mmmmmmmmm COULD NOT FORMAT REPORT FOR ssrr
----------------	--

Explanation

(MVS, VM, and VSE)

The named module produces the product-dependent detail summary report. It is unable to produce the report for this SCP (ss) and record type (rr). A hexdump of the record is also printed after the message.

The record type is byte 0 of the record. For a description of the various record types see [Table 9 on page 73](#).

The SCP is byte 1 of the record and is one of the following:

- VM
- VE (VSE)
- V2 (MVS)

The named exit module has detected an error, or there is an error in the product control table (PCT) for this product.

System action

Processing continues; however, the detail summary report for this SCP and record type will not be produced.

Programmer response

Make sure EREP support is installed for the products included in the module name.

IFC259I	EXIT MOD mmmmmmmmm COULD NOT OBTAIN DATA FOR ssrr
----------------	--

Explanation

(MVS, VM, and VSE)

The named module supplies product-dependent data for the event history report. It is unable to find the data for this SCP (ss) and record type (rr).

The record type is byte 0 of the record. For a description of the various record types, see [Table 9 on page 73](#).

The SCP is byte 1 of the record and is one of the following:

- VM
- VE (VSE)
- V2 (MVS)

The named exit module has detected an error, or there is an error in the product control table (PCT) for this product.

System action

Processing continues; however, the entry for this record does not include the product-dependent data.

Programmer response

Make sure EREP support is installed for the products included in the module name.

**IFC260I USER EXIT MOD mmmmmmmmm
 COULD NOT BE LOADED BY EREP**

Explanation

(MVS, VM, and VSE) The named module supplies product-dependent data for the event history report. EREP is unable to load it.

System action

Processing continues; however, the entry for this record does not include the product-dependent data.

Programmer response

There is an error in the product control table (PCT) for the product. Make sure EREP support is installed for the products included in the module name.

**IFC261I SYSIMG STATEMENTS IGNORED
 WHEN PRINT=PT REQUESTED**

Explanation

(MVS, VM, and VSE) When PRINT=PT is requested, SYSIMG control statements should not be coded.

System action

Processing continues. The SYSIMG control statements are ignored.

**IFC262I SYSTEM IMAGE STATEMENTS
 ALTER CPU SERIAL NUMBERS**

Explanation

(MVS, VM, and VSE) The first or the first and second digits of the CPU identification numbers in the CPU tables at the end of the report have been altered as a result of information given in the SYSIMG control statement.

**IFC263I TABSIZE REQUEST EXCEEDS
 MAXIMUM ALLOWED VALUE**

Explanation

(MVS, VM, and VSE) The TABSIZE request exceeds EREP's addressing capability.

System action

EREP terminates.

Programmer response

Run the job again specifying a smaller value for TABSIZE. See [“TABSIZE — Sort Table Size \(Processing Parameter\)”](#) on page 34 for information on allowable values.

**IFC264I INVALID INFORMATION FOUND
 FOR DASD {OBR|MDR} CODE
 {xxxx|xx} IN RECORD**

Explanation

(MVS, VM, and VSE) The following record contains information that is inconsistent with the OBR or MDR device type code found in the record. Device type codes are documented in [“OBR Codes”](#) on page 109 and [“MDR Codes”](#) on page 111.

This message is caused by one of the following conditions:

1. The record was for a non-IBM DASD. Contact OEM hardware support.
2. Invalid sense information was generated by the DASD device. Contact your hardware support.
3. The record should not have been recorded by the operating system.
4. The operating system error recording program built the record incorrectly because:
 - a. The DASD device had never been on-line before the error recovery procedures (ERP) generated the record.
 - b. The DASD device is not supported by the level of ERP that generated the record.
5. The DASD device is not supported by the level of EREP that generated the report.

System action

Processing continues but device-dependent information will not be printed for this record.

Programmer response**Cause****Action**

Contact field support to determine where the error occurs.

Vary the offline device online and then back offline to resolve the problem.

Contact the IBM Support Center to order the correct level of code for the operating system controlling the recording.

Contact the IBM Support Center to order the correct level of code for the device.

Problem determination

Obtain the following documentation:

- The record following this message.
- The level of EREP on your system, including APAR/PTFs.
- The level of ERP on the system that created the record.

IFC265I **INVALID INFORMATION FOUND
FOR DASD DEVICE xxxx**

Explanation

(MVS, VM, and VSE) The following record contains sense information that is inconsistent with the indicated the device type code.

This message is caused by one of the following conditions:

1. The record was for a non-IBM DASD. Contact your OEM hardware support.
2. Invalid sense information was generated by the DASD device. Contact your hardware support.
3. The record should not have been recorded by the operating system.
4. The operating system error recording program built the record incorrectly because:
 - a. The DASD device had never been on-line before the error recovery procedures (ERP) generated the record.
 - b. The DASD device is not supported by the level of ERP that generated the record.
5. The DASD device is not supported by the level of EREP that generated the report.

System action

Processing continues but device-dependent information will not be printed for this record.

Programmer response

Cause
Action

Contact field support to determine where the error occurs.

Vary the offline device online and then back offline to resolve the problem.

Contact the IBM Support Center to order the correct level of code for the operating system controlling the recording.

Contact the IBM Support Center to order the correct level of code for the device.

Problem determination

Obtain the following documentation:

- The record following this message.
- The level of EREP on your system, including APAR/PTFs.
- The level of ERP on the system that created the record.

IFC266I **UNABLE TO OBTAIN VIRTUAL
STORAGE FOR MODULE
"mmmmmmm", GETVIS
FAILURE, SIZE='X.**

Explanation

(VSE) This error message indicates that the virtual storage request made for module *mmmmmmm* cannot be honored as insufficient GETVIS storage remained to fulfill the request.

System action

EREP ignores the request and returns control to the calling module.

Programmer response

Increase the partition size and rerun the job.

Chapter 7. Codes for Control Units, OBRs, and MDRs

The control unit codes, outboard record (OBR) codes, and miscellaneous data record (MDR) codes are gathered in tables to help you cross-reference devices to the codes that represent them in EREP records.

This topic covers the following subjects:

TOPIC
“Control Unit Type Codes” on page 107
“OBR Codes” on page 109
“MDR Codes” on page 111

The following table contains an example of the four-byte field in the long OBR that contains the device type associated with an error.

Offset Dec(Hex)	Size(bytes) Alignment(bits)	Field Name	Description
⋮	⋮	⋮	⋮
52(34)	4		Device type for the device associated with the error.
	Byte 0		
	1...		Byte 1 contains a control unit ID.
	.xxx xxxx		Reserved.
	Byte 1		Control unit ID if byte 0(bit 0)=1. Otherwise system dependent data unused by EREP.
	Byte 2		Device class code.
	Byte 3		Device type code.
⋮	⋮	⋮	⋮

The four-byte field contains data gathered from different sources for different operating systems.

Some of the other types of error records contain a four byte-field at the same or a different offset.

MDRs have a one-byte field at an offset of four to hold the device code. Refer to the system product error recording manual for your operating system to find the error record layouts that show the size and offset of the device codes.

Control Unit Type Codes

This section contains tables sorted by both the control unit and the control unit type code to help you cross-reference control units and type codes.

The following table shows the control unit type codes and control units sorted by type code:

TYPE CODE	CONTROL UNIT
01	3880-3
02	3880-3 with Speed Matching Buffer
03	3880-13
04	3880-23

TYPE CODE	CONTROL UNIT
05	3990-2
06	3990-3
09	3880-3 (3380-JK attachment feature)
0A	3880-23
0B	3880-11
0C	3880-21
0D	3880-1
0E	3880-1 with Speed Matching Buffer (3375)
0F	3380-CJ (Direct Attach)
10	3990-1
11	9343-C02
12	9343-C04
13	9343-D04
14	9341
15	3990-6
17	3995-151
18	9343-CC4
19	9343-DC4
1A	9343-CC2
1B	2105
1C	9696 (IDSK)
1F	2107
20	3995-153
24	1750
30	9394

The following table shows the control unit type codes and control units sorted by control unit:

CONTROL UNIT	TYPE CODE
1750	24
2105	1B
2107	1F
3380-CJ (Direct Attach)	0F
3880-1	0D
3880-1 with Speed Matching Buffer (3375)	0E

CONTROL UNIT	TYPE CODE
3880-3	01
3880-3 with Speed Matching Buffer	02
3880-3 (3380-JK attachment feature)	09
3880-23	0A
3880-11	0B
3880-13	03
3880-21	0C
3880-23	04
3990-1	10
3990-2	05
3990-3	06
3990-6	15
3995-151	17
3995-153	20
9341	14
9343-C02	11
9343-C04	12
9343-CC2	1A
9343-CC4	18
9343-D04	13
9343-DC4	19
9394	30
9696 (IDSK)	1C

OBR Codes

This section contains tables sorted by both the OBR device class or type code (also called the OBR codes) and the device or family type to help you cross-reference OBR codes and devices.

The following table shows the OBR device class or type codes and the device type or family sorted by OBR code:

OBR Codes

OBR code = Device Class	OBR code = Device Class	OBR code = Device Class	OBR code = Device Class	OBR code = Device Class
0801 = 2540DD 0802 = 2540DD 0803 = 1442 0804 = 2501 0805 = 2520 0806 = 3505 0807 = 3525 0808 = 1403 0809 = 3211 080A = 1443 080B = 3203 080C = 3525 080D = 3262 080E = 3800-01 080F = AFP1 0810 = 2671 0811 = 4245 0812 = 1012 0813 = 4248 0813 = 6262 0814 = 2947 0816 = 3890 0817 = 3886 0818 = 2495 0819 = 3895 081A = 1285 081B = 1287 081C = 1288 081D = 1419 081E = 1419 081F = 1275 0820 = 1052 0821 = 2150 0822 = 3210 0823 = 3215 0824 = 2956 0825 = 2956 0826 = 2956 0827 = 2956 0828 = 2956 0829 = 1419 082A = 1275 082B = 1275 082C = 1275	082D = 1419 082E = 1419 082F = 2495 0830 = 3213 0831 = 1017 0832 = 1018 0833 = 3210 0834 = 3215 0835 = 1255 0836 = 1255 0837 = 1270 0838 = 1270 0839 = 2596 083A = SWCH 083D = 7443 0840 = 3890 0841 = 3886 0842 = 3850 0844 = 3540 0846 = 2560 0847 = 3504 0848 = 5425 0849 = 3203 084C = 3838 084D = 5203 084E = 5203 0880 = 5424 0882 = 3848 08A0 = 3800-03 1001 = 1015 1002 = 2250 1003 = 2260 1004 = 105D 1005 = 2280 1006 = 2282 1007 = 3278 1008 = 3066 1009 = 327D 100A = 3284 100B = 3286 100C = 3158 100D = 3036 100E = 3138 100F = 3148	1013 = 5080 1014 = BA00 2001 = 2311 2002 = 2301 2003 = 2303 2005 = 2321 2006 = 2305 2007 = 2305 2008 = 2314 2009 = 3330 200A = 3340 200B = 3350 200C = 3375 200D = 3330 200E = 3380-A, B 201E = 3380-D 2021 = 3380-J 2023 = 3380-K 2024 = 3390-03 2026 = 3390-01 2027 = 3390-02 2028 = 9345-01 2029 = 9345-02 202E = 3380-E 2031 = 3395-151 2032 = 3390-09 2033 = 9392-02 2034 = 9392-01 2035 = 2105 2036 = 3995-153 2037 = 9395-01 2038 = 9395-02 203A = 9392-03 203B = IDSK 203C = 2107 203D = 1750 2101 = 3310 2102 = 3370 2105 = 3370 2106 = 9335 2107 = 9332 2108 = 9313 2111 = 9336 2112 = 0671 2180 = 9246 2181 = 9247 2182 = 3995	2183 = 3995 4000 = 7770 4001 = 2702 4002 = 2701 4003 = 2703 4004 = 2955 4005 = 3705 4006 = 3705 4009 = 3704 400A = 3968 4011 = 2702 4013 = 2703 4014 = 7772 4015 = 3705 4021 = 2702 4022 = 2701 4023 = 2703 4025 = 3705 4031 = 2702 4032 = 2701 4033 = 2703 4035 = 3705 4041 = 2702 4042 = 2701 4043 = 2703 4045 = 1060 4051 = 2702 4052 = 2701 4053 = 2703 4061 = 2702 4062 = 2701 4063 = 2703 4071 = 2702 4072 = 2701 4073 = 2703 4081 = 2702 4082 = 2701 4083 = 2703 4091 = 2702 4092 = 2701 4093 = 2703 40F1 = 3791 4100 = CTCA 4101 = SCTC	4102 = BCTC 4105 = 0SA 4106 = OSAD 4107 = IQD 4120 = FCTC 4122 = 3995 4201 = 1030 4202 = 1050 4203 = 1060 4204 = 2740 4205 = 2740 4206 = 2741 4207 = 226T 4208 = 105T 4209 = 2760 420A = 83B3 420B = 115A 420F = 1130 4210 = 2020 4211 = 2780 4212 = 2770 4213 = 2265 4214 = 2930 4215 = 2972 4216 = 327T 4217 = 2970 4218 = 3735 4219 = 3945 421A = 2790 421B = 3670 4420 = 3700 8001 = 2400 8003 = 3400 8004 = 3420 8005 = 3410 8006 = 8809 8007 = 3430 8008 = 7340 8009 = 9347 800A = 3422 800C = 3424 800E = 9348 8080 = 3480 8081 = 3490 8083 = 3590 8084 = 3591/3490 EMU 8085 = 3590/3490 EMU

Note:

- OBR codes are *left* of the equal signs; device types are *right* of the equal signs.
- Some OBR codes may be used with multiple device types or models; for example: AFP1, CTCA, SWCH.

The following table shows the OBR device class or type codes (also called the OBR codes) and the device type or family sorted by device or family type:

Device/family type = OBR code

AFP1 = 080F	226T = 4207	2703 = 4043	3330 = 2009	3848 = 0882
BA00 = 1014	2265 = 4213	2703 = 4053	3330 = 200D	3850 = 0842
BCTC = 4102	2280 = 1005	2703 = 4063	3340 = 200A	3886 = 0817
CTCA = 4100	2282 = 1006	2703 = 4073	3350 = 200B	3886 = 0841
FCTC = 4120	2301 = 2002	2703 = 4083	3370 = 2102	3890 = 0816
IDSK = 203B	2303 = 2003	2703 = 4093	3370 = 2105	3890 = 0840
IQD = 4107	2305 = 2006	2740 = 4204	3375 = 200C	3895 = 0819
OSA = 4105	2305 = 2007	2740 = 4205	3380-A,B = 200E	3945 = 4219
OSAD = 4106	2311 = 2001	2741 = 4206	3380-D = 201E	3968 = 400A
SCTC = 4101	2314 = 2008	2760 = 4209	3380-J = 2021	3995 = 2031
SWCH = 083A	2321 = 2005	2770 = 4212	3380-K = 2023	3995 = 2036
	2400 = 8001	2780 = 4211	3380-E = 202E	3995 = 2182
0671 = 2112	2495 = 0818	2790 = 421A	3390-01 = 2026	3995 = 2183
1012 = 0812	2495 = 082F	2930 = 4214	3390-02 = 2027	3995 = 4122
1015 = 1001	2501 = 0804	2947 = 0814	3390-03 = 2024	4245 = 0811
1017 = 0831	2520 = 0805	2955 = 4004	3390-09 = 2032	4248 = 0813
1018 = 0832	2540DD = 0801	2956 = 0824	3400 = 8003	5080 = 1013
1030 = 4201	2540DD = 0802	2956 = 0825	3410 = 8005	5203 = 084D
105D = 1004	2560 = 0846	2956 = 0826	3420 = 8004	5203 = 084E
105T = 4208	2596 = 0839	2956 = 0827	3422 = 800A	5424 = 0880
1050 = 4202	2671 = 0810	2956 = 0828	3424 = 800C	5425 = 0848
1052 = 0820	2701 = 4002	2970 = 4217	3430 = 8007	6262 = 0813
1060 = 4045	2701 = 4022	2972 = 4215	3480 = 8080	7340 = 8008
1060 = 4203	2701 = 4032	3036 = 100D	3490 = 8081	7443 = 083D
1130 = 420F	2701 = 4042	3066 = 1008	3504 = 0847	7770 = 4000
115A = 420B	2701 = 4052	3138 = 100E	3505 = 0806	7772 = 4014
1255 = 0835	2701 = 4062	3148 = 100F	3525 = 0807	83B3 = 420A
1255 = 0836	2701 = 4072	3158 = 100C	3525 = 080C	8809 = 8006
1270 = 0837	2701 = 4082	3203 = 0849	3540 = 0844	9246 = 2180
1270 = 0838	2701 = 4092	3203 = 080B	3590 = 8083	9247 = 2181
1275 = 081F	2702 = 4001	3210 = 0822	3590 = 8085	9313 = 2108
1275 = 082A	2702 = 4011	3210 = 0833	3591 = 8084	9332 = 2107
1275 = 082B	2702 = 4021	3211 = 0809	3670 = 421B	9335 = 2106
1275 = 082C	2702 = 4031	3213 = 0830	3700 = 4420	9336 = 2111
1285 = 081A	2702 = 4041	3215 = 0823	3704 = 4009	9345-01 = 2028
1287 = 081B	2702 = 4051	3215 = 0834	3705 = 4005	9345-02 = 2029
1288 = 081C	2702 = 4061	3262 = 080D	3705 = 4006	9347 = 8009
1403 = 0808	2702 = 4071	327D = 1009	3705 = 4015	9348 = 800E
1419 = 081D	2702 = 4081	327T = 4216	3705 = 4025	9392-01 = 2034
1419 = 081E	2702 = 4091	3278 = 1007	3705 = 4035	9392-02 = 2033
1419 = 082D	2703 = 4003	3284 = 100A	3735 = 4218	9392-03 = 203A
1419 = 082E	2703 = 4013	3286 = 100B	3791 = 40F1	9395 = 2037
1419 = 0829	2703 = 4023	3310 = 2101	3800-01 = 080E	9395 = 2038
1442 = 0803	2703 = 4033		3800-03 = 08A0	
1443 = 080A			3838 = 084C	
1750 = 203D				
2020 = 4210				
2105 = 2035				
2107 = 203C				
2150 = 0821				
2250 = 1002				
226D = 1003				

Note:

- Device types are *left* of the equal signs; OBR codes are *right* of the equal signs.
- Some OBR codes may be used with multiple device types or models; for example: AFP1, CTCA, SWCH.

MDR Codes

This section contains tables sorted by both the MDR device code (also called the MDR code) and the device or family type to help you cross-reference MDR codes and devices.

The following table shows MDR codes and device types sorted by MDR code:

MDR Codes

MDR code = device type	MDR code = device type
01 = 3330 02 = 2305 MOD 2 03 = 3277 03 = 3286 03 = 3284 (non-NCP mode) 04 = 3211 05 = 3705 (non-NCP mode) 06 = 3670 07 = 3168 08 = 2715 09 = 3340 09 = 3344 0A = 3330 MOD 11 0B = 3277 0C = 3800 MOD 1 0D = 3895 0E = 3850 0F = IGAR Diskette 10 = 3203 10 = 3289 11 = 3350 12 = 2305 MOD 1 13 = 3277 (NCP mode) 14 = 3380 Mod A,B 15 = 3705 (NCP mode) 16 = 3310 17 = 3370 MOD 1 18 = 3375 19 = 9313 1A = 3370 MOD 2 1B = 3380 MOD E 1C = 3380 MOD D 1D = 9335 1E = 9332 1F = 9347 20 = 3800 MOD 3,8 21 = 3380 MOD J	23 = 3380 MOD K 24 = 3390-03 25 = 3725 26 = 3390-01 27 = 3390-02 28 = 9345-01 29 = 9345-02 2A = 0671 2B = 9336 2E = 3720 2F = 3745 30 = NMVT 31 = 3995-151 32 = 3390-09 33 = 9392-02 34 = 9392-01 35 = 2105 36 = 3995-153 37 = 9395 38 = 9395 3A = 9392-03 3B = IDSK 3C = 2107 3D = 1750 3E = 2107 EVA mod A 40 = 8809 41 = 3480 42 = 3490 44 = 3424 45 = 9348 46 = 3590 47 = 3591/3490 EMU 48 = 3590/3490 EMU 50 = 3995 F0 = 2946 F1 = 2948 F3 = 2703
Note: MDR codes are <i>left</i> of the equal signs; device types are <i>right</i> of the equal signs.	

The following table shows MDR codes and device types sorted by Device Type.

Device type = MDR code	Device type = MDR code
0671 = 2A 1750 = 3D 2105 = 35 2107 = 3C 2107 EVA mod A = 3E 2305 MOD 1 = 12 2305 MOD 2 = 02 2703 = F3 2715 = 08 2946 = F0 2948 = F1 3168 = 07 3203 = 10 3211 = 04 3277 = 03 3277 = 0B 3277 (NCP mode) = 13 3284 (non-NCP mode) = 03 3286 = 03 3289 = 10 3310 = 16 3330 = 01 3330 MOD 11 = 0A 3340 = 09 3344 = 09 3350 = 11 3370 MOD 1 = 17 3370 MOD 2 = 1A 3375 = 18 3380 MOD A,B = 14 3380 MOD J = 21 3380 MOD K = 23 3380 MOD E = 1B 3380 MOD D = 1C 3390-01 = 26 3390-02 = 27 3390-03 = 24 3390-09 = 32 3424 = 44 3480 = 41	3490 = 42 3590 = 46 3591/3490 EMU = 47 3590/3490 EMU = 48 3670 = 06 3705 (non-NCP mode) = 05 3705 (NCP mode) = 15 3720 = 2E 3725 = 25 3745 = 2F 3800 MOD 1 = 0C 3800 MOD 3,8 = 20 3850 = 0E 3895 = 0D 3995 = 50 3995-151 = 31 3995-153 = 36 9336 = 2B 8809 = 40 9313 = 19 9332 = 1E 9335 = 1D 9345-01 = 28 9345-02 = 29 9347 = 1F 9348 = 45 9392-01 = 34 9392-02 = 33 9392-03 = 3A 9395-01 = 37 9395-02 = 38 IDSK = 3B IGAR Diskette = 0F NMVT = 30
Note: Device types are <i>left</i> of the equal signs; MDR codes are <i>right</i> of the equal signs.	

Part 2. Examples of Output from Reports

To help you select which reports you need to adequately monitor your installation, this part of the EREP Reference provides descriptions and examples of each report generated by EREP.

EREP reports are designed to give you a variety of views of the data being processed. EREP produces:

- Overview reports, from which you can determine *if* there are problems
- Analysis reports, from which you can determine *where* there are problems
- Detail reports, from which you can determine *what* the problems are.

In order to decide which report to run at which time, you need to understand what each one is telling you. The following reports are described in this topic:

Topic
Chapter 8, “System Summary Report,” on page 117
Chapter 9, “Trends Report,” on page 125
Chapter 10, “Event History Report,” on page 131
Chapter 11, “System Exception Report Series,” on page 137
Chapter 12, “Threshold Summary Report,” on page 219
Chapter 13, “Detail Edit and Summary Reports,” on page 225

Note: The reports are listed from most general to most specific, because the most effective way to use EREP reports is to start with the most general and work toward the most specific.

Chapter 8. System Summary Report

The system summary report provides an overview of errors for each of your installation's principal parts or subsystems:

- Processors (CPU)
- Channels
- Subchannels
- Storage
- Operating system control programs (SCPs)
- I/O subsystems.

Important: The system summary report does not go into detail; it shows how many errors and exceptions were recorded overall. It is a good place to start when evaluating the performance of your system.

Description of the System Summary Report

The system summary report has the following two parts:

PART	DESCRIPTION
1	Summarizes errors by CPUs from all but the I/O subsystem.
2	Summarizes errors recorded in the I/O subsystem.

Note:

1. Record counts are listed by CPU. See [“How EREP Assigns Numbers to CPUs”](#) on page 61 for an explanation of the way the number identifiers are assigned.

EREP can report information from a variable number of CPUs depending upon your operating system, type of printer and what parameters you specify. Information from the remaining CPUs are grouped together under serial number X'FFFFFF'.

It is also possible to have multiple internal CPUs reported under one serial number. See [“SYSIMG Control Statement”](#) on page 62 for more information.

2. DASD and tape are listed by strings in the system summary.
3. A field with all 9's means that the number was larger than the print position allowed.
4. A dash (–) in part 2 of the system summary means there are no records for this DEVNO/CUA on this processor (CPU).
5. It is most useful to address the permanent errors first.

System Summary Part 1

The first part of the system summary report varies according to the mode of the records it summarizes.

RECORD MODE	CONTAINS
370	<ul style="list-style-type: none">• Counts of machine checks (MCH records)• Channel checks (CCH records) by channel

RECORD MODE	CONTAINS
370XA	<ul style="list-style-type: none"> Machine-check totals Counts of subchannel logouts (SLH records) by channel path ID Channel report words (CRW records) created by both hardware and software

Note:

1. For MVS only, actual software error records are included in the report.
2. Counts of software events that may or may not be associated with errors (IPLs and system termination) are shown in the first part of the system summary.

“System Summary Report, Part 1” on page 119 shows an example of the system summary part 1.

System Summary Part 2

The second part of the system summary is a condensed report of every permanent and temporary error recorded for the I/O devices in your installation, listed under the CPU associated with the error.

When your CPUs share I/O devices, you must use SHARE control statements for the system summary if you want to see I/O errors combined for all the possible paths to a device that is common to different systems. See “SHARE Control Statements” on page 57 for details.

The temporary errors appearing in part 2 of this report are totals of temporary read/write errors and statistical data.

The temporary and permanent I/O errors are listed by product or device groups. Table 11 on page 118 shows the product groups in the order they appear in part 2 of the system summary and the trends reports.

Table 11. The Order of Product Groups in the Reports	
ORDER	PRODUCT GROUP
1	Console and unit record devices: <ol style="list-style-type: none"> 1. Operator’s console 2. Card reader 3. Card punch 4. Printer 5. OCR/MICR
2	Direct-access storage devices: <ol style="list-style-type: none"> 1. Disk 2. Drum/fixed-head file 3. Mass storage system 4. Optical
3	Tape devices
4	Displays (channel-attached)
5	Teleprocessing (TP) communications controllers
6	Terminals

Table 11. The Order of Product Groups in the Reports (continued)

ORDER	PRODUCT GROUP
7	Other devices: 1. Channel-to-channel adapter 2. Cryptographic unit 3. Dynamic pathing availability (DPA)
8	Unknown/unrecognized devices

Errors are presented by control unit or device address for each device type:

Record type	Control unit or device address
For 370 records	The device address is the CUA.
For 370XA records	The device address is the device number.
For both 370 and 370XA records	The errors are combined.

DASD is presented as follows:

- DASD with serial numbers or DASDIDs show only total counts since hardware error conditions are not caused by CPU.
- DASD with serial numbers in the sense records (for example, 3990 and 9343) indicate subsystems by type and SSID value (as set in the control unit).
- DASD with DASDID indicate the subsystem by the control unit ID (first byte of the DASDID).

The I/O error data is summarized by the control unit/device address or number of the device reporting each error.

Physical ID identifiers appear in the combination format of SCUID-CTLID-DEVID.

“System Summary Report, Part 2” on page 121 shows an example of the system summary part 2.

Examples of the System Summary Reports

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
System Summary Report, Part 1	“System Summary Report, Part 1” on page 119
System Summary Report, Part 2	“System Summary Report, Part 2” on page 121

System Summary Report, Part 1

```

SYSTEM SUMMARY                      REPORT DATE 012 09
(PART 1)                           PERIOD FROM 230 06
CPU/STORAGE/SCP                     TO 263 06

TOTAL CPU-0 CPU-1 CPU-2 CPU-3 CPU-4 CPU-5 CPU-6 CPU-7 CPU-8 CPU-9
IPL          11      8      1      0      1      1      0      0      0      0
MACHINE CHECK
RECOVERABLE   163    75      0      0      0      0      0      0      0      88
NON-RECOVERABLE 0      0      0      0      0      0      0      0      0      0

```

CHANNEL CHECK 1

CHANNEL 0	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 1	9	9	0	0	0	0	0	0	0	0	0
CHANNEL 2	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 3	3	3	0	0	0	0	0	0	0	0	0
CHANNEL 4	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 5	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 6	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 7	2	2	0	0	0	0	0	0	0	0	0
CHANNEL 8	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 9	7	7	0	0	0	0	0	0	0	0	0
CHANNEL A	4	4	0	0	0	0	0	0	0	0	0
CHANNEL B	0	0	0	0	0	0	0	0	0	0	0
CHANNEL C	25	25	0	0	0	0	0	0	0	0	0
CHANNEL D	1	1	0	0	0	0	0	0	0	0	0
CHANNEL E	0	0	0	0	0	0	0	0	0	0	0
CHANNEL F	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 10	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 11	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 12	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 13	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 14	2	2	0	0	0	0	0	0	0	0	0
CHANNEL 15	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 16	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 17	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 18	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 19	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 1A	0	0	0	0	0	0	0	0	0	0	0
CHANNEL 1B	0	0	0	0	0	0	0	0	0	0	0

PROGRAM ERROR

ABEND	42488	11787	76	510	14	35	10825	100	321	518	18302
PROGRAM CHECK	5295	7	1	3451	0	2	622	28	362	819	3
SYMPTOM RECORD	1077	361	18	44	7	57	55	36	423	74	2

END OF DAY	1	0	1	0	0	0	0	0	0	0	0
------------	---	---	---	---	---	---	---	---	---	---	---

CPU MODEL SERIAL NO.

0	FFFFXA	FFFFFF
1	2084XA	05A8BA
2	2084XA	05A5BA
3	2084XA	04A8BA
4	2084XA	03A8BA
5	2084XA	0356BF
6	2084XA	02A8BA
7	2084XA	02A5BA
8	2084XA	0256BF
9	2084XA	019F1A

S Y S T E M S U M M A R Y
(PART 1 CONTINUED)

REPORT DATE 012 09
PERIOD FROM 230 06
TO 263 06

SUBCHANNEL/CHANNEL

TOTAL CPU-0 CPU-1 CPU-2 CPU-3 CPU-4 CPU-5 CPU-6 CPU-7 CPU-8 CPU-9

SUBCHANNEL LOGOUT

CHPID 00	44	17	0	0	0	0	0	0	0	0	27
CHPID 01	280	163	0	27	0	0	29	0	34	27	0
CHPID 05	304	187	0	27	0	0	29	0	34	27	0
CHPID 72	11	5	0	1	1	0	1	1	1	1	0
CHPID 81	421	232	0	33	0	0	34	47	40	35	0
CHPID 85	404	219	0	32	0	0	34	43	41	35	0
CHPID 86	3	0	0	0	3	0	0	0	0	0	0
CHPID 87	3	0	1	0	2	0	0	0	0	0	0
CHPID F0	4	0	0	1	0	0	0	1	1	1	0
CHPID F1	11	6	0	1	0	0	1	1	1	1	0
CHPID F2	12	5	1	1	1	0	1	1	1	1	0

CHANNEL REPORT WORD

HARDWARE	4	3	0	0	0	0	0	0	1	0	0
SOFTWARE	0	0	0	0	0	0	0	0	0	0	0

TOTAL RECORDS	50536	13075	99	4128	29	95	11631	258	1260	1539	18422
---------------	-------	-------	----	------	----	----	-------	-----	------	------	-------

CPU MODEL SERIAL NO.

0	FFFFXA	FFFFFF
1	2084XA	05A8BA
2	2084XA	05A5BA


```

3 2084XA 04A8BA
4 2084XA 03A8BA
5 2084XA 0356BF
6 2084XA 02A8BA
7 2084XA 02A5BA
8 2084XA 0256BF
9 2084XA 019F1A

```

1

If there are 32 channels, then the channel check summary displays channels X'10' through X'1F' *only* if there is activity on one or more of the channels in the string.

System Summary Report, Part 2

```

S Y S T E M   S U M M A R Y
(PART 2)
I/O SUBSYSTEM

REPORT DATE 012 09
PERIOD FROM 230 06
TO 263 06

CPU-8 CPU-9 ----- TOTAL ----- CPU-0 CPU-1 CPU-2 CPU-3 CPU-4 CPU-5 CPU-6 CPU-7
TEMP PERM TEMP PERM TEMP PATH PERM TEMP PERM TEMP PERM TEMP PERM TEMP PERM TEMP PERM TEMP PERM TEMP PERM
CONS +UR
*****

3525 000B - - 1 0 0 1 0 - - - - - - - - - - - - - - - - -
- - - - 2 1 0 2 1 - - - - - - - - - - - - - - - - -
3800 000F - - 1 2 0 1 2 - - - - - - - - - - - - - - - - -
- - - - 3 0 0 3 0 - - - - - - - - - - - - - - - - -
3213 0016 - - 2 0 0 2 0 - - - - - - - - - - - - - - - - -
02C7 0200 - - 1 0 0 1 0 - - - - - - - - - - - - - - - - -
- - - - 1 0 0 1 0 - - - - - - - - - - - - - - - - -
AFP1 0390 - - 1 0 0 1 0 - - - - - - - - - - - - - - - - -
1403 041E - - 1 0 0 1 0 - - - - - - - - - - - - - - - - -
3800 0803 - - 4 3 0 4 3 - - - - - - - - - - - - - - - - -
- - - - 1 0 0 - - - - - - - - - - - - - - - - -
- 0803 - - 0 1 0 - - - - - - - - - - - - - - - - -
3800 0B09 - - 1 0 0 - - - - - - - - - - - - - - - - -
- - - - 1 0 0 - - - - - - - - - - - - - - - - -
3800 0B17 - - 1 0 0 - - - - - - - - - - - - - - - - -
- 0B17 - - 1 0 0 - - - - - - - - - - - - - - - - -
- - - - 1 0 0 - - - - - - - - - - - - - - - - -

DASD
*****

3350 0100 - - 1 0 0 - - - - - - - - - - - - - - - - -
- - - - 1 0 0 - - - - - - - - - - - - - - - - -
3350 010C - - 4 0 0 4 0 - - - - - - - - - - - - - - - - -
2305 01CX - - 0 1 0 0 1 - - - - - - - - - - - - - - - - -
3340 03E8 - - 4 0 0 4 0 - - - - - - - - - - - - - - - - -
- - - - 0 4096 0 0 4096 - - - - - - - - - - - - - - - - -
2314 0530 - - 0 2 0 0 2 - - - - - - - - - - - - - - - - -
3310 0597 - - 0 2 0 0 2 - - - - - - - - - - - - - - - - -
9246 0ACX - - 1 - - - - - - - - - - - - - - - - -
1 - - - - - - - - - - - - - - - - -
3990-SSID 00C2 - - 0 1 0 - - - - - - - - - - - - - - - - -
9343-SSID 0243 - - 0 1 0 - - - - - - - - - - - - - - - - -
UKNO-SSID A0-X - - 0 1 0 - - - - - - - - - - - - - - - - -
UKNO-SSID 0002 - - 0 2 0 - - - - - - - - - - - - - - - - -
UKNO-SSID 02 - - 0 23 16 - - - - - - - - - - - - - - - - -
3990-SSID 0243 - - 0 0 1 - - - - - - - - - - - - - - - - -
- E2-XX-XX - - 7 28 0 - - - - - - - - - - - - - - - - -
- 17-XX-XX - - 11 0 0 - - - - - - - - - - - - - - - - -
- - - - 11 0 0 - - - - - - - - - - - - - - - - -

DASD STRINGS
*****

```

3422	015X	-	-	1	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-
3400	0180	-	-	1	4	0	1	4	-	-	-	-	-	-	-	-	-	-	-	-
3480	02B2	-	-	1	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-
9348	049X	-	-	10	0	0	10	0	-	-	-	-	-	-	-	-	-	-	-	-
3424	94AX	-	-	2	0	0	2	0	-	-	-	-	-	-	-	-	-	-	-	-
3490	04B0	-	-	0	1	0	0	1	-	-	-	-	-	-	-	-	-	-	-	-
2400	06A1	-	-	0	2	0	0	2	-	-	-	-	-	-	-	-	-	-	-	-
9347	0C7X	-	-	12	229	0	12	229	-	-	-	-	-	-	-	-	-	-	-	-
	E2-XX-XX	-	-	7	28	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	17-XX-XX	-	-	11	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TAPE																				
3422	015X	-	-	1	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-
3400	0180	-	-	1	4	0	1	4	-	-	-	-	-	-	-	-	-	-	-	-
3430	0190	-	-	1	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-
3480	02B2	-	-	1	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-
9348	049X	-	-	10	0	0	10	0	-	-	-	-	-	-	-	-	-	-	-	-
3424	04AX	-	-	2	0	0	2	0	-	-	-	-	-	-	-	-	-	-	-	-
3490	04B0	-	-	0	1	0	0	1	-	-	-	-	-	-	-	-	-	-	-	-
3490	04B1	-	-	2	0	0	2	0	-	-	-	-	-	-	-	-	-	-	-	-
3490	04B2	-	-	2	1	0	2	1	-	-	-	-	-	-	-	-	-	-	-	-
S Y S T E M S U M M A R Y										REPORT DATE 012 09										
(PART 2)										PERIOD FROM 230 06										
I/O SUBSYSTEM										TO 263 06										
CPU-8	CPU-9	----	TOTAL	----	CPU-0	CPU-1	CPU-2	CPU-3	CPU-4	CPU-5	CPU-6	CPU-7								
TEMP	PERM	TEMP	PERM	TEMP	PATH	PERM	TEMP	PERM	TEMP	PERM	TEMP	PERM	TEMP	PERM	TEMP	PERM	TEMP	PERM	TEMP	PERM
TAPE																				
3400	0574	-	-	0	4	0	0	4	-	-	-	-	-	-	-	-	-	-	-	-
	0574	-	-	0	2	0	-	-	-	-	-	-	0	2	-	-	-	-	-	-
3400	0575	-	-	0	13	0	0	13	-	-	-	-	-	-	-	-	-	-	-	-
	0575	-	-	1	2	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2400	06A1	-	-	0	2	0	0	2	-	-	-	-	-	-	-	-	-	-	-	-
2400	06A4	-	-	1	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-
3400	0584	-	-	0	9	0	0	9	-	-	-	-	-	-	-	-	-	-	-	-
	0584	-	-	0	9	0	-	-	-	0	9	-	-	-	-	-	-	-	-	-
9347	0C7X	-	-	12	229	0	12	229	-	-	-	-	-	-	-	-	-	-	-	-
8809	0BA2	-	-	0	376	0	-	-	-	-	-	-	-	-	-	-	-	-	-	0
376	-	-	-																	
8809	0BA5	-	-	1	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1	0	-	-																	
8809	0BA8	-	-	0	247	0	-	-	-	-	-	-	-	-	-	-	-	-	-	0
247	-	-	-																	
8809	0BAE	-	-	0	222	0	0	222	-	-	-	-	-	-	-	-	-	-	-	-
		-	-																	
DISPLAY																				
3286	0026	-	-	5	0	0	5	0	-	-	-	-	-	-	-	-	-	-	-	-
3277	0361	-	-	2	0	0	2	0	-	-	-	-	-	-	-	-	-	-	-	-
	0361	-	-	3	0	0	-	-	-	-	-	3	0	-	-	-	-	-	-	-
	0361	-	-	1	0	0	-	-	-	-	-	-	1	0	-	-	-	-	-	-
3284	03E2	-	-	0	2	0	0	2	-	-	-	-	-	-	-	-	-	-	-	-

3277	0B86	-	-	1	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TP CNTRL																					

2701	0011	-	-	1	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	
-	CNTRLR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3705	0036	-	-	3	0	0	3	0	-	-	-	-	-	-	-	-	-	-	-	-	
-	CNTRLR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3791	0319	-	-	0	3	0	0	3	-	-	-	-	-	-	-	-	-	-	-	-	
-	CNTRLR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3705	0581	-	-	1	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	
-	LINES	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3705	06FF	-	-	0	3	0	0	3	-	-	-	-	-	-	-	-	-	-	-	-	
-	CNTRLR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	LINES	-	-	0	1	0	0	1	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2703	0740	-	-	1	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	
-	CNTRLR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
7770	0740	-	-	6	0	0	6	0	-	-	-	-	-	-	-	-	-	-	-	-	
-	CNTRLR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
OTHER																					

*																					
BA00	0040	-	-	1	0	0	1	0	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3848	0330	-	-	0	3	0	0	3	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DPA	0A82	-	-	0	0	1	-	-	-	-	0	1	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
DPA	0AA0	-	-	0	0	1	-	-	-	-	-	-	-	0	1	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CTCA	0B03	-	-	12	0	1	0	12	0	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TOTALS				163	5558	20	116	4838	0	0	0	10	5	1	4	3	0	0	0	0	1
623	0	0																			
CPU	MODEL	SERIAL NO.																			
0	FFFFXA	FFFFFF																			
1	2084XA	05A8BA																			
2	2084XA	05A5BA																			
3	2084XA	04A8BA																			
4	2084XA	03A8BA																			
5	2084XA	0356BF																			
6	2084XA	02A8BA																			
7	2084XA	02A5BA																			
8	2084XA	0256BF																			
9	2084XA	019F1A																			

1

The first 4 characters of identifiers containing "SSID" are used only for records with 32 byte ECKD architecture sense (for example, 3990/3390, 9341/9345, or a 9343/9345). The characters "UNKO" are used for records containing other than 32 byte ECKD architecture sense.

Chapter 9. Trends Report

Trends reports present the pattern and frequency of errors on a daily basis. You can use this performance trend to see when the errors began, their pattern, and when they end.

Description of the Trends Report

The trends report presents error data in chronological order, by the Julian day (1 through 365) and consists of the following two parts:

PART	DESCRIPTION
1	Presents errors by type of failure: CPU, channel, storage, and SCP. It contains IPL, MCH, CCH/SLH/CRW, and program error (software) records for each processor (CPU).
2	Presents permanent and temporary I/O errors for the product groups in the order shown in Table 11 on page 118 .

Note:

1. Trends reports do not report on SIM-producing devices such as 3990/3390 DASD.
2. 9340 direct access storage subsystems are not shown in the trends report.
3. Within product groups, errors are presented by device address or number or physical ID within generic device or product types.
4. CPUs associated with records appear on the line with the device address/number. Devices that provide physical IDs are associated with the control unit and not with a CPU.
5. DASD and tape devices are listed by DEVNO/CUA.

Examples of the Trends Report

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
Trends Report, Part 1	“Trends Report, Part 1” on page 125
Trends Report, Part 2	“Trends Report, Part 2” on page 129

Trends Report, Part 1

T R E N D S R E P O R T																		
(PART 1)																		
CPU/CHANNEL/STORAGE/SCP																		
REPORT DATE 071 97																		
PERIOD FROM 041 97																		
TO 058 97																		
JULIAN	97																	
DAY	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
1	2																	
IPL																		
CPU 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
CPU 2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Trends Report

CPU 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MACHINE CHECK

CPU 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CHANNEL CHECK

3

CPU 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CPU D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

PROGRAM ERROR

CPU 0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0
CPU 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
CPU 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
CPU 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

CPU MODEL SERIAL NO.

4

0	3090XA	654321
1	3090XA	170028
2	3084XA	321128
3	3084XA	221128
4	3084XA	121128
5	3081XA	221170
6	3084XA	121128
7	3084XA	021103
8	3081	220344
9	3081XA	020447
A	3081XA	020344
B	3081	020063
C	3033	021929
D	3033	021928

```

E   3033   020808
F   0168   099111

```

5
T R E N D S R E P O R T
(PART 1)
SUBCHANNEL/CHANNEL

```

REPORT DATE 071 97
PERIOD FROM 041 97
        TO  058 97

```

```

JULIAN   97
DAY      41  42  43  44  45  46  47  48  49  50  51  52  53  54  55  56  57  58

```

SUBCHANNEL

CPU 0

NO ERRORS FOR THIS CPU

CPU 1

NO ERRORS FOR THIS CPU

CPU 2

NO ERRORS FOR THIS CPU

CPU 3

NO ERRORS FOR THIS CPU

CPU 4

NO ERRORS FOR THIS CPU

CPU 5

NO ERRORS FOR THIS CPU

CPU 6

```

CHPID 15  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0

```

CPU 7

NO ERRORS FOR THIS CPU

CPU 8

NO ERRORS FOR THIS CPU

CPU 9

NO ERRORS FOR THIS CPU

CPU A

NO ERRORS FOR THIS CPU

CPU B

NO ERRORS FOR THIS CPU

CHANNEL REPORT WORD

CPU 0

```

HARDWARE  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
SOFTWARE  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
CPU      1

```

```

HARDWARE  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
SOFTWARE  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
CPU      2

```

```

HARDWARE  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
SOFTWARE  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
CPU      3

```

```

HARDWARE  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
SOFTWARE  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0
CPU      4

```

Trends Report

HARDWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOFTWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 5																	
HARDWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOFTWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 6																	
HARDWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOFTWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 7																	
HARDWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOFTWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 8																	
HARDWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOFTWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU 9																	
HARDWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOFTWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU A																	
HARDWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOFTWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU B																	
HARDWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOFTWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU C																	
HARDWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOFTWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU D																	
HARDWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOFTWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU E																	
HARDWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOFTWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU F																	
HARDWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOFTWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU	MODEL	SERIAL NO.															
0	3090XA	654321															
1	3090XA	170028															
2	3084XA	321128															
3	3084XA	221128															
4	3084XA	121128															
5	3081XA	221170															
6	3084XA	121128															
7	3084XA	021103															
8	3081	220344															
9	3081XA	020447															
A	3081XA	020344															
B	3081	020063															

1

System error types, by CPU.

2

Each column contains error counts for one day. Unless you specify a shorter date range, the report covers 30 days.

3

For CCH (and SLH) records, only those channels (channel paths) with errors appear in the report.

4

Processors (CPUs), identified from filtered data and share statements. XA indicates that the CPU is running in 370XA mode.

5

This section of the report appears only if 370XA mode records are present.

Trends Report, Part 2

T R E N D S R E P O R T																	REPORT DATE 071 97	
(PART 2)																	PERIOD FROM 041 97	
I/O SUBSYSTEM																	TO 058 97	
JULIAN	97																	
DAY	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
CONS+UR	1																	
3800																		
000F C	2																	
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3505																		
0010 F																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0012 F																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
AF01																		
0492 0																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DASD	3																	
SD A0-XX-XX																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
DEVICE FF.X-16																		
PERM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DEVICE FF.X-17																		
PERM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CNTRL XX-0D-XX																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
DEVICE 01.X-11																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DEVICE SD.02																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0
SD 10114																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TAPE																		
3400	4																	
0180 2																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
0181 2	5																	
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3480																		
018B 1																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3400																		
01A0 2																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
3480																		
01B2 1																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02B2 1																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0453 9																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8809																		
0BA1 D																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	280	0	0

Trends Report

T R E N D S R E P O R T										REPORT DATE 071 97								
(PART 2)										PERIOD FROM 041 97								
I/O SUBSYSTEM										TO 058 97								
JULIAN	97																	
DAY	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58
TP CNTRL																		
3705																		
00FE C																		
CNTRLR																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
0120 F																		
LINES																		
PERM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0581 F																		
LINES																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	999	0	0	0	0	0
06FF C																		
CNTRLR																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OTHER																		
DPA																		
0453 9																		
PERM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0A82 1																		
PERM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
TEMP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CPU	MODEL	SERIAL NO. 6																
0	3090XA	654321																
1	3090XA	170028																
2	3084XA	321128																
3	3084XA	221128																
4	3084XA	121128																
5	3081XA	221170																
6	3084XA	121128																
7	3084XA	021103																
8	3081	220344																
9	3081XA	020447																

1

Device group.

2

Each column represents one day. A field of all 9s indicates that this number is larger than the print positions allowed.

3

DASD with physical IDs (or serial numbers) list the DASD by the physical identifier. See [“DASDID Control Statement”](#) on page 51 for an explanation of DASD physical identifiers.

4

Device type.

5

CPU-CUA (or device number) path.

6

Processors (CPUs), identified from filtered data and share statements. XA indicates that the CPU is running in 370XA mode.

Chapter 10. Event History Report

The event history report consists of one-line abstracts of selected information from each record. The event history report shows errors in a time sequence that allows you to see how often and in what order errors occur. It allows you to establish a pattern and diagnose problems.

Description of the Event History Report

The event history is divided into the following three parts:

PART	DESCRIPTION	REFER TO
1	Is a template showing the headings used for the record-dependent data from each type of record. It does the following: <ul style="list-style-type: none"> • Guides in the interpretation of information in the other sections of the report • Explains terms • Provides one set of heading templates for 370 and another for 370XA reports 	Figure 7 on page 132
2	Is the event history. It provides information for up to 256 processors (CPUs).	Figure 8 on page 133
3	Is a summary, by CPU identifier, of all the records presented in the report, with totals for each record type. It provides information for up to 16 CPUs. If your installation has more than 16 CPUs, EREP produces the report using records from the first 15 CPUs it encounters. Information from the remaining CPUs is grouped together under column heading CPUS>E. See “How EREP Assigns Numbers to CPUs” on page 61 for an explanation of the identifiers.	Figure 9 on page 134

Note: It is possible to have multiple internal CPUs reported under one serial number and thus increase EREP’s capabilities. See [“SYSIMG Control Statement” on page 62](#) for details.

Examples of the Event History Report

The following figures contain examples of the parts of an event history report:

Event History Report

EVENT HISTORY TEMPLATE (S/370)																																												
FOR RECORD TYPES:			RECORD DEPENDENT DATA																																									
MCH:			PSW-MCH /PROG-EC																	ERROR-ID																								
CCH:			CUA	DEVT	CSW																																							
OBR:			CUA	DEVT	CMD CSW																																							
MDR: TERM NAME			CUA	DEVT																VOLUME/																								
MIH: TERM NAME			CUA	DEVT	SCUA											CSID																												
DDR: TERM NAME			CUA	DEVT																VOLUME/																								
OBRDMT, OBREOD: TERM NAME			CUA	DEVT																VOLUME/																								
OBRPRM, OBRTMP, OBRPTH: SEEK SD CT			CUA	DEVT	CMD	CSW	SENSE	04	06	08	10	12	14	16	18	20	22	VOLUME																										
OBRDPA:			CUA	DEVT	CMD	CSW	SPID													SNID																								
SFTLST:							REASON	PSW-MCH /PROG-EC				RCYRYXIT		COMP/MOD		CSECTID		ERROR-ID																										
IPL:							SSYS ID	REASON																																				
MDRDAS: VOLUME SD CT			CUA	DEVT					SENSE	04	06	08	10	12	14	16	18	20	22																									
OTHER: ONLY COMMON PREFIX DATA APPLIES FOR ALL OTHER RECORD TYPES																																												
COMMON PREFIX: (FOR ALL RECORD TYPES)																																												
			TIME	JOBNAME				RECTYP CP																																				
EVENT HISTORY TEMPLATE (S/370XA)																																												
FOR RECORD TYPES:			RECORD DEPENDENT DATA																																									
MCH:			PSW-MCH /PROG-EC																	ERROR-ID																								
SLH:			DNO	DEVT	CHP	SCSW										ESW																												
CRW:			DNO	CRW																																								
OBR:			DNO	DEVT	CMD SCSW																																							
MDR: TERM NAME			DNO	DEVT	CHP															VOLUME/																								
MIH: TERM NAME			DNO	DEVT	CHP	REASON										CSID																												
DDR: TERM NAME			DNO	DEVT																VOLUME/																								
OBRDMT, OBREOD: TERM NAME			DNO	DEVT	CHP															VOLUME/																								
OBRPRM, OBRTMP, OBRPTH: SEEK SD CT			DNO	DEVT	CHP	CMD	SCSW	SENSE	04	06	08	10	12	14	16	18	20	22	VOLUME																									
OBRDPA:			DNO	DEVT	CHP	CMD	SCSW	SPID													SNID																							
SFTLST:							REASON	PSW-MCH /PROG-EC				RCYRYXIT		COMP/MOD		CSECTID		ERROR-ID																										
IPL:							SSYS ID	REASON																																				
MDRDAS: VOLUME SD CT			DNO	DEVT	CHP					SENSE	04	06	08	10	12	14	16	18	20	22																								
OTHER: ONLY COMMON PREFIX DATA APPLIES FOR ALL OTHER RECORD TYPES																																												
COMMON PREFIX: (FOR ALL RECORD TYPES)																																												
			TIME	JOBNAME				RECTYP CP																																				

Figure 7. Event History Template

EVENT HISTORY (S/370 & S/370XA)																						REPORT
DATE 046 97																						PERIOD
FROM 041 97																						PERIOD
TO 04																						
3 97																						
TIME		JOBNAME	RECTYP	CP	CUA	SSYS	ID	REASON	SPID	SNID												
SEEK	SD	CT				DEVT	CMD	CSW	PSW-MCH	/PROG-EC	RCYRYXIT	COMP/MOD	CSECTID	ERROR-ID	VOLUME							
									SENSE	04 06	08 10	12 14	16 18	20 22								
DATE 041 97																						
04 11 37 21	N/A	OBREOD	12	03E2	3284	NA																
06 54 49 45	N/A	ASYNCH	02	0883	3590B11	JANZ01		024098C0	1102F071	33010057	00211229	D1C1D5E9	F0F10089	48042300								
00011010																						
09 26 32 65	N/A	ASYNCH	02	0887	3590A00			024098C0	1101F171	11910000	00730000	D1C1D5E9	F0F40081	28042300								
5BA01010																						
11 33 17 21	N/A	MDR	0B	0905	3995	00																
12 41 13 30	N/A	IPL	0E		00		DF															
12 41 17 92		SFTLST	0E																			
14 30 22 51	*MASTER*	SFTMCH	0C					900F3000	040C00008105E932	IEAVEDSR	IEAVEDS0	IEAVEDS0										
0019004100010007F7EE																						
DATE 042 97																						
00 20 32 34	N/A	MCH	09						070E000000000000													
3D8F0000000000000000																						
02 31 48 38	PACAH210	OBRTMP	11	0239	3390		07 0200	10000600	3932C143	00030000	01050404	22101842	11440C01	00000F01								
0C000000 AH210																						
04 12 59 12	VARY	OBDRPA	0F	0A82	3380	40	AF 2210	000002112830849718	CEF0	00000000000000000000												
08 59 03 32	*MASTER*	CCH	0D	0063	3277			0100000000020080	CSID=00,00													
09 29 08 68	*MASTER*	OBRTMP	02	0880	3590	1C	04 0200	004A8C5A	80100050	0004FF00	00000000	00000000	00000088	20042300								
00011010																						
12 07 30 59		MCH	05					070E000000000000														
14 27 10 15	N/A	MDR	0B	0884	3590	29																
20 10 52 49	T2SRTMRG	OBR	03	04BC	3490	16	02 0400															
20 32 10 71		DDR	0A	0580	3400		TO 0581	3400														
22 02 00 01	N/A	MDRDAS	10	030F	3390	03		00000600	0F32C000	FFFF0422	795AF780	00050410	02436F01	04100000								
035BDA45 HHGK6																						
DATE 043 97																						
00 12 34 01	N/A	LINK	08	TYP-MOD	S/N	INTERF:	INC=3090-60J	IBM 00	70039	0073	ATT=9032-002	IBM 02	10148	00DF								
IC=03 DCI=N/A																						
01 08 12 32	SYSTEM	MIHCE	00	0C40	9332	C40	CHANNEL	END														
06 54 28 40	CHNDRV	SLH	0C	01D0	3380	12	840240170032F0F800040000	00807482														
10 03 14 36	N/A	CLOCK	02	NETWORK	ID =	1, RC =	0, NO PROBLEMS	REPORTED BY	9037													
10 26 24 90	EREPHIST	MIH	06	03B2	3380	NA	START	PENDING														
12 36 03 09	N/A	EOD	07																			
15 39 44 04	N/A	ASYNCH	04	0350	3390-09	PACSM3		00900600	10328FC2	11010124	00000304	22204411	004143C0	05108202								
FF003B0C B7425																						
17 08 15 64	ILVRAS04	CRW	01	0000	0903001E		HARDWARE	GENERATED														
21 06 44 42	*MASTER*	OBR	0B	08AB	3590	29	03 0600															
22 12 09 01	*MASTER*	MIH	09	08A9	3590	NA	START	PENDING														

Figure 8. Event History Report

1

The header is written for 24 bytes of sense data, but is also used for 32 byte sense data. When you have 32 bytes of sense data, VOLUME and SEEK information do not appear on the report. Sense data for bytes 25 through 32 is shown instead.

2

The DASD cylinder head or block number is listed under SEEK. The storage director/controller physical ID for DASD is listed under SD CT.

3

The hexadecimal identifiers are internal to the event history report and should not be confused with external CPU machine identifiers. The first occurring serial number is assigned X'00'. The external CPU models and serial numbers associated with the hexadecimal identifiers are shown at the end of the report summary. (See in [Figure 9 on page 134.](#))

NOTE: 3590/3490EMU and 3591/3490EMU device records will print on the EVENT report under their native device type only. They will not appear under the device being emulated. Also, OBR records that are handled as SIM or MIM records in the SYSEXN reports will be shown as OBR records on the EVENT report.

Event History Report

RECORD TYPES	TOTAL	CPU-0	CPU-1	CPU-2	CPU-3	CPU-4	CPU-5	CPU-6	CPU-7	CPU-8	CPU-9	CPU-A	CPU-B	CPU-C	CPU-D	CPU-E	CPU>E
MCH	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
MACHINE CHECK	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
OBREOD	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
OBRTMP	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
OBROPA	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
OBRO	2	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
OUTBOARD	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
SFTLST	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
SFTMCH	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
SOFTWARE	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
IPL	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
SYSTEM INITIALIZATION	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
DDR	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
SYSTEM RECONFIGURATION	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
EOD	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
SYSTEM TERMINATION	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
MDRDAS	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MDR	2	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
MDR/BUFFER OFFLOAD	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
MDR/DEMOUNT	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
MISC. DATA RECORD (MDR)	7	0	1	0	0	0	0	0	0	0	0	0	3	0	0	0	3
CCH	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
CHANNEL CHECK	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
CHANNEL END	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MISSING INTERRUPT 370	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECORD TYPES	TOTAL	CPU-0	CPU-1	CPU-2	CPU-3	CPU-4	CPU-5	CPU-6	CPU-7	CPU-8	CPU-9	CPU-A	CPU-B	CPU-C	CPU-D	CPU-E	CPU>E
START PENDING	2	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
MISSING INTERRUPT 370	2	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
HARDWARE	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOFTWARE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHANNEL REPORTS	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LINK	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
CLOCK	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
ASYNCH	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
AX RECORD TYPES	3	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0
BX RECORD TYPES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CX RECORD TYPES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DX RECORD TYPES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EX RECORD TYPES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FX RECORD TYPES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Figure 9. Event History Summary - Part 1 of 2

RECORD TYPES	TOTAL	CPU-0	CPU-1	CPU-2	CPU-3	CPU-4	CPU-5	CPU-6	CPU-7	CPU-8	CPU-9	CPU-A	CPU-B	CPU-C	CPU-D	CPU-E	CPU>E
CHPID-12	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
SUBCHANNEL LOGOUTS	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
OVER ALL TOTALS	21	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2	4

CPU	MODEL	SERIAL
00	2097XA	0E06C0
01	2097XA	0C06C0
02	2097XA	0A06C0
03	2097XA	0906C0
04	2097XA	0806C0
05	2097XA	0106C0
06	2094XA	096DD2
07	2094XA	076DD2
08	2094XA	066DD2
09	2094XA	046DD2
0A	2094XA	036DD2
0B	2094XA	026DD2
0C	2094XA	016DC2
0D	2086XA	06AD2C
0E	2086XA	05AD2C
0F	2086XA	04AD2C
10	2086XA	03AD2C
11	2086XA	01AD2C
12	2084XA	0356BF

Figure 10. Event History Summary - Part 2 of 2

1

If 370 and 370XA mode records are used, the records common to both modes are combined. Exception: 370-mode MIH records are totaled separately.

2

These MIH errors are for 370XA mode records.

3

These totals include all errors recorded in both processing modes.

4

If the first record encountered has no CPU model number, NONEXA or NONE is listed as the first CPU model number.

5

CPUs, identified from filtered data. XA indicates that the CPU is running in 370XA mode.

Special Note: For products that record OBR records asynchronously, only the sense data reflects the origin of an error record. Other information in the record may reflect the recording device rather than the device that has the problems.

Chapter 11. System Exception Report Series

The system exception series is a series of reports that list software and hardware error data in a variety of ways to help you identify problems within your subsystems.

Description of the System Exception Series

The system exception report series can contain several separate reports:

REPORT	REFER TO
A two-part system error summary	“Examples of the System Error Summary” on page 137
A subsystem exception report series	“Examples of the Subsystem Exception Report Series” on page 143

Note:

1. EREP accumulates error data and usage statistics on subsystem components then summarizes the information by component for the subsystem exception reports.
2. These reports are produced for some hardware subsystems, but not all of them. To find which subsystems generate system exception reports see [Part 3, “Product-Dependent Information,” on page 299](#).

Examples of the System Error Summary

The system error summary presents data in chronological order. The report has the following two parts:

PART	DESCRIPTION
1	<ul style="list-style-type: none"> • Presents CPU errors and channel checks • Prints a summary of IPL, EOD, and restart records • Prints one page of output for each supported CPU in the installation
2	<ul style="list-style-type: none"> • Combines the I/O errors for all supported subsystems, DASD, optical, and tape • Includes physical IDs, error descriptions, and probable failing units

The probable failing unit (PFU) is the component on which the error most likely occurred and is shown for:

- CPU errors
- Channel errors
- DASD errors
- Tape errors

The following table shows the type of error records and their source in parts 1 and 2 of the system error summary.

TYPE	SOURCE
CCH	CPUs, channels
DDR	I/O devices; including channels, SCUs, controllers, volumes EOD operating systems
IPL	Operating systems

Examples of the System Error Summary

TYPE	SOURCE
MCH	CPU's
OBR	I/O devices; including channels, SCUs, controllers, volumes

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
System Error Summary, Part 1	Figure 11 on page 139
System Error Summary, Part 2	“System Error Summary, Part 2” on page 141

System Error Summary, Part 1

Part 1 of the system error summary is a chronological listing of all machine checks and channel checks. IPL, restart (software), and termination records are included for MVS and VSE/Advanced Function operating systems.

[Figure 11 on page 139](#) shows an example of part 1 of the system error summary report.

SYSTEM ERROR SUMMARY (PART 1)			REPORT DATE 065 97 PERIOD FROM 041 97 TO 059 97	
MODEL 3033	SERIAL 020557	CPU 01	1	
IPL/RESTART/TERMINATION 2				
TIME	RECORD TYPE	TIME SINCE LAST ACTIVE	REASON	PROBABLE CAUSE
DATE 042/97				
08:01:30:95	IPL	09:01:29:56	NM	NORMAL SYSTEM INITIALIZATION
15:23:09:29	TERM		MCH	FORCED TERMINATION
15:26:30:76	IPL	00:02:29:56	NM	NORMAL SYSTEM INITIALIZATION
19:15:56:22	RESTART		NM	RESTART ABEND CODE 071
PROCESSOR CHECKS 3				
TIME	JOBNAME	CUA/TYPE	ERROR DESCRIPTION	PROBABLE FAILING UNIT
DATE 042/97				
08:40:55:52	N/A	N/A	BUFFER ERROR	PROCESSOR
12:07:30:41	N/A	N/A	SYSTEM DAMAGE	PROCESSOR
15:23:03:72	N/A	N/A	REGISTER/PSW INVALID	PROCESSOR
CHANNEL CHECKS 4				
TIME	JOBNAME	CUA/TYPE	ERROR DESCRIPTION	PROBABLE FAILING UNIT
DATE 042/97				
10:39:11:04	PAYROLL1	0384/3330	CHANNEL CONTROL CHECK	CHANNEL
13:11:18:64	JOBLOADA	0233/3380	INTERFACE CONTROL CHECK	CONTROL UNIT
***** 2	DUPLICATE	LINES WITHIN	THIS TIME INTERVAL HAVE NOT BEEN PRINTED	5
13:14:33:09	JOBLOADA	0233/3380	INTERFACE CONTROL CHECK	CONTROL UNIT

SYSTEM ERROR SUMMARY (PART 1)			REPORT DATE 065 97 PERIOD FROM 041 97 TO 059 97	
MODEL 2097XA	SERIAL 0706C0	CPU 04		
IPL/RESTART/TERMINATION				
TIME	RECORD TYPE	TIME SINCE LAST ACTIVE	REASON	PROBABLE CAUSE
DATE 042/97				
08:30:06:49	TERM-XA		EOD	NORMAL END OF DAY PROCESSING
DATE 043/97				
05:03:54:33	TERM-XA		EOD	NORMAL END OF DAY PROCESSING
DATE 049/97				
11:10:00:07	TERM-XA		EOD	NORMAL END OF DAY PROCESSING
22:43:27:00	TERM-XA		EOP	IOS ERROR

Figure 11. System Error Summary, Part 1

1

The report is generated by CPU. This line contains the CPU model number, serial number, and a CPU indicator that corresponds to the CPU indicators used throughout the system exception reports.

2

This section presents records of system events. It appears only when the operating system is MVS or VSE/Advanced Function. The column headed by REASON contains the IPL or the restart ABEND reason code. The column headed by PROBABLE CAUSE contains an explanation of the code.

Possible termination reason codes are:

REASON	PROBABLE CAUSE
EOD	END-OF-DAY RECORD
EOP	END OF PROCESSING FROM IOS
	RESTARTABLE WAIT STATE
DF	DEFAULT

REASON	PROBABLE CAUSE
MCH	MACHINE CHECK FORCED TERMINATION
	NONRESTARTABLE
NM	NORMAL SYSTEM INITIALIZATION
	RESTART ABEND CODE 071

3

This section appears when EREP encounters MCH records. MCH records are error records created when the machine check handler causes an interrupt as a result of an unsuccessful attempt to retry a failed instruction.

If the JOBNAME field is blank, the failure is within an operating system task.

Possible ERROR DESCRIPTIONS are:

- BUFFER ERROR
- EXTERNAL DAMAGE
- HARD STORAGE ERROR
- HIR SUCCESSFUL
- INSTRUCTION PROCESSOR
- INVALID LOGOUT
- POWER WARNING
- REGISTER OR PSW INVALID
- STORAGE PROTECT KEY ERROR
- SYSTEM DAMAGE
- UNDEFINED ERROR

Possible PROBABLE FAILING UNITS are:

- CHANNEL
- CHANNEL/DIRECTOR
- CONTROL UNIT
- PROCESSOR
- STORAGE
- UNDEFINED
- UNPROCESSED ENTRY

4

This section appears if EREP encounters CCH records. CCH records are error records created by the channel check handler when a channel error occurs.

If the JOBNAME field is blank, the failure is within an operating system task.

Possible ERROR DESCRIPTIONS are:

- CHANNEL CONTROL CHECKS
- CHANNEL CONTROL/INTERFACE CONTROL CHECKS
- CHANNEL DATA/CHANNEL CONTROL CHECKS
- CHANNEL DATA/CHANNEL CONTROL/INTERFACE CONTROL CHECKS
- CHANNEL DATA CHECKS
- CHANNEL DATA/INTERFACE CONTROL CHECKS
- INTERFACE CONTROL CHECKS

Possible PROBABLE FAILING UNITS are the same as those shown in **3**.

5

EREP does not print out duplicates of records occurring together.

System Error Summary, Part 2

Part 2 of the system error summary is a chronological listing of the following:

- Permanent DASD, optical, and tape errors
- DDR calls

“System Error Summary, Part 2” on page 141 shows an example of part 2 of the system error summary report.

System Error Summary, Part 2

SYSTEM ERROR SUMMARY (PART 2)					REPORT DATE 065 97 PERIOD FROM 041 97 TO 059 97				
ERROR TIME DESCRIPTION	JOBNAME	CPU	PHYSICAL ID FAILING UNIT	PHYSICAL TYPE ADDRESS	PROBABLE PATH VOLUME	ERROR			
DATE 041/97 11:59:12:87 CHECK 12:07:58:52 OVERRUN	GAM297	05	FF.X-17 VOLUME	3380-JK 0297	02-0297 RAS297	PERMANENT DATA			
	P\$SP00L2	01	36-XX-XX CHANNEL	3880 0470	0C-0470	PERMANENT			
DATE 042/97 02:24:35:55 CHECK 09:10:37:29 N/A 09:55:02:83 N/A 13:28:25:71 OVERRUN	I\$ITA80 DEVICE OCT9USG1	03 07	XX-10-02 N/A	3380 0A82 3422 0156 HARDWARE 0C70 HARDWARE 0C70	56-0A82 01-0156 340002	PERMANENT EQUIPMENT			
	MAINT	00	N/A	3880 0471	02-0471	PERMANENT			
DATE 043/97 00:F3:F9:4E CAPABLE 01:53:41:99 CHECK 04:22:15:46 N/A 09:53:09:10 CHECK 14:28:49:77 CHECK	ICFSMPLB PAUSEBG SORTCHK	08 00 08	N/A N/A N/A	3420 0180 HARDWARE 9335 3430 0190 HARDWARE	0180 0D53 KEST53 0190	NOT PERMANENT EQUIPMENT			
	GAM704	00	20.X-04 VOLUME	3380-JK 0704	17-0704 RAS704	PERMANENT DATA			
	TSIMLRW DEVICE	04	N/A	3480 03EB	EB40 TPF490	PERMANENT EQUIPMENT			
DATE 044/97 00:46:37:09 N/A 01:01:EE:7B UNDEFINED 04:08:28:13 N/A 12:31:46:69 CHECK 12:31:46:70 CHECK 18:18:31:01 CHECK 18:43:38:16 CHECK	MAINT ICFSMPLB MAINT GAM7C3 GAM7C3 #IPORES #IPORES	00 08 00 05 05 06 06	N/A N/A N/A 60.X-03 60.X-03 N/A N/A	9347 0C70 HARDWARE 3420 0181 HARDWARE 9347 0C70 HARDWARE	0C70 0181 0C70	PERMANENT EQUIPMENT PERMANENT EQUIPMENT PERMANENT EQUIPMENT PERMANENT EQUIPMENT			
	GAM7C3	05	60.X-03	3380-JK 07C3	17-07C3 RAS7C3	PERMANENT EQUIPMENT			
	GAM7C3	05	60.X-03	3380-JK 7C3B	07-07C3 RAS7C3	PERMANENT EQUIPMENT			
	#IPORES	06	N/A	3330 0428	0428 IPORES	PERMANENT EQUIPMENT			
	#IPORES	06	N/A	3330 0428	0E28 IPORES	PERMANENT EQUIPMENT			
DATE 045/97 10:26:02:92 CHECK 10:26:03:25 CHECK 10:26:03:67 CHECK ER 14:25:47:01 CHECK 18:03:30:85 CHECK	GAM7C3 GAM7C3 GAM7C3	05 05 05	60.X-03 60.X-03 60.1-XX CONTROLL	3380-JK 07C3	17-07C3 RAS7C3	PERMANENT EQUIPMENT PERMANENT EQUIPMENT PERMANENT EQUIPMENT			
	DSF	0D	XX-84-04 VOLUME	3380 0734	0734 PAK167	PERMANENT DATA			
	#IPORES	06	N/A	3330 0428	0428 IPORES	PERMANENT EQUIPMENT			

Examples of the System Error Summary

```

18:48:02:12  BSAM01  0E XX-95-XX  3380-DE 0DB6 00-0DB6 EVERD6  PERMANENT PATH
ERROR
ER

DATE 046/97
03:00:13:92  RMF      0F A8-XX-XX  3880    0100 01=0100 PAGE01  PERMANENT SUB-STG EQPMT
CHECK
14:24:12:55  D15ELP1F 06   N/A    34XX    575    N/A L00200  DDR INDICATES SWAP TO PCUA
570
18:10:48:55  N/A MAINT    00   N/A    9347    0C70    0C70
N/A      HARDWARE

DATE 047/97
01:50:41:32  DSSDUMP  0F   N/A    3480    02B2    02B2
N/A      VOLUME/C
D
02:41:29:62  PAGE ERR 03 A8-XX-XX  3880    0119 51-0111          SUB-STORAGE MUST BE
INITIALIZED   SCU
02:58:03:77  PAGE ERR 03 A8-XX-XX  3880    0119 01-0111          SUB-STORAGE IS
UNUSABLE     SCU
05:32:25:77  MAINT    00   N/A    9347    0C70    0C70
N/A      HARDWARE
***** 2 DUPLICATE LINES WITHIN THIS TIME INTERVAL HAVE NOT BEEN PRINTED
10:14:52:90  MAINT    00   N/A    9347    0C70    0C70
N/A      HARDWARE
13:50:16:74  NO NAME  00   N/A    9335    0F50    0F50 DSFF50  PERMANENT EQUIPMENT
CHECK        DEVICE
SYSTEM ERROR SUMMARY
(PART 2)
REPORT DATE 065 97
PERIOD FROM 041 97
TO 059 97

```

```

1
2
3
PHYSICAL PHYSICAL
ERROR TIME JOBNAME CPU ID TYPE ADDRESS PROBABLE ERROR
DESCRIPTION FAILING UNIT PATH VOLUME

DATE 054/97
13:18:24:18  EREP     0A   N/A    9348    0490    0490 V00002
N/A      HARDWARE
13:20:34:47  EREP     0A   N/A    9348    0490    0490 V00002
N/A      VOLUME/C
D
13:27:02:64  EREP     0A   N/A    9348    0490    0490 V00002
N/A      HARDWARE
***** 2 DUPLICATE LINES WITHIN THIS TIME INTERVAL HAVE NOT BEEN PRINTED
13:27:52:33  EREP     0A   N/A    9348    0490    0490 V00002
N/A      HARDWARE
14:00:22:39  EREP     0A   N/A    9348    0490    0490 V00004
N/A      HARDWARE
14:00:29:43  EREP     0A   N/A    9348    0490    0490 V00004
N/A      VOLUME/C
D
14:05:16:99  EREP     0A   N/A    9348    0490    0490 V00004
N/A      HARDWARE
14:31:50:57  EREP     0A   N/A    9348    0490    0490 V00006
N/A      HARDWARE

```

```

*****
*****

```

```

CPU  MODEL  SERIAL
00  9375    234567
01  9371    000000
02  9021XA  110947
03  9021XA  210947
04  4341    015760
05  3033    021929
06  2094XA  048940
07  2084XA  05A8BA
08  2084XA  05A5BA
09  2084XA  04A8BA
0A  2084XA  03A8BA
0B  2084XA  0356BF
0C  2084XA  02A8BA
0D  2084XA  02A5BA
0E  2084XA  0256BF
0F  2084XA  019F1A

```

1

The PHYSICAL ID field contents are described in the following table:

DEVICE	FIELD CONTAINS
DASD providing physical ID or DASDID statements	A combination of the storage controller, control unit, and device (SCUID-CTLID-DEVID)
Tape	The field contains N/A (not available)
DASD without physical ID or DASDID statements	

2

The ERROR DESCRIPTION field contains subsystem-dependent information. The DDR swap description appears in this field.

3

The possible PROBABLE FAILING UNITS are:

Units	
CHANNEL	CONTROLLER
DEVICE	HARDWARE
SCU (Storage Control Unit)	UNDETERMINED
UNKNOWN	VOLUME
VOLUME/CD (for tape)	
Note: A PFU of N/A appears in the case of a DDR record.	

Examples of the Subsystem Exception Report Series

EREP formats each of the reports in the subsystem exception report series according to the requirements of the hardware involved.

EREP produces a different series of subsystem exception reports for each type of hardware.

The following table shows the location of subsystem exception report series examples:

REPORT
“Processor (CPU) Subsystem Exception” on page 144
“Channel Subsystem Exception” on page 145
“DASD Subsystem Exception” on page 147
“Optical Subsystem Exception” on page 166
“Tape Subsystem Exception” on page 180

The following table shows the type of error records and their source in the subsystem exception report series.

TYPE	SOURCE
A3	33XX DASD, 34XX Tape
CCH	CPUs, channels
MCH	CPUs
MDR	33XX DASD, 34XX Tape, 3995 Optical
OBR	33XX DASD, 34XX Tape, 3995 Optical, 9246 Optical, 9247 Optical

TYPE	SOURCE

Processor (CPU) Subsystem Exception

The processor (CPU) subsystem exception report is organized by *service level* for:

TYPE	DESCRIPTION
Termination errors	The total number of incidents and the date and time of the last incident are shown for termination errors and hard errors.
Hard errors	
Soft machine checks	The total number of 60-minute intervals in which the number of events that occur equals or exceeds the LIMIT values is shown for soft machine checks. The LIMIT value is set by the LIMIT control statement, which sets the minimum number of errors (1–99). When the minimum has been reached, errors are recorded in the EXCEPTION COUNT column.

Figure 12 on page 144 shows an example of the processor subsystem exception report.

1		REPORT DATE 065 97	
SUBSYSTEM EXCEPTION		PERIOD FROM 041 97	
PROCESSOR		TO 059 97	
2	MODEL 3033 SERIAL 021595 CPU B		
TERMINATION ERROR		4	
SERVICE LEVEL INDICATOR	3	TOTAL COUNT	5
POWER WARNING		2	042/97 11:23:45:37
INVALID LOGOUT		2	042/97 23:24:35:87
HARD ERROR			
SERVICE LEVEL INDICATOR		TOTAL COUNT	DATE/TIME OF LAST ERROR
REGISTER/PSW INVALID		8	042/97 13:25:46:57
HARD STORAGE ERROR		4	045/97 13:35:58:77
SYSTEM DAMAGE		2	049/97 14:34:34:87
INSTRUCTION PROCESSOR DAMAGE		2	053/97 11:43:45:47
STORAGE PROTECT KEY ERROR		2	057/97 11:23:45:37
SOFT MACHINE CHECK		6	
SERVICE LEVEL INDICATOR	EXCEPTION COUNT	TOTAL COUNT	DATE/TIME OF LAST ERROR
EXTERNAL DAMAGE	60 MINUTE REFERENCE		
BUFFER ERROR	2	4	044/97 13:35:58:77
HIR SUCCESSFUL	2	2	051/97 17:54:45:87
	1	1	056/97 12:22:33:46
LIMITS APPLIED EXT0=01,BUFE=01,HIRS=01		7	
0 UNITS EXCLUDED DUE TO LIMITS			
20 MCH RECORDS PROCESSED			
1 MCH RECORDS UNDEFINED TO MCH ALGORITHMS		8	

Figure 12. Processor (CPU) Subsystem Exception Report

1

This space is used for self-explanatory SCP and device-dependent messages specific to this subsystem exception report. For example:

** WARNING ** REPORT SPANS MORE THAN 3 DAYS

2

This report is provided for the following CPUs only:

0158
0168
3031
3032
3033

3

The types of errors are:

TERMINATION ERROR
HARD ERROR
SOFT MACHINE CHECK

4

The count of input records containing this particular error.

5

Date and time of the last MCH record that includes this error. If the date and time are the same for several service level indicators, it means that a single record includes all the indicators.

6

The number of 60-minute intervals in which the number of events that occur equals or exceeds the LIMIT values for each type of soft machine check.

7

The LIMIT values applied to this report. If the LIMIT value is zero, the EXCEPTION COUNT field is also zero.

8

Execution-time notes. These may be:

NOTE	DESCRIPTION
<i>nn</i> UNITS EXCLUDED DUE TO LIMITS	If LIMIT values are present
<i>nn</i> MCH RECORDS PROCESSED	Number of valid MCH records processed
<i>nn</i> MCH RECORDS UNDEFINED	Not identifiable to EREP as valid MCH records
<i>nn</i> MCH RECORDS IGNORED DUE TO CCH DUPLICATION	0158 models only, from which MCH records might be double-reporting an assumed channel failure

Channel Subsystem Exception

This report is organized according to the possible *source* of channel checks:

- The channel
- The storage control unit
- The controller

It shows the number of times each of these error types exceeded the LIMIT values for specific channels or controllers.

Figure 13 on page 146 shows an example of the channel subsystem exception report.

Channel Subsystem Exception

1				
SUBSYSTEM EXCEPTION		REPORT DATE 065 97		
CHANNEL		PERIOD FROM 041 97		
		TO 059 97		
2				
MODEL 3033	SERIAL 021595	CPU 01		
3				
4		5		
6	SERVICE LEVEL INDICATOR	EXCEPTION COUNT	TOTAL COUNT	DATE/TIME OF LAST ERROR
		60 MINUTE REFERENCE		
CHANNEL ERROR				
	CHANNEL 6XX	3	4	043/97 18:47:38:67
	CHANNEL 1XX	1	1	048/97 21:22:23:43
	CHANNEL 2XX	1	1	052/97 11:34:43:65
	CHANNEL 8XX	1	1	059/97 11:43:32:87
DIRECTOR ERROR				
	DIRECTOR #1	1	1	041/97 19:32:54:89
	DIRECTOR #2	1	1	045/97 13:25:46:57
	DIRECTOR #3	1	1	057/97 11:24:36:57
CONTROL UNIT ERROR				
	CONTROL UNIT 34X	1	1	042/97 13:25:44:57
	CONTROL UNIT 456	1	1	056/97 13:32:22:37
LIMITS APPLIED CHAN=01,DRCT=01,CTRL=01 7				
0 UNITS EXCLUDED DUE TO LIMITS				
2 CCH RECORDS UNDEFINED TO CCH ALGORITHMS				
2 CCH RECORDS IGNORED BECAUSE OF MCH DUPLICATION 8				

Figure 13. Channel Subsystem Exception Report

1

This space is used for self-explanatory system control program and device-dependent messages specific to this subsystem exception report. For example:

```
** WARNING ** REPORT SPANS MORE THAN 3 DAYS
```

2

This report is provided for the following CPUs only:

```
0158
0168
3031
3032
3033
```

3

The sources of the channel checks are shown in the following table:

```
CHANNEL ERROR (31XX/303X)
CHANNEL STORAGE ERROR (31XX) or DIRECTOR ERROR (303X)
CONTROL UNIT ERROR
```

4

The number of unique 60-minute intervals that had at least the LIMIT value number of this kind of channel check.

5

The count of input records containing this particular error.

6

Date and time of the last CCH record that includes this error. If the date and time are the same for several service level indicators, it means that a single record includes all the indicators.

7

The LIMIT values applied to this report. If the LIMIT value is zero, the EXCEPTION COUNT field is also zero.

8

Execution-time notes. These may be:

NOTE	DESCRIPTION
<i>nn</i> UNITS EXCLUDED DUE TO LIMITS	If LIMIT values are present
<i>nn</i> INPUT RECORDS UNDEFINED	Not identifiable to EREP as valid CCH records
<i>nn</i> CCH RECORDS IGNORED DUE TO MCH DUPLICATION	The number of 0158 or 0168 channel storage errors, or 303X channel errors, ignored because they might be double-reporting a processor storage error
<i>nn</i> CCH RECORDS FOUND GENERATED FOR SOFTWARE RECOVERY	The number of sympathetic channel errors found; for 303X only

DASD Subsystem Exception

This report shows conditions that may need maintenance action. Records that are included in other reports may *not* be listed in the system exception reports.

This exception report can be used to determine if the DASD subsystem has excessive errors or is operating within acceptable limits.

This report is organized by *probable failing unit* (PFU) starting with the units closest to the processor (CPU) and working toward the volume. Within each section, the PFUs are ordered from most critical to least severe (or from the unit with the largest number of permanent errors to the unit with the smallest number of temporary errors).

The series contains the following types of reports:

TYPE	REPORT
1	“DASD Subsystem Exception, Part 1” on page 148
1	“DASD Subsystem Exception, Part 2” on page 153
2	“DASD String Summary, Part 1” on page 154 <i>DASD String Summary</i> helps you determine if a problem is unique to a particular device or is also occurring on other devices in the controller string.
2	“DASD String Summary, Part 2” on page 156
3	“DASD Service Informational Messages (SIMs)” on page 157 <i>Informational Messages</i> help you define a problem to IBM customer service personnel.
3	“DASD Informational Messages” on page 157
4	“DASD Data Transfer Summary” on page 158 <i>Data Transfer</i> is further broken down according to whether the PFU is the volume or something other than the volume.

TYPE	REPORT
5	“DASD Symptom Code Summary” on page 160 <i>Symptom Code</i> lists the errors by fault symptom code within each probable failing unit (PFU) group.
6	“DASD Storage Control Unit Summary” on page 165 <i>Storage Control Unit (SCU)</i> groups overruns under each interface between channel or subchannel and SCU.

These reports work together to provide a picture of the errors occurring in the system. The DASD subsystem exception report determines if your DASD subsystem is experiencing an excessive amount of errors.

The following table shows the type of error records and their source in the DASD subsystem exception reports:

TYPE	SOURCE
A3	DASD devices; including SCUs, controllers
MDR	DASD devices; including SCUs, controllers
OBR	DASD devices; including SCUs, controllers

A probable failing unit is identified through the physical ID of the device. The physical ID is the combined identifiers of storage controller, control unit, and device.

Note: You must code DASDID control statements to establish physical IDs for those DASD in your installation that do not provide their own physical IDs. That way, EREP recognizes units common to different systems and arrives at the correct PFUs.

Messages IFC264I and IFC265I are logged in the EREP messages (TOURIST) file for each invalid record. These records are not included in the system exception report and do not print device dependent information in other reports.

Valid records that do not indicate a need for maintenance action may be shown in reports other than the subsystem exception.

If errors are found, the necessary corrective action is shown on the next deeper level of DASD reports. See [Figure 20 on page 158](#) through [Figure 21 on page 166](#) and [Chapter 17, “Direct-Access Storage Devices \(DASD\),” on page 315](#).

[Figure 14 on page 149](#) through [Figure 21 on page 166](#) show examples of the reports in the DASD subsystem exception series.

DASD Subsystem Exception, Part 1

This part of the exception report provides the primary listing of events to determine if the DASD subsystem has excessive errors or is operating within acceptable limits.

This report provides the information to connect these events to the other reports in the series that have more details.

This report is organized by PFU starting with the units closest to the CPU and working toward the volume.

The PFUs are ordered from most critical to least severe.

[Figure 14 on page 149](#) shows an example of the DASD subsystem exception, part 1.

Explanations for 1 through 12 shown in the following report begin on the following pages.

Figure 14. Subsystem Exception DASD Report, Part 1

1										
** WARNING ** REPORT WAS RUN FOR A PERIOD EXCEEDING 3 DAYS. PROBABLE UNIT ANALYSIS MAY BE IN ERROR.										
SUBSYSTEM EXCEPTION				REPORT DATE 080 97						
DASD (1) 2				PERIOD FROM 037 97						
				TO 079 97						
B-BUS OUT PARITY CHK			C-CHECK DATA CHK		D-DISKETTE CHK		I-INVOKED OFF SETS			
3										
PROBABLE										
4										
FAILURE										
AFFECT										
5										
CPU										
6										
PHYSICAL										
ADDRESS										
7										
-----TOTALS-----										
SIMS PERM TEMP										
---IMPACT OF TEMPORARY ERRORS----										
EQU										
CHK										
SKS										
RD										
8										
OVRN										
9										
OTHER										

CHAN 0C										
CHAN/SCU										
03										
TOTAL										
36-XX-XX										
1										
1										
10										
02										
CHAN/SCU										
03										
TOTAL										
32-XX-XX										
1										
1										
05XX										
CHAN/SCU										
07										
TOTAL										
A0-XX-XX										
1										
1										
07XX										
CHAN/SCU										
07										
TOTAL										
61-XX-XX										
1										
1										
SCU 10111.3										
SCU										
00+										
TOTAL										
10111.3										
6										
6										
10114.2										
SCU										
01										
TOTAL										
10114.2										
3										
3										
A8-XX-XX										
SCU										
2B+										
TOTAL										
*A8-XX-XX										
5										
1										
1										
5										
1										
1										
03.										
SCU										
00										
TOTAL										
03.										
2										
2										
2										
*052X										
SCU										
35										
TOTAL										
*0520										
1										
1										
1										

** WARNING ** REPORT WAS RUN FOR A PERIOD EXCEEDING 3 DAYS. PROBABLE UNIT ANALYSIS MAY BE IN ERROR.										
SUBSYSTEM EXCEPTION				REPORT DATE 080 97						
DASD (1)				PERIOD FROM 037 97						
				TO 079 97						
B-BUS OUT PARITY CHK			C-CHECK DATA CHK		D-DISKETTE CHK		I-INVOKED OFF SETS			
PROBABLE										
FAILURE										
AFFECT										
CPU										
PHYSICAL										
ADDRESS										
-----TOTALS-----										
SIMS PERM TEMP										
---IMPACT OF TEMPORARY ERRORS----										
EQU										
CHK										
SKS										
RD										
OVRN										
OTHER										

CTLR 20.1-XX										
SCU/CTLR										
01+										
TOTAL										
20.1-XX										
2										
2										
2										
00+										
TOTAL										
20.0-XX										
6										
1										
1										
20.0-XX										
CTLR/DEV										
00										
TOTAL										
20.0-03										
4										
2										
2										
01										
TOTAL										
20.0-00										
1										
01										
TOTAL										
20.0-0E										
1										
00										
TOTAL										
20.0-0F										
1										
00										
TOTAL										
20.0-05										
1										
01										
TOTAL										
20.0-07										
1										
20.1-XX										
MULTIPLE										
00										
TOTAL										
20.1-09										
4										
1										
1										
00										
TOTAL										
20.1-05										
1										
01										
TOTAL										
20.1-08										
1										
00										
TOTAL										
20.0-06										
1										
01										
TOTAL										
20.0-07										
1										
AH210.0-XX										
CTLR										
00										
TOTAL										
AH210.0-XX										
1										
1										
+-----+										
MULT 20.X-XX										
MULTIPLE										
00										
TOTAL										
20.0-0C										
7										
1										
01										
TOTAL										
20.0-0E										
1										
00										
TOTAL										
20.0-0F										
1										
01+										
TOTAL										
20.0-04										
2										
2										
00										
TOTAL										
20.0-05										
1										
01										
TOTAL										
20.0-07										
1										
1										
+-----+										

Channel Subsystem Exception

DEV	XX-10-02 3380	CTLR/DEV	02	TOTAL 76-10-02	1 1														
	*04AE 3330	SEEK	2A	TOTAL *04AE		7 7		7 7											
	HANDY.X-08 3390-09	DEV	01	TOTAL HANDY.0.08	1 1														
	GRAM9.X-17 3390-01	DATAEFR	0A	TOTAL GRAM9.0-17	2 2														
VOL	RAS70F 3380-JK	DATAEFR	01 01+	TOTAL 20.0-0F 20.1-0F	1 1 1	2 1 1												2 1 1	
	RAS296	DATAEFR		TOTAL	4														
	** WARNING ** 3380-JK	INVALID PHYSICAL ID	00+	ON NEXT LINE FF.0-16	2														
	** WARNING ** 3380-JK	INVALID PHYSICAL ID	01	ON NEXT LINE FF.2-16	1														
** WARNING ** REPORT WAS RUN FOR A PERIOD EXCEEDING 3 DAYS. PROBABLE UNIT ANALYSIS MAY BE IN ERROR.																			
SUBSYSTEM EXCEPTION DASD (1)										REPORT DATE 080 97 PERIOD FROM 037 97 TO 079 97									
B-BUS OUT PARITY CHK C-CHECK DATA CHK D-DISKETTE CHK I-INVOKED OFF SETS																			
PROBABLE FAILING UNIT																			
FAILURE AFFECT CPU PHYSICAL ADDRESS -----TOTALS----- EQU CHK SKS RD OVRN OTHER																			

	PACV07 3390-09	DATAEFR	01	TOTAL HANDY.0-01	1 1													4096 4096	
	ERPVOL 3310	DATAEFR	26	TOTAL *0597		4096 4096												4096 4096	
	PAGE03 3310	DATAEFR	26	TOTAL *059D		128 128													128 128-C
+-----																			
+-----+																			
** WARNING ** NO DASDID CARD FOUND OR INVALID PHYSICAL ID - PROBABLE UNIT NOT ASSIGNED FOR THE FOLLOWING:																			
	3330	CTLR/DEV	19+	TOTAL *0428		3 3		3 3											

0 UNIT(S) EXCLUDED DUE TO LIMITS 12																			
** ENTRIES WITH AN ASTERISK INDICATE THAT DASDID CARDS WERE NOT FOUND FOR THE UNIT.																			
NOTE: "IMPACT OF TEMPORARY ERRORS" IS THE NUMBER OF TIMES ERROR THRESHOLD HAS BEEN EXCEEDED.																			
NOTE: BLANK ENTRIES INDICATE ZERO VALUES OR NOT APPLICABLE. N/A = NOT AVAILABLE.																			
NOTE: ZERO ENTRIES INDICATE RECORDS EXIST IN EREP REPORTS BUT THRESHOLDS WERE NOT EXCEEDED.																			

1 This space is used for self-explanatory system control program and device-dependent messages specific to this subsystem exception report. For example:

** WARNING ** REPORT WAS RUN FOR A PERIOD EXCEEDING 3 DAYS. PROBABLE UNIT ANALYSIS MAY BE IN ERROR.

2 This field includes conditions that require analysis of OBR records to evaluate if repair is required. Units that report service information messages (SIMs) only put information in the system exception report when the unit has a condition that prevents it from reporting a SIM.

3 This field shows the unit most likely to be the source of the failure, even if the failure is recorded against another unit. EREP identifies the PFU based on the failure affect and the units reporting errors. The accuracy of this analysis for devices without physical ID depends on DASDID control statements. See “DASDID Control Statement” on page 51 for details on DASDID statements. Possible PFUs are shown in the following table:

PFU	DESCRIPTION
CHAN	Channel (channel, program, or CPU)
SCU	Storage control unit (for example, 3830, FTA, ISC)
CTLR	Controller (drive string controller, or something common to more than one device on the string)
MULTIPLE	Failure common to more than one device
DEV	Device (addressable unit)
VOL	Volume (data on volume)
UNK	Unknown (cannot be determined by report algorithms)

If no DASDID entry exists or the physical ID is invalid, a warning message replaces the PFU line.

In the line for PFU are its identifier, the failure affect, and the total errors attributed to this combination of PFU and failure affect. Usage counts are not available (N/A) because the total usage of the device is not determined in generating the report (non-failing devices are not considered).

4

This field defines the function or machine area affected by the failure. Possible failure affects are shown in [Table 12 on page 151](#).

Table 12. Possible Failure Affects	
FAILURE AFFECT	DESCRIPTION
CHAN/SCU	The channel, CPU, or program, or the channel/storage control unit interface.
SCU	The storage control unit.
SCU/CTLR	The storage control unit/controller interface.
CTLR	The controller.
CTLR/DEV	The controller/device interface.
MULTIPLE	Failure common to more than one device.
DEV	The device, including problems with a volume that must be handled by a service representative.
SEEK	The function of accessing the track; the failure may be in the controller, the drive, or the volume.
DATAEFR	Data transfer: the function of reading or writing data; the failure may be in the controller, the drive, or the volume.
DATAEFR(HDA)	Data transfer, where the failure is in the head disk assembly.
UNK	Unknown; it is possible that two failures exist, providing conflicting information.

5

The EREP-assigned CPU identifier. If there is more than one CPU, one is shown and a plus sign is printed to indicate that there is more than one.

6

Use the physical address to locate information on other EREP reports. EREP uses the primary channel and unit address (PCUA) or device number if the devices do not provide physical IDs.

7

This field contains the error totals under the error types shown in the following table:

TYPE	DESCRIPTION
SIMS	The count of SIM messages reported by the unit and totaled for the PFU within the given failure.
PERM	The count of permanent errors recorded against the unit and totaled for the PFU within the given failure affect. (A permanent error is indicated by a zero temporary error bit in the OBR record.)
TEMP	The sum of the counts shown for the line under IMPACT OF TEMPORARY ERRORS.

8

These fields indicate the number of temporary errors when the count exceeds a LIMIT value. Definitions of the counts of temporary errors are in the DASD maintenance manual. Types of temporary errors are:

TYPE	DESCRIPTION
EQU CHK	Temporary equipment checks.
SKS	Temporary seek checks.
RD	Temporary data checks during reading, corrected by retrying or by ECC (error correction code).
OVRN	Overruns (only applicable to a PFU of CHAN and if system retried). See “DASD Storage Control Unit Summary” on page 165 for total overrun count.
OTHER	All other temporary errors. The types are identified by the letter suffix; in the case of multiple error types, multiple letters follow the counter.

9

Definitions of the suffixes for the counters that can appear in the OTHER column under IMPACT OF TEMPORARY ERRORS are:

TYPE	DESCRIPTION
B	Bus Out Checks
C	Data Checks
D	Diskette Checks
O	Invoked Offset

10

An identifier appears for each PFU. Their formats are shown in [Table 13 on page 152](#).

Table 13. PFU Identifier Formats	
PFU	IDENTIFIER FORMAT
CHAN	Channel 02XX 02 is the channel address from the SCUAs reporting the failures 01 In 370XA mode, the channel path ID
SCU	SS-XX-XX SS storage control unit/director ID SS-XX-XX SEQNUM.P, if the PFU is 3390 SS storage control unit/director SEQNUM manufacturer's serial number of storage control P storage path

Table 13. PFU Identifier Formats (continued)	
PFU	IDENTIFIER FORMAT
CTLR	XX-CC-XX CC controller ID
	XX-CC-XX SEQNUM.P ____ .P-XX, if the PFU is 3390 CC controller ID SEQNUM manufacturer's serial number of storage control ____ indicates that the manufacturer's serial number of the controller is not known. The failure affect shows the manufacturer's serial number of the failing device. P controller
DEV	XX-CC-DD CC controller ID DD physical device ID
	XX-CC-DD SEQNUM.X-DD, if the PFU is 3390 CC controller ID SEQNUM manufacturer's serial number of failing device DD physical device ID
VOL	nnnnnn (The volume serial number from the OBR/MDR device-dependent VOLID field) When information in the DASDID is not adequate, the format is (*nnnn), where * indicates that DASDID information was inadequate and nnnn is the PCUA or device number.

11

Device type.

12

The number of PFUs with fewer temporary errors than the limits defined on LIMIT statements. EREP prints a message stating the number of PFUs not printed and the LIMIT values in effect. See [“LIMIT Control Statement”](#) on page 56 for details on LIMIT statements.

DASD Subsystem Exception, Part 2

Subsystem exception DASD (2) reports list only the SIM (A3) records. Units which rely on SIMs for statement of service requirement are shown in this report.

[Figure 15 on page 154](#) shows an example of the DASD subsystem exception, part 2.

DASD String Summary

```

SUBSYSTEM EXCEPTION                                REPORT DATE 105 97
DASD (2)                                           PERIOD FROM 100 97
                                                    TO 104 97

PROBABLE
FAILING UNIT                                     FAILURE AFFECT CPU PHYSICAL ADDRESS SIMS
*****
CHAN 07                                         CHAN/SCU          01 10221.2      1
-----+-----+-----+-----+-----+-----+
SCU 34988.3 9341                               SCU/CTRL          03+ 22887.3-XX    3
-----+-----+-----+-----+-----+
CTLR FFFFF.0-XX 9343                           SCU/CTRL          01  FFFFF.0-XX    1
-----+-----+-----+-----+-----+
MULT 12245.X-XX 9345                           MULTIPLE          01 12245.1-1A    2
                                                    02 12245.2-1B    1
-----+-----+-----+-----+-----+
DEV 23345.X-02 9345                           CTLR/DEV          01+ 23345.0-02    2
*****
0 UNIT(S) EXCLUDED DUE TO LIMITS

```

Figure 15. DASD Subsystem Exception, Part 2

DASD String Summary, Part 1

Provides information about the following:

- Failure affect and usage data
- Usage statistics
- CPUs

The usage information in the DASD string summary can help you determine whether a failure affect reported in the DASD subsystem exception report is associated with just one device or is common to more than one device in the same controller string.

The report is useful in helping analyze error causes. It is used in conjunction with the DASD subsystem exception report.

The *DASD STRING SUMMARY (1)* includes units that report usage statistics. It shows the following:

- Physical ID
- Volume ID
- Error types that are shown as equipment checks, seek errors, or data transfer errors
- Thousands of accesses
- Megabytes processed
- Total number of seeks and megabytes processed for the report regardless of failure affect

Note: The MEGABYTES WRITTEN WITH VERIFY column is used for 3310s and 3370s that have write with verify commands.

Figure 16 on page 155 shows an example of the DASD subsystem exception, part 2.

DASD STRING SUMMARY (1)					REPORT DATE 105 97			PERIOD FROM 100 97		TO 104 97	
REPORT INCLUDES ALL DASD WITH PHYSICAL IDS OR A VALID DASDID					ERROR TYPES			SEEK		MEGABYTES	
SSID	SCU	CTLR	DEV	VOLUME	EQU. CHKS	SEEK	DATA	ACCESSSES X 1000	MEGABYTES READ	MEGABYTES WRITTEN W/VERIFY	

	26	34				1			2		
	27	35									
			08	MX1RS1				8	137		
			09	MX1DL1					66		
	22	66.0									
	23	60.1									
			02								
			02	RAS7C2	Y	Y	Y				
			03	RAS7C3	Y	Y	Y				
	07	80									
	23	80.1									
			02	RAS7C2	Y						
			03	RAS7D3			Y				
			05	IBM355	Y						
	03	A5									
			02	RAS712				35	73		
			03	RAS713				34	80		
			0C	RAS71C				31	68		
			0E	RAS71E				31	77		
			0F	RAS71F				31	69		
0004	10114.0	0F.0									
	10114.2	0F.2									
			01	RAS841				65	3		
			05	RAS845				65	3		
			06	RAS846				65	3		
0041	.1	01.1									
0243	.0	00	11	RAS291	Y						
	HHGK6.0	00									
			ZZZ23-0F	SOQV04				131	112		
1144	.0	00	ZZZ23-0F	SOQV06	Y						
	DBDMC.0	00									
			AH210-02	SLT221					2		
			AH210-02	SOQV01				65	2		
			95122-14	SOQV19	Y						
			RM102-16	SOQV09	Y						
			GRAM9-17	SOQV31			Y				
			95122-1E	SOQV21			Y				
1144	.0	01	*****-1F	SOQV13	Y						
	DBDMC.0	01									
			GRAM9-10	SOQV03				65	287		
			GRAM9-10	SOQV05	Y						
ALL DASD PROCESSED FOR EXCEPTION REPORT								1530	9325	3	

NOTE: THE COUNTS FOR SEEK ACCESSSES X 1000, MEGABYTES READ, AND MEGABYTES WRITTEN W/VERIFY ARE SIX DIGIT POSITIONS. IF THE SPACE IS EXCEEDED, THE COUNT IS DIVIDED BY 1000 AND A K IS PLACED AT THE END OF THE NUMBER. IF THE COUNT IS EXCEEDED WITH A K AT THE END, 99999K WILL BE PRINTED.											

Figure 16. DASD String Summary, Part 1

1

The failure affect for each unique combination of volume and physical ID belonging to every controller string that appeared on the subsystem exception report. A Y is placed in one or more of the columns under the ERROR TYPES heading to indicate which types of error have occurred. The following table shows failure affects and the error types:

FAILURE AFFECT	ERROR TYPE COLUMN WITH A Y
CTLR	EQU.CHKS
CTLR/DEV	EQU.CHKS
DEV	EQU.CHKS
SEEK	SEEK
DATA XFR	DATA XFER
DATA XFR(HDA)	DATA XFER
MULTIPLE	Any combination

2

The usage data for each volume/physical ID appears under three possible headings:

DASD String Summary

- SEEK ACCESSES X 1000
- MEGABYTES READ
- MEGABYTES WRITTEN W/VERIFY

3

The usage statistics for *all* DASD processed for the subsystem exception report.

Note: To generate a DASD string summary, EREP needs valid physical IDs for the devices, relevant failure affect data from the exception report, or usage data for the selected devices. If these items are not present, the first part of the report is replaced by a message explaining the absence of report data.

DASD String Summary, Part 2

The *DASD STRING SUMMARY (2)* includes only units that do not log usage statistics (such as the 9340, 2107, 2105, 1750 etc. control units).

A line in the report is generated by data from an MDR record. Each line is presented in the following columns:

COLUMN	ORIGINATION
SSID	From sense bytes 20–21.
CONTROL UNIT	Control unit type and model with the sequence number and string (underneath).
DEVICE	Top line defines type and model with sequence number and physical device for each drive following this.
VOLUME	VOLID as obtained from MDR record.
MODE	FBA or CKD as indicated by selection criteria table; FBCK, if both are indicated for the same identifiers.

Note: The lines are sorted alphabetically by volume under the appropriate controller.

Figure 17 on page 156 and Figure 18 on page 156 show examples of the DASD String Summary, Part 2.

```

DASD STRING SUMMARY (2)                                REPORT DATE 132 97
PERIOD FROM 123 97
TO 123 97

SSID SCU    DEVICE          VOLUME    MODE
*****
0505 9341
      43541.X 9345-1 37426-0A SAWV15  CKD
              9345-1 38722-0D SAWV16  CKD
1144 9343-C02
      17204.X 9345-1 N6210-02 SAWV09  CKD
              9345-1 N6210-03 SAWV10  CKD
2020 9343-C04
      21044.X 9345-1 N2114-08 SAWV12  CKD
              9345-1 N9282-17 SAWV11  CKD
3030 9343-D04
      21299.X 9345-1 A1091-04 SAWV13  CKD
              9345-1 A1091-05 SAWV14  CKD
*****

```

Figure 17. DASD String Summary, Part 2 (1)

```

DASD STRING SUMMARY (2)                                REPORT DATE 220 07
PERIOD FROM 104 06
TO 104 06

SSID SCU    DEVICE          VOLUME    MODE
*****
4E43 2107
      BXXN1.X 2107+ *****-19 NWD359  CKD
              2107+ *****-1A NWD35A  CKD
              2107+ *****-1B NWD35B  CKD
              2107+ *****-1C NWD35C  CKD
              2107+ *****-1D NWD35D  CKD
              2107+ *****-1E NWD35E  CKD
              2107+ *****-1F NWD35F  CKD
4E43 2107
              2107+ *****-00 NWD360  CKD
*****

```

Figure 18. DASD String Summary, Part 2 (2)

DASD Service Informational Messages (SIMs)

This report relates to hardware or media failures that may require the customer to call for service or run ICKDSF.

SIMs always appear ahead of other informational messages.

The DASD informational messages report appears after all SIMs.

Refer to the device maintenance library for information about the SIMs and actions required.

Figure 19 on page 157 shows an example of the DASD service informational messages.

```

DASD SERVICE INFORMATION MESSAGES (SIMS)                REPORT DATE 028 97
                                                         PERIOD FROM 023 97
                                                         TO    028 97

 1          2          3
COUNT      FIRST OCCURRENCE      LAST OCCURRENCE
*****
1  023/97 00:10:05:00      023/90 00:10:05:00
  * SERVICE ALERT 9345-1 S/N 0113-N6968 REFCODE D100-11C1-9000 ID=05
  * DASD EXCEPTION ON SSIS 1123, PHYSICAL DEVICE 02, VOLSER SUTUXX
  * DEVICE ADDRESS= 0B02, 11
  * REPAIR WILL DISABLE STORAGE CLUSTER 1 AND INTERFACE A-B

1  023/97 00:10:06:00      023/90 00:10:06:00
  * MODERATE ALERT 9345-1 S/N 0113-P1337 REFCODE D800-22D2-0000 ID=06
  * DASD SERVICE OPERATION COMPLETED ON SSID 2123
  * REPAIR WILL DISABLE STORAGE CLUSTER 0 AND SERIAL INTERFACES 00-01

1  023/97 00:10:07:00      023/90 00:10:07:00
  * SERIOUS ALERT 9345-1 S/N 0113-P5706 REFCODE E300-33E3-1000 ID=07
  * DASD EXCEPTION ON SSID 3123 DEVICE PATH 3
  ** INVALID SERVICE CODE 3 FOR SENSE BYTE 28 = AE
  ** S/N 0113-P5706 NO FORMATTED MESSAGE - SENSE DATA:
    00001200 2428CF07 93808333 E3100004 23603D5A 3123E300 05100200 AE020700

1  028/97 00:00:32:03      223/90 00:00:32:03
  * SERIOUS ALERT 9343-C02 S/N 0113-T0003 REFCODE 2300-251D-9000 ID=17
  * SCU EXCEPTION ON SSID 3123, STORAGE CLUSTER 1 DEVICE PATH 2
  * NO SERVICE ACTION REQUIRED

1  028/97 00:00:01:00      123/90 00:00:01:00
  * SERVICE ALERT 9345-1 S/N 0113-Y1989 REFCODE 4121-1634-5678 ID=21
  * MEDIA EXCEPTION ON SSID 0127, VOLSER SUTEFG DEVICE ADDRESS= 0B00, CH 1F
  * PHYSICAL DEVICE 00, CYLINDER 01B1 HEAD 01
  * REFERENCE MEDIA MAINTENANCE PROCEDURE 1

```

Figure 19. DASD Service Information Messages (SIMS)

1

The number of occurrences of this particular SIM based on the SEQNUM and SIM ID.

2

The date and time of the first occurrence of this particular SIM.

3

The date and time of the last occurrence of this particular SIM.

DASD Informational Messages

This report provides information for the hardware service representative. The records involved may relate to hardware failures that can degrade performance; but the records are not standard sense records resulting from an error condition.

This report automatically follows the DASD subsystem exception report. The information within the two reports is connected by the physical ID address.

The symptom code in the report tells you if any action is required.

Information about the actions required for the various messages is in the maintenance library for the device identified in the *PHYSICAL ID* field.

Figure 20 on page 158 shows an example of the DASD informational messages.

DASD INFORMATIONAL MESSAGES			REPORT DATE 175 97
			PERIOD FROM 041 97
			TO 174 97
PHYSICAL ID	SYMPTOM CODE	COUNT	MESSAGE

03-01-06	0001	1	THRESHOLD LOGGING COMPLETE FOR SEEK CHECKS
04.0-XX	0002	1	THRESHOLD LOGGING COMPLETE FOR DATA CHECKS WITHOUT OFFSET
20.1-XX	0002	1	THRESHOLD LOGGING COMPLETE FOR DATA CHECKS WITHOUT OFFSET
AH210	N/A	1	CUU 0402 DEVICE FENCED FROM STORAGE PATH
04.1-00	0001	1	THRESHOLD LOGGING COMPLETE FOR SEEK CHECKS
04.1-XX	0002	1	THRESHOLD LOGGING COMPLETE FOR DATA CHECKS WITHOUT OFFSET
21.	000F	1	THRESHOLD LOGGING COMPLETE FOR SUBSYSTEM STORE CHECKS
22.	000F	1	THRESHOLD LOGGING COMPLETE FOR SUBSYSTEM STORE CHECKS
60.0-02	0001	1	THRESHOLD LOGGING COMPLETE FOR SEEK CHECKS
23.	000F	1	THRESHOLD LOGGING COMPLETE FOR SUBSYSTEM STORE CHECKS
AA-CC-01	1010	1	SECTOR RETRY THRESHOLD EXCEEDED RBN 33694
AA-CC-01	1313	1	THRESHOLD LOGGING COMPLETE FOR EQUIPMENT CHECKS
AA-CC-01	1616	1	THRESHOLD LOGGING COMPLETE FOR SEEK CHECKS
AA-CC-01	1919	1	THRESHOLD LOGGING COMPLETE FOR DATA CHECKS
AA-CC-01	2121	1	ALTERNATE BLOCKS NEARLY EXHAUSTED
BB-DD-01	101F	1	SECTOR RETRY THRESHOLD EXCEEDED RBN 260753
BB-DD-01	2072	1	CALL FOR SERVICE

Figure 20. DASD Informational Messages

DASD Data Transfer Summary

This report further explains the data checks listed in the DASD subsystem exception report.

The DASD data transfer summary lists:

- Each volume that experienced data checks, giving the error locations for each
- Cylinder and head error locations
- Probable failing unit (PFU)
- Other information which helps narrow down the cause of errors

It can be in two parts:

1. PFU of volume
2. PFU of other than volume

Since the report is sequenced by PFU, it is helpful for looking up failures categorized by PFU.

All data checks listed on the system error summary part 2 and the DASD subsystem exception report will be listed under the PFU—Volume part of this report.

If volume is specified as the PFU, the customer should try to correct the problem using a utility program such as the device support facility. This will correct the errors by:

- Rewriting the data
- Generating a skip displacement
- Assigning an alternate track
- Indicating a bad drive

The IBM service representative should correct errors listed as Other by using the report information and the maintenance package. These errors have a very high probability of being caused by hardware.

Compare later reports to ensure that failing addresses no longer appear in the reports.

The DASD string summary can be used to verify that a drive is also being used.

“DASD Data Transfer Summary—PFU-Volume” on page 159 shows the PFU by Volume. The report may also show the PFU by Other.

DASD Data Transfer Summary—PFU-Volume

DASD DATA TRANSFER SUMMARY
PROBABLE FAILING UNIT - VOLUME

REPORT DATE 175 97
PERIOD FROM 041 97
TO 059 97

SENSE COUNTS **1**

TEMPORARY

OFFSET INVK THRESHOLD

PERM NO YES LOGGING

SEQUENCE BY VOLUME LABEL, HEAD, CYLINDER

2
UNITADDRESS 0380 DEVTYPE 3310 VOLUME DOSAF3 **5**

3
CPU 26 PHYSICAL ADDRESS 0590 **4**
FAILURE AT BLOCK: 3834 CCHS 0010-09-26 0 1 0 0
08015000 0A091A50 06000012 0000004D 004D01C4 28000000 **6**
LAST SENSE AT: 045/97 07:52:15:81

UNITADDRESS 06C7 DEVTYPE 3330 VOLUME TS0190
CPU 27 PHYSICAL ADDRESS 06C5

FAILURE AT ADDRESS: CYLINDER 0158 HEAD 01 1 0 0 0
08800000 159E0143 009E0001 0A1F301B 60000000 00004943
LAST SENSE AT: 044/97 10:43:02:62

UNITADDRESS 0921 DEVTYPE 3350 VOLUME DSAPAK
CPU 35 PHYSICAL ADDRESS 0921

7
FAILURE AT ADDRESS: CYLINDER 0385 HEAD 26 0 1 0 0
00001000 40813A40 0181801A 00000000 00000000 00004940
LAST SENSE AT: 050/97 16:18:38:16

UNITADDRESS 0381 DEVTYPE 3370 VOLUME DOSAF3
CPU 30 PHYSICAL ADDRESS 0380

FAILURE AT BLOCK: 3413 CCHS 0004-05-49 0 0 0 1
08015000 04053150 06000006 00000059 00590093 06000000
LAST SENSE AT: 045/97 07:52:05:07

UNITADDRESS 0734 DEVTYPE 3380 VOLUME PAK167
CPU 07 PHYSICAL ADDRESS XX-84-04

FAILURE AT BLOCK: CYLINDER 0148 HEAD 07 1 0 0 0
08800000 84940743 00020007 066C8400 00000000 00314943
LAST SENSE AT: 043/97 14:25:47:01

UNITADDRESS 0D17 DEVTYPE 3390-01 VOLUME SOQV31
CPU 0A PHYSICAL ADDRESS GRAM9.X-17

FAILURE AT BLOCK: CYLINDER 0025 HEAD 14 0 0 2 0
18000504 1726CE98 00001E00 08400004 2224CB83 11444320
00800E01 0000109E LAST SENSE AT: 058/97 13:56:55:11

UNITADDRESS 0F50 DEVTYPE 9335 VOLUME DSFF50
CPU 13 PHYSICAL ADDRESS 0F50

FAILURE AT BLOCK: 4097 CCHS 0083-01-50 1 0 0 0
08800000 53013241 00000000 00000000 00000000 10014401
LAST SENSE AT: 048/97 16:25:17:43

THE FOLLOWING ENTRIES HAVE ONLY MDR RECORD TYPES. THEREFORE, NO CYLINDER/HEAD ADDRESSES ARE REPORTED. SEE THE EXCEPTION REPORT FOR THE ERROR COUNTS. **8**

UNITADDRESS 0597 DEVTYPE 3310 VOLUME ERPVOL
CPU 26 PHYSICAL ADDRESS 0597

NOTE: CYLINDER/HEAD/BLOCK NUMBERS ARE DECIMAL VALUES
NOTE: UNITADDRESS IS THE LOGICAL ADDRESS OF THE DEVICE
NOTE: ? FOLLOWING THE PHYSICAL ADDRESS DENOTES MULTIPLE
PHYSICAL UNITS HAD ERRORS WITH THIS VOLUME LABEL

1

These columns contain counts of the data checks for the particular cylinder/head or block. The permanent data checks appear in the first column. The temporary data checks are broken down as follows:

COLUMN	DESCRIPTION
OFFSET INVK (offset invoked)	Indicates the number of recovered temporary data checks, and whether it was necessary to offset the access mechanism with the NO and the YES sub-columns
THRESHOLD LOGGING	Indicates the number of temporary data checks recorded when the device was in logging mode because the threshold for data checks was exceeded.

2

The keyword used by the device support facility to identify the device. It is the logical address (SCUA) or device number of the volume reporting the error.

3

The CPU identified for the last sense record.

4

For devices providing physical IDs, this is the physical ID; for other devices, it is the PCUA or physical device number.

5

The volume serial number of the volume reporting the error.

6

There may be either 24 or 32 sense bytes in the last sense record received for this cylinder and head or block. The format of the sense record is in byte 7 and is shown in the following table:

FORMAT	DESCRIPTION
4	The symptom code is in the last two sense bytes
5	The value in byte 7 is repeated in the last two sense bytes

The date and time follow the sense bytes.

7

The location of the data check as shown in the following table:

FOR	ADDRESS
Count key data (CKD) devices	The address is expressed as <i>cylinder and head</i>
Fixed block (FBA) devices	The address is expressed as <i>block number</i>
Note: <ul style="list-style-type: none"> The values are in decimal. When a volume records data checks at more than one location, the report includes an entry for each location and puts them in ascending order. 	

8

In cases where the only error data is from error counters, meaning that failure addresses are not available, only the lines that define the device and volume appear.

DASD Symptom Code Summary

This report provides information required for hardware maintenance. The service representative uses it to locate the failures noted in the DASD subsystem exception report and to note the symptom code and first sense record for each failure.

The data in this report is taken from each sense record in the corresponding DASD subsystem exception report.

Each sense (OBR) record reported in the exception report is listed by probable failing unit (PFU), fault symptom code, and physical ID.

Data is organized by PFU. The PFUs are listed in order of severity beginning with channel and ending with volume. The sequence of the report is different for each PFU.

The symptom code, which is listed under the PFU, is to be used with the maintenance procedures and documentation for the device. Symptom codes with an asterisk (*) are counted as errors in the exception report. The following is shown for each symptom code:

- Physical ID
- Device type
- Permanent and temporary errors
- Function or machine area affected
- Physical address
- Error path
- Date and time (first and last occurrence)
- CPUs
- Sense record from the first occurrence

The physical address is the same as the physical ID if the physical ID is provided. Otherwise, the physical address is the device number or physical control unit address (PCUA).

Data checks (symptom codes 4XXX and 5XXX) that appear in the DASD data transfer summary, also appear here for use when hardware repair is required.

“DASD Symptom Code Summary” on page 161 shows an example of the DASD symptom code summary.

Note: Explanations for **1** through **11** follow the example.

DASD Symptom Code Summary

```

DASD SYMPTOM CODE SUMMARY                                REPORT DATE 065 97
                                                         PERIOD FROM 041 97
                                                         TO    059 97

SEQUENCE BY PROBABLE FAILING UNIT  1

SYMPTOM  PHYSICAL  OCCURRENCES  FAILURE  DATE AND TIME OF
CODE     ID        PERM/TEMP   AFFECT   FIRST OCCURRENCE   LAST OCCURRENCE
                SENSE FROM FIRST OCCURRENCE
                DEVICE                                0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 3 3
                TYPE                                0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1

                PHYSICAL  SSID-STRING  ERROR  CPUS
                ADDRESS                                PATH

*****
PROBABLE FAILING UNIT: CHANNEL-----
SEQUENCE BY SCUID, SYMPTOM CODE -----
0F00 *  70-XX-XX  0  1  CHAN/SCU  049/97 05:11:43:08  049/97 05:11:43:08
                3880  04000100 83080100 00000000 00000000 00000000 00700F00
                70-XX-XX  02-0283  03
2 3 4 5 6 6
0F00 *  E1-XX-XX  1  0  CHAN/SCU  048/97 04:21:11:80  048/97 04:21:11:80
                3880  04000100 84000100 00000000 00000000 00000000 00E10F00 7
                8 E1-XX-XX  22-0284  03
                9 10

PROBABLE FAILING UNIT: STORAGE CONTROL UNIT-----
SEQUENCE BY PCUA, SYMPTOM CODE -----
3930 *  N/A  0  1  SCU  042/97 18:44:51:51  042/97 18:44:51:51
                3830  10000000 00050030 56340000 00040000 00000000 00003930
                0520  20-0520  04
  
```

DASD Symptom Code Summary

11										
FA08 *	N/A 3880	3	0	SCU	049/97 03:51:39:59	049/97 03:52:00:95				
				10100100	000000F4 08000000	FFFFFFF FFFFFFFF	040EFA08			
				013C	41-0130	03				
				013D	01-0131	03				
				0138	01-0130	03				
FA04 *	N/A 3880	2	0	SCU	049/97 03:29:44:54	049/97 03:31:11:23				
				10100100	000000F4 04000000	FFFFFFF FFFFFFFF	040FFA04			
				0124	11-0120	03				
				013C	51-0130	03				
DASD SYMPTOM CODE SUMMARY						REPORT DATE	065 97			
						PERIOD FROM	041 97			
						TO	059 97			
SEQUENCE BY PROBABLE FAILING UNIT										
SYMPTOM CODE	PHYSICAL ID	OCCURRENCES PERM/TEMP	FAILURE AFFECT	DATE AND TIME OF						
				FIRST	LAST					
				OCCURRENCE	OCCURRENCE					
	DEVICE		0 0 0 0	0 0 0 0	0 0 1 1	1 1 1 1	1 1 1 1	2 2 2 2	2 2 2 2	2 2 3 3
	TYPE		0 1 2 3	4 5 6 7	8 9 0 1	2 3 4 5	6 7 8 9	0 1 2 3	4 5 6 7	8 9 0 1
			PHYSICAL	ERROR						
			ADDRESS	SSID-STRING	PATH	CPUS				

SEQUENCE BY SCUID, SYMPTOM CODE -----										
2800 *	14-XX-XX 3880	0	1	SCU	050/97 08:52:47:37	050/97 08:52:47:37				
				10000096	81360B2F 04000020	09A00760 00210000	00142800			
				14-XX-XX	00-0AB1	03				
2810 *	22. 3880	0	1	SCU/CTLR	049/97 21:47:18:81	050/97 21:47:18:81				
				10008260	03A6622F 82000002	09F30060 05880005	10222810			
				60.0-XX	22-0	07-07C3	00			
SEQUENCE BY PCUA, SYMPTOM CODE -----										
3F29 *	N/A 3880	0	1	CHAN/SCU	041/97 15:59:16:46	041/97 15:59:16:46				
				10000000	00106839 00000000	00D60900 07000040	02603F29			
				0840	22-0840	04				
27F9 *	N/A 3880	1	0	CHAN/SCU	050/97 02:55:57:79	050/97 02:55:57:79				
				10000000	10050028 80000002	0903838F 86800400	006527F9			
				0443	54-0443	03				
F223	N/A 3880	0	2	SCU	042/97 02:37:38:85	049/97 05:24:46:26				
				00001100	000000F2 17100000	00020000 00000883	CCA8F223			
				0105	41-0101	03				
				011D	01-0111	03				
F426 *	N/A 3880	1	0	SCU	046/97 02:30:14:17	046/97 02:30:14:17				
				10900100	000000F2 21800000	00020040 C0004881	CCA8F426			
				0100	01-0100	03				
FB04 *	N/A 3880	4	0	SCU	049/97 02:41:29:60	049/97 02:45:21:41				
				00900100	000000F5 04000000	00000000 00000000	CCA8FB04			
				0104	01-0100	03				
				0109	51-0101	03				
				0118	41-0110	03				
				0119	51-0111	03				
PROBABLE FAILING UNIT: CONTROLLER-----										
SEQUENCE BY CTLID, SYMPTOM CODE -----										
834D *	XX-11-XX 3380	1	0	CTLR/DEV	042/97 01:53:15:92	042/97 01:53:15:92				
				10000011	83000083 50100200	01004D00 825A00FF	FF59834D			
				59-11-03	56-0A83	03				
DASD SYMPTOM CODE SUMMARY						REPORT DATE	065 97			
						PERIOD FROM	041 97			
						TO	059 97			
SEQUENCE BY PROBABLE FAILING UNIT										
SYMPTOM CODE	PHYSICAL ID	OCCURRENCES PERM/TEMP	FAILURE AFFECT	DATE AND TIME OF						
				FIRST	LAST					
				OCCURRENCE	OCCURRENCE					
	DEVICE		0 0 0 0	0 0 0 0	0 0 1 1	1 1 1 1	1 1 1 1	2 2 2 2	2 2 2 2	2 2 3 3
	TYPE		0 1 2 3	4 5 6 7	8 9 0 1	2 3 4 5	6 7 8 9	0 1 2 3	4 5 6 7	8 9 0 1
			PHYSICAL	ERROR						
			ADDRESS	SSID-STRING	PATH	CPUS				

```

*****

838D *   XX-11-XX      3    0   CTLR/DEV   042/97 03:57:48:93   042/97 03:57:48:93
        3380          10000011 82000083 50100200 01008D00 03FA00FF FF59838D
        59-11-02          56-0A82   03

E780 *   20.1-XX      1    0   MULTIPLE   047/97 18:18:36:92   047/97 18:18:36:92
        3880-JK      10000020 49796180 81100100 08000200 0F80D4FF FF03E780
        20.1-09          03-0    17-070C   00

D310 *   20.0-XX      2    0   SCU/CTRL   047/97 20:24:09:43   047/97 20:24:09:73
        3880-JK      10000020 061A0C70 81008286 00100000 0A9A0A7A 0002D310
        20.0-XX          02-0    07-0705   00
        20.0-XX          02-0    07-0706   01

B02A *   AH210.0-XX   0    1   CTLR       044/97 09:31:36:47   044/97 09:31:36:47
        3880-JK      10000600 0132C143 00030000 01050404 22101842 0023B021 00000E01 00000000
        AH210.0-XX      0023-0   0101    00

PROBABLE FAILING UNIT: MULTIPLE -----
SEQUENCE BY CTLID, SYMPTOM CODE -----

E7C0 *   20.X-XX      0    2   MULTIPLE   044/97 11:18:07:01   044/97 11:19:01:07
        3380-JK      10000020 0E886580 81100100 08000200 0FC094FF FF02E7C0
        20.0-0E          02-0    07-070E   01
        20.0-07          02-0    07-0707   01

EBF9 *   20.X-XX      0    3   MULTIPLE   044/97 09:04:32:95   047/97 18:18:39:26
        3380-JK      10000020 04040180 81100100 08008100 0FC0D4FF FF02EBF9
        20.0-04          02-0    07-0704   01+
        20.0-05          02-0    07-0705   01

PROBABLE FAILING UNIT: DEVICE-----
SEQUENCE BY PCUA, SYMPTOM CODE -----

150A *   N/A          1    1   SEEK       043/97 08:03:12:71   043/97 10:52:05:00
        3340          01008200 00B74B1B 290A61ED 00000000 5A010000 0000150A
        03EB          EB40    0A

1911 *   N/A          0    3   DEV        049/97 15:43:01:34   049/97 15:43:22:71
        3330          10000000 383E0F11 08000000 01303185 00000000 00001911
        0428          0E2F    01
        0428          042F    01

DASD SYMPTOM CODE SUMMARY                                REPORT DATE 065 97
                                                         PERIOD FROM 041 97
                                                         TO    059 97

SEQUENCE BY PROBABLE FAILING UNIT

SYMPTOM  PHYSICAL  OCCURRENCES  FAILURE  DATE AND TIME OF
CODE     ID       PERM/TEMP  AFFECT   FIRST OCCURRENCE  LAST OCCURRENCE
                                     SENSE FROM FIRST OCCURRENCE
      DEVICE
      TYPE      0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 3 3
      0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
      PHYSICAL
      ADDRESS  SSID-STRING  PATH  CPUS
*****

SEQUENCE BY CTLID, DEVID, SYMPTOM CODE -----

191A   XX-01-06      0    3   SEEK       050/97 08:01:16:14   050/97 08:01:31:72
        3375          00001001 0636401A 38400008 000000FF 0A0D8000 9005191A
        05-01-06          0286    01

8343 *   XX-A0-07      0    1   CTLR/DEV   042/97 03:53:19:04   042/97 03:53:19:04
        3380          100000A0 87000483 50100200 01084300 02EA0008 027D8343
        7D-A0-07          13-0877   03

1316 *   XX-01-06      0    1   DEV        042/97 16:32:45:55   042/97 16:32:45:55
        3375          10000001 0600011E 84882929 000000FF 168C0001 99031316
        03-01-06          0186    31

45C1 *   GRAM9.X-17    2    0   DATAFER   048/97 13:56:55:11   058/97 13:56:55:11
        3390-01      18800504 1726CE98 00001E00 08400004 2224CB83 1114445C1 00800E02 0002D805
        GRAM9.0-17      1144-0    2A-0D17   0A

PROBABLE FAILING UNIT: VOLUME-----
SEQUENCE BY PCUA, SYMPTOM CODE -----

5050   N/A          0    3   DATAFER   043/97 07:28:45:43   043/97 07:52:25:25
        3370          08015001 3E013A50 0600000A 000001F6 000E01B2 10000000
        0381          0381    02

4945 *   N/A          0    1   DATAFER   045/97 07:52:33:22   045/97 07:52:33:22

```

DASD Symptom Code Summary

```

3310          08011000 14051B45 06000003 0000005C 005C0000 3B5D4945
              0590              0380 01

45C0 *      N/A      2      0      DATAFER  041/97 11:59:10:97  041/97 11:59:12:87
              3380-JK          08800001 57030445 00070001 022BFF00 00010000 004145C0 04084CE1 00000304
              0297          0013-0      02-0297 01
              0297          0041-0      12-0297 01

4943 *      N/A      1      0      DATAFER  044/97 10:43:02:62  044/97 10:43:02:62
              3330          08800000 159E0143 009E0001 0A1F301B 60000000 00004943
              06C5              23-06C7 27

4401 *      N/A      1      0      DATAFER  048/97 16:25:17:43  048/97 16:25:17:43
              9335          08800000 53013241 00000000 00000000 00000000 10014401 00000000 00000000
              0F50              0F50 13

DASD SYMPTOM CODE SUMMARY
                                REPORT DATE 065 97
                                PERIOD FROM 041 97
                                TO 059 97

SEQUENCE BY PROBABLE FAILING UNIT

SYMPTOM PHYSICAL OCCURRENCES FAILURE DATE AND TIME OF
CODE ID PERM/TEMP AFFECT FIRST OCCURRENCE LAST OCCURRENCE
                                SENSE FROM FIRST OCCURRENCE
                                DEVICE 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 3 3
                                TYPE 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
                                PHYSICAL ERROR
                                ADDRESS SSID-STRING PATH CPUS
*****
SEQUENCE BY CTLID, DEVID, SYMPTOM CODE -----
40C0 *      20.X-04      1      3      DATAFER  043/97 09:53:09:10  043/97 09:53:09:10
              3380-JK          08800000 445D3440 035D0004 00022000 02000000 000340C0
              20.1-04          03-0      17-0704 00

43C0 *      HANDY.X-01      1      0      DATAFER  048/97 13:05:18:65  050/97 00:58:49:33
              3390-09          10800600 2132E243 00030000 01050404 2215EA85 00CA43C0 00000E00 00001B08
              HANDY.0-01 00CA-1 0EA1 01

4180 *      60.X-02      0      2      DATAFER  044/97 18:10:50:65  044/97 18:15:33:47
              3380-JK          00003000 42010E41 0001000E 0C8B6000 01000000 00234180
              60.0-02          22-0      07-07C2 01
              60.1-02          23-0      17-07C2 01

4320 *      GRAM9.X-17      0      2      DATAFER  048/97 13:56:55:11  058/97 13:56:55:11
              3390-01          18000504 1726CE98 00001E00 08400004 2224CB83 11444320 00800E01 0000190E
              GRAM9.0-17 1144-0 2A-0D17 0A

PROBABLE FAILING UNIT: NO DASDID CARD OR UNKNOWN-----
SEQUENCE BY PCUA, SYMPTOM CODE -----
900F *      N/A      0      1      CTLR/DEV  044/97 15:16:49:03  044/97 15:16:49:03
              3350          10000000 00001412 090960B5 00000000 0E010F03 0000900F
              0523              15-0523 03

9101 *      N/A      0      3      CTLR/DEV  041/97 08:57:00:37  044/97 17:16:58:53
              3330          10000000 388D4010 08000000 00017D85 00008001 00009101
              0428              0E28 19
              0428              0E28 19+
*****

NOTE: SYMPTOM CODES WITH AN ASTERISK ARE COUNTED AS ERRORS IN EXCEPTION REPORT
NOTE: PHYSICAL ID OF N/A MEANS THERE WERE NO DASDID CARDS

```

1

The overall sequence of this report is by probable failing unit.

2

A fault symptom code recorded for this PFU. All symptom codes except those for records collected in logging mode are followed by an asterisk (*). (Records collected in logging mode do not appear on the subsystem exception report.) The symptom code that appears for the format 5 (ECC correctable) OBR record is a dummy created by duplicating the contents of sense byte 7. (If sense byte 7=53, the symptom code is 5353.)

- 3** For DASD providing physical IDs or DASDID statements, this field contains some combination of SCUID-CTLID-DEVID, which is used to identify the probable failing unit related to a TOTAL line in the report, (See [“Subsystem Exception Report” on page 321](#) for exceptions). See [Table 13 on page 152](#) for the format of the physical ID. For other devices the field contains N/A.
- 4** The number of permanent and temporary errors encountered for this symptom code, this physical ID, and this failure affect.
- 5** This field defines the function or machine area affected by the failure. The possible failure affects are shown in [Table 12 on page 151](#).
- 6** The date and time of the first and last occurrences of the sense records for this symptom code.
- 7** The first sense record received for this symptom code. There may be either 24 or 32 bytes of sense data.
- 8** Device type.
- 9** If the DASD device provides physical ID, this field is the same as the physical ID and is used to identify the device related to a SUBTOTAL line in the report. Otherwise, it is the PCUA or device number.
- 10** The address from which the record was received. In 370XA mode, the format is CHPID device number (01–0120).
- 11** The EREP assigned CPU identifier. If more than one CPU, one is shown and a plus sign is printed to show there is more than one.

DASD Storage Control Unit Summary

This report looks for balanced loads on the interfaces. It is designed for use by customers.

It defines the physical channel interface over which overruns occurred for the 3830, 3880, and 3990 storage control units (SCU).

A few overruns on most or all interfaces indicates that the DASD subsystems are balanced in terms of interface utilization. If overruns show on some interfaces, but not others, the load is unbalanced.

To correct an unbalanced situation, the customer can reconfigure the system to balance the load.

[Figure 21 on page 166](#) shows an example of the DASD storage control unit summary.

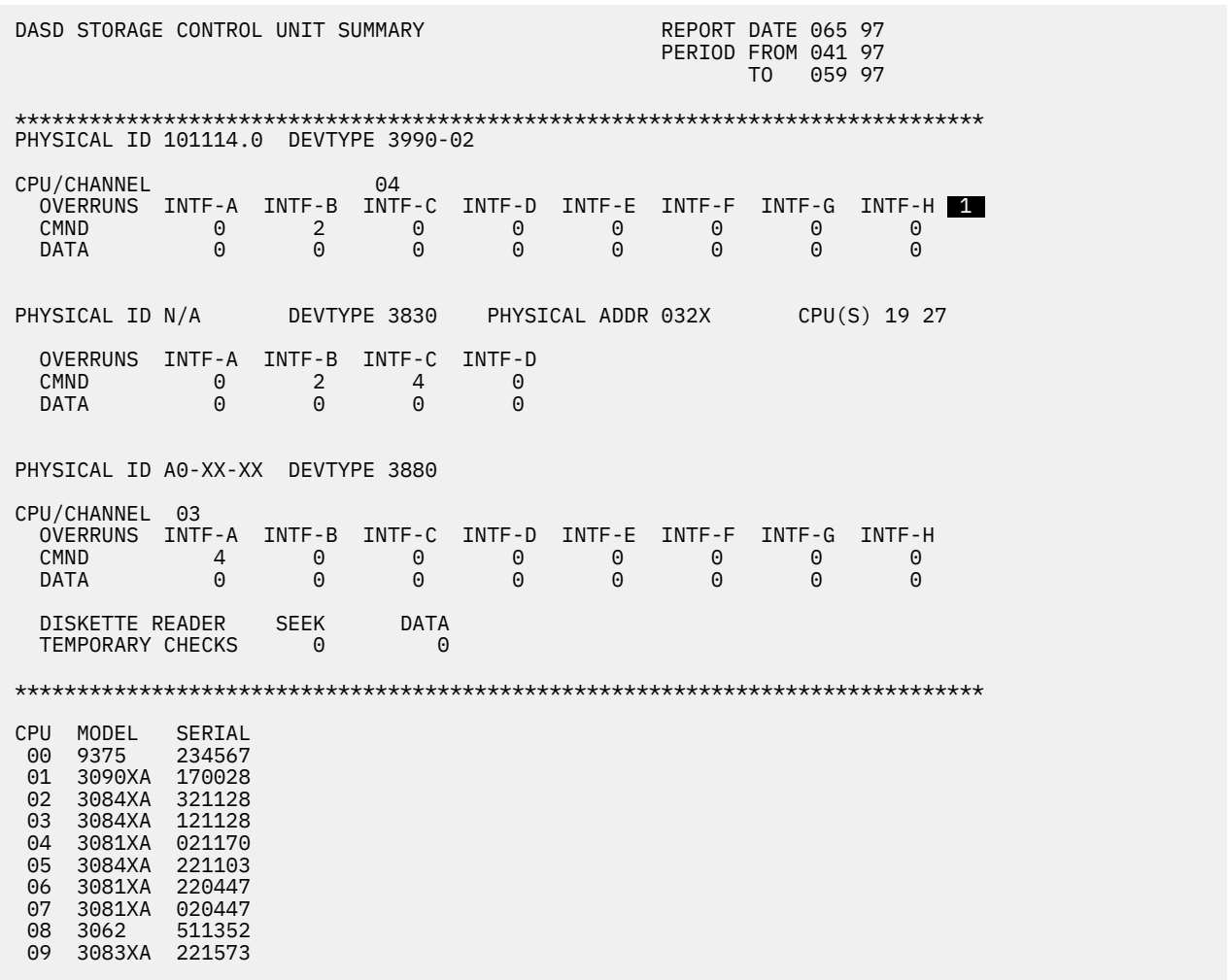


Figure 21. DASD Storage Control Unit Summary

1 The storage control unit channel interface.

Optical Subsystem Exception

This section covers the following reports:

REPORT
“3995 Optical Subsystem Exception Report Series” on page 166
“9246/9247 Optical Subsystem Exception Report Series” on page 173

3995 Optical Subsystem Exception Report Series

This optical subsystem exception report series shows permanent error data (OBRs) and cartridge statistical data (MDRs), which are used for analytical and predictive maintenance for 3995 optical library data servers serving in non-emulating roles.

It consists of the following summaries:

DEVICE	REPORT
3995	<ul style="list-style-type: none"> • Permanent error summary • Optical drives error summary • Volume statistics summary • DEVNO/CUA statistics summary

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
3995 Permanent Error Summary	Figure 22 on page 167
3995 Optical Drives Error Summary	Figure 23 on page 169
3995 Volume Statistics Summary	Figure 24 on page 171
3995 DEVNO/CUA Statistics Summary	Figure 25 on page 172

3995 Permanent Error Summary

This permanent error summary presents all 3995 permanent errors sorted by CUA, date, and time.

Figure 22 on page 167 shows an example of the 3995 permanent error summary.

[illegible]

Figure 22. 3995 Permanent Error Summary

- 1** REPORT DATE is the Julian date the report ran.
PERIOD FROM is the Julian date of the earliest record.
PERIOD TO is the Julian date of the latest record.
- 2** CHPID is the channel path ID.
- 3** DEVNO/CUA is the device number consisting of channel address and unit address.
- 4** CPU is the CPU version/serial number.
- 5** DTE is the date of incident.

- 6** TIME HHMMSS is the time of incident.
- 7** LIB/DRIVE NAME is the library or drive name.
- 8** VOLUME SERIAL NUMBER is the volume ID used with the FAIL CMD.
- 9** FAIL CMD is the command to be processed for the addressed device.
- 10** TASK RQBLK RETCD is the task request block return code.
- 11** FAULT SYMPTM CODE is the device fault symptom code, FSC.
- 12** SCSI SENSE KEY is the textual description of the SCSI sense key.
- 13** SENSE BYTES 4 THROUGH 31 is the device sense data.
- 14** CPU, MODEL, SERIAL NUMBER further identifies the CPU listed in the report (370-XA mode if MODEL ends in X'XA').

3995 Optical Drives Error Summary

This optical drives error summary presents all 3995 cartridge statistical data, counted and sorted by CUA and CPU, followed by totals and averages.

Figure 23 on [page 169](#) shows an example of the 3995 optical drives error summary.

3995 OPTICAL DRIVES ERROR SUMMARY

1 REPORT DATE 167 97
 PERIOD FROM 102 97
 TO 118 97

**** SORTED BY CUA AND CPU ****

12	3	4	5	6	7	8	9	10	11			
DEVNO	LOAD	DRIVE	CARTRIDGE	MB/ERR	PERM	MB/ERR	TEMP	TOTAL MB	SEEK	ERRS		
/CUA	ERRS	CPU	NAME	MOUNTS	READ(CT)	WRITE(CT)	READ(CT)	WRITE(CT)	READ	WRITE	PERM	TEMP
PERM	TEMP											
0242	00	L0D1	19	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0242	01	L0D1	33	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0242	02	L0D1	19	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0243	00	L0D2	14	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0243	01	L0D2	26	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0243	02	L0D2	32	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0244	00	L0D3	23	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0244	01	L0D3	30	-- (0)	-- (0)	619(111)	22(7)	68761	155	0		
0	0	0										
0244	02	L0D3	19	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	1										
0245	00	L0D4	15	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0245	01	L0D4	35	-- (0)	-- (0)	715(48)	67(1)	34360	67	0		
0	0	0										
0245	02	L0D4	22	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0282	00	L2D1	8	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0282	01	L2D1	18	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	1										
0282	02	L2D1	15	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0283	00	L2D2	9	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	1										
0283	01	L2D2	17	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0283	02	L2D2	14	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	1										
0284	00	L2D3	10	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0284	01	L2D3	16	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0284	02	L2D3	14	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0285	00	L2D4	1	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0285	01	L2D4	1	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
0285	02	L2D4	2	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0		
0	0	0										
TOTALS:	13		412	0	0	159	8	103121	222	0		

4

14
 AVERAGE MEGABYTES/TEMPORARY READ ERROR = 648 (*) = THERE WERE NO ERRORS LOGGED FOR
 CALCULATION
 AVERAGE MEGABYTES/TEMPORARY WRITE ERROR = 27
 AVERAGE MEGABYTES/TEMPERARY READ/WRITE ERROR = 618
 AVERAGE MEGABYTES/PERMANENT READ ERROR = *
 AVERAGE MEGABYTES/PERMANENT WRITE ERROR = *
 AVERAGE MEGABYTES/PERMANENT READ/WRITE ERROR = *
 TOTAL MEGABYTES PROCESSED = 103343

15
 CPU MODEL SERIAL NUMBER
 00 9021XA 110947
 01 9021XA 210947
 02 9021XA 010947

Figure 23. 3995 Optical Drives Error Summary

- 1** REPORT DATE is the Julian date the report ran.
 PERIOD FROM is the Julian date of the earliest record.
 PERIOD TO is the Julian date of the latest record.
- 2** DEVNO/CUA is the device number.
- 3** CPU is the CPU serial number.

- 4** DRIVE NAME is the name of the drive.
- 5** CARTRIDGE MOUNTS is the count of cartridge mounts on a specific CUA/CPU.
- 6** Total number of megabytes read (READ) divided by the number of permanent read errors (CT) on a specific CUA/CPU.
- 7** Total number of megabytes written (WRITE) divided by the number of permanent write errors (CT) on a specific CUA/CPU.
- 8** Total number of megabytes read (READ) divided by the number of temporary read errors (CT) on a specific CUA/CPU.
- 9** Total number of megabytes written (WRITE) divided by the number of temporary write errors (CT) on a specific CUA/CPU.
- 10** Total number of megabytes read (READ) and total number of megabytes written (WRITE) on a specific CUA/CPU.
- 11** Total number of permanent (PERM) and temporary (TEMP) seek errors on a specific CUA/CPU.
- 12** Total number of permanent (PERM) and temporary (TEMP) load/unload errors on a specific CUA/CPU.
- 13** TOTALS by column of all the CUAs/CPUs.
- 14** AVERAGE MEGABYTES/TEMPORARY READ ERROR is the total number of megabytes read divided by the total number of temporary read errors for all CUAs/CPUs. AVERAGE MEGABYTES/TEMPORARY WRITE ERROR is the total number of megabytes written divided by the total number of temporary write errors for all CUAs/CPUs. AVERAGE MEGABYTES/TEMPORARY READ/WRITE ERROR is the total number of megabytes processed (both read and write) divided by the total of temporary errors for all CUAs/CPUs. AVERAGE MEGABYTES/PERMANENT READ ERROR is the total number of megabytes read divided by the total number of permanent read errors for all CUAs/CPUs. AVERAGE MEGABYTES/PERMANENT WRITE ERROR is the total number of megabytes written (on all CUAs/CPUs) divided by the total number of permanent write errors for all CUAs/CPUs. AVERAGE MEGABYTES/PERMANENT READ/WRITE ERROR is the total number of megabytes read/written divided by the total number of permanent errors for all CUAs/CPUs. . TOTAL MEGABYTES PROCESSED is the total number of megabytes read/written for all CUAs/CPUs.
- 15** CPU, MODEL, SERIAL NUMBER further identifies the CPU listed in the report (370-XA mode if MODEL ends in X'XA').

3995 Volume Statistics Summary

This volume statistics summary presents all 3995 cartridge statistical data and all 3995 permanent errors counted and sorted by volume, date, and time.

Figure 24 on page 171 shows an example of the 3995 volume statistics summary.

3995 VOLUME STATISTICS SUMMARY															
										1 REPORT DATE 167 97					
										PERIOD FROM 102 97					
										TO 118 97					
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
17															
VOLUME		USER INFO.		DTE TIME		C P		DRV MED.		PCT TOTAL		MB/ERR PERM		MB/ERR TEMP	
LOAD ERRS----		10 BYTES		DAY HHMMSS		CUA U		NO. TYPE		SPR NO.		READ(CT)		WRITE(CT)	
ID	PERM	TEMP								SEC	SPARE				
000578	0	0	0	117	110545	0285	00	0	0000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
000578	0	0	0	117	110653	0284	01	3	8000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
000578	0	0	0	117	110702	0284	01	3	8000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
000582	0	0	0	117	104727	0280	01	0	0000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
000582	0	0	0	117	110629	0283	00	2	8000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
000582	0	0	0	117	110638	0283	01	2	8000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
000602	0	0	0	117	111014	0285	01	0	0000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
000602	0	0	0	117	111119	0284	01	3	8000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
000602	0	0	0	117	111129	0284	02	3	8000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
000642	0	0	0	117	111726	0285	01	0	0000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
000642	0	0	0	117	111833	0283	01	2	8000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
000642	0	0	0	117	111844	0283	01	2	8000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
000671	0	0	0	117	104727	0285	01	0	0000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
000673	0	0	0	117	104727	0282	01	0	0000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
000677	0	0	0	117	103340	0280	00	0	0000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
000677	0	0	0	117	104727	0280	00	0	0000	0	0	-- (0)	-- (0)	-- (0)	-- (0)
18															
CPU	MODEL	SERIAL NUMBER													
00	9021XA	110947													
01	9021XA	210947													
02	9021XA	010947													

Figure 24. 3995 Volume Statistics Summary

- 1 REPORT DATE is the Julian date the report ran.
PERIOD FROM is the Julian date of the earliest record.
PERIOD TO is the Julian date of the latest record.
- 2 VOLUME ID is the volume ID used with the command to be processed for the addressed device.
- 3 USER INFO. 10 BYTES are the first 10 bytes of owner information.
- 4 DTE DAY is the date of incident.
- 5 TIME HHMMSS is the time of incident.
- 6 CUA is the device number consisting of channel address and unit address.
- 7 CPU is the CPU version/serial number.
- 8 DRV NO. is the drive number.

9

MED. TYPE is the media type.

10

PCT SPR SEC USD is the percent used of spare sectors.

11

TOTAL NO. SPARE SECTRS is the total number of spare sectors.

12

Total number of megabytes read (READ) divided by the number of permanent read errors (CT) on a specific CUA/CPU.

13

Total number of megabytes written (WRITE) divided by the number of permanent write errors (CT) on a specific CUA/CPU.

14

Total number of megabytes read (READ) divided by the number of temporary read errors (CT) on a specific CUA/CPU.

15

Total number of megabytes written (WRITE) divided by the number of temporary write errors (CT) on a specific CUA/CPU.

16

Total number of permanent (PERM) and temporary (TEMP) seek errors on a specific CUA/CPU.

17

Total number of permanent (PERM) and temporary (TEMP) load/unload errors on a specific CUA/CPU.

18

CPU, MODEL, SERIAL NUMBER further identifies the CPU listed in the report (370-XA mode if MODEL ends in X'XA').

3995 DEVNO/CUA Statistics Summary

This DEVNO/CUA statistics summary presents all 3995 cartridge statistical data and all 3995 permanent errors sorted by CPU, date, and time. A separate summary is generated for each device (CUA).

Figure 25 on page 172 shows an example of the 3995 DEVNO/CUA statistics summary.

3995 DEVNO/CUA STATISTICS SUMMARY FOR-0285													
1 REPORT DATE 167 97													
2 PERIOD FROM 102 97													
TO 118 97													
**** SORTED BY DATE AND TIME ****													
3	4	5	6	7	8	9	10	11	12	13	14	15	16
DTE TIME	VOLUME	MED.	MB/ERR PERM	MB/ERR TEMP	TOTAL	MB/ERR	SEEK	ERRS	LOAD	ERRS			
DAY HHMMSS	ID	CPU TYPE	READ (CT)	WRITE (CT)	READ	WRITE	PERM	TEMP	PERM	TEMP	PERM	TEMP	TEMP
105 081325	000662	00 8000	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0	0	0	0	0
117 110545	000578	00 0000	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0	0	0	0	0
102 132005	000662	01 8000	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0	0	0	0	0
117 104727	000671	01 0000	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0	0	0	0	0
117 111014	000602	01 0000	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0	0	0	0	0
117 111726	000642	01 0000	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0	0	0	0	0
102 125718	000654	02 8000	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0	0	0	0	0
105 083534	000670	02 8000	-- (0)	-- (0)	-- (0)	-- (0)	0	0	0	0	0	0	0
15													
CPU	MODEL	SERIAL NUMBER											
00	9021XA	110947											
01	9021XA	210947											
02	9021XA	010947											

Figure 25. 3995 DEVNO/CUA Statistics Summary

1

REPORT DATE is the Julian date the report ran.

PERIOD FROM is the Julian date of the earliest record.

PERIOD TO is the Julian date of the latest record.

2

FOR- is the device number consisting of channel address and unit address.

- 3** DTE DAY is the date of incident.
- 4** TIME HHMMSS is the time of incident.
- 5** VOLUME ID is the volume ID used with the command to be processed for the addressed device.
- 6** CPU is the CPU version/serial number.
- 7** MED. TYPE is the media type.
- 8** Total number of megabytes read (READ) divided by the number of permanent read errors (CT) on a specific CUA/CPU.
- 9** Total number of megabytes written (WRITE) divided by the number of permanent write errors (CT) on a specific CUA/CPU.
- 10** Total number of megabytes read (READ) divided by the number of temporary read errors (CT) on a specific CUA/CPU.
- 11** Total number of megabytes written (WRITE) divided by the number of temporary write errors (CT) on a specific CUA/CPU.
- 12** Total number of megabytes read (READ) and total number of megabytes written (WRITE) on a specific CUA/CPU.
- 13** Total number of permanent (PERM) and temporary (TEMP) seek errors on a specific CUA/CPU.
- 14** Total number of permanent (PERM) and temporary (TEMP) load/unload errors on a specific CUA/CPU.
- 15** CPU, MODEL, SERIAL NUMBER further identifies the CPU listed in the report (370-XA mode if MODEL ends in X'XA').

9246/9247 Optical Subsystem Exception Report Series

This optical subsystem exception report series shows permanent error data (OBRs) that is used for analytical and predictive maintenance for 9246 optical libraries and 9247 optical disk drives.

It consists of the following summaries:

DEVICE	REPORT
9246	<ul style="list-style-type: none"> • Permanent/temporary error summary • Permanent/temporary error summary by CUA
9247	<ul style="list-style-type: none"> • Permanent/temporary error summary • Error code summary • Volume error summary

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
9246 Optical Library Permanent/Temporary Error Summary	Figure 26 on page 174
9246 Optical Library Permanent/Temporary Error Summary by CUA	Figure 27 on page 175
9247 Optical Disk Drive Permanent/Temporary Error Summary	Figure 28 on page 176
9247 Optical Disk Drive Error Code Summary	Figure 29 on page 177
9247 Optical Disk Drive Volume Error Summary	Figure 30 on page 179

9246 Permanent/Temporary Error Summary

This permanent/temporary error summary presents 9246 permanent and temporary errors sorted by overall library status, CUA, date, and time.

[Figure 26 on page 174](#) shows an example of the 9246 permanent/temporary error summary.

9246 PERMANENT/TEMPORARY ERROR SUMMARY															
1 REPORT DATE 064 97															
PERIOD FROM 052 97															
TO 054 97															
****SORTED BY:OVERALL LIBRARY STATUS, CUA, DATE AND TIME****															
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
CHP	DEVNO			TIME	LIBRARY	SERIAL	LIBRARY	FAILING	NO. OF	PROTO	ADAPTER	OVERALL	FAULT	MODE	
-ID	/CUA	CPU	DTE	HHMMSS	NAME	NUMBER	COMMAND	RETRIES	STATUS	RETURN	STATUS	LIBRARY	CODE	CODE	PERM/TEMP
00	0AC0	00	052	143355	LIB1	0000001	FL001		1111	1005					TEMPORARY
00	0AC0	00	054	143355	LIB1	0000001	FL002		2222	2005					TEMPORARY
17															
CPU	MODEL	SERIAL NUMBER													
00	3090XA	073676													

Figure 26. 9246 Optical Library Permanent/Temporary Error Summary

- 1** REPORT DATE is the Julian date the report ran.
PERIOD FROM is the Julian date of the earliest record.
PERIOD TO is the Julian date of the latest record.
- 2** CHP-ID is the channel path ID.
- 3** DEVNO/CUA is the device number consisting of channel address and unit address.
- 4** CPU is the CPU version/serial number.
- 5** DTE is the date of incident.
- 6** TIME HHMMSS is the time of incident.
- 7** LIBRARY NAME is the name of the library.
- 8** LIBRARY SERIAL NUMBER is the library serial number.
- 9** LIBRARY FAILING COMMAND is the failing command issued to library.
- 10** NO. OF RETRIES is the number of I/O retries.
- 11** PROTO STATUS is the protocol status.

12

ADAPTER RETURN CODE is the library adapter return code.

13

OVERALL LIBRARY STATUS is the library status characters.

14

FAULT CODE is the library fault code.

15

BACKUP MODE CODE is the code for the backup mode.

16

PERM/TEMP is the identifier of permanent versus temporary errors.

17CPU, MODEL, SERIAL NUMBER provides further information on the CPU listed **4** in the lines of the report (370-XA mode if MODEL ends in X'XA').

9246 Permanent/Temporary Error Summary by CUA

This permanent/temporary error summary by CUA presents a frequency table of library failing commands versus overall library statuses.

Figure 27 on page 175 shows an example of the 9246 permanent/temporary error summary by CUA.

9246 PERMANENT/TEMPORARY ERROR SUMMARY BY CUA		1	REPORT DATE 064 97
			PERIOD FROM 052 97
			TO 054 97
2	3		
CUA:0AC0 LIBRARY NAME:LIB1			
4	5		
LIBRARY FAILING COMMAND		FREQUENCY	
FL001		1	
FL002		1	
6	7		
OVERALL LIBRARY STATUS		FREQUENCY	
0*** UNDETERMINED		2	
8			
TOTAL		2	

Figure 27. 9246 Optical Library Permanent/Temporary Error Summary by CUA

1

REPORT DATE is the Julian date the report ran.

PERIOD FROM is the Julian date of the earliest record.

PERIOD TO is the Julian date of the latest record.

2

CUA: is the device number consisting of channel address and unit address.

3

LIBRARY NAME is the name of the library.

4

LIBRARY FAILING COMMAND is the failing command issued to library.

5FREQUENCY is the accumulated number of each LIBRARY FAILING COMMAND **4**.**6**

OVERALL LIBRARY STATUS is the library status characters.

7FREQUENCY is the accumulated number of each OVERALL LIBRARY STATUS **6**.**8**TOTAL is the accumulated number of FREQUENCIES **7**.

9247 Permanent/Temporary Error Summary

This permanent/temporary error summary presents:

- 9247 permanent and temporary errors sorted by CUA, date, and time
- A frequency table of failing SCSI commands versus optical device sense keys.

Figure 28 on page 176 shows an example of the 9247 permanent/temporary error summary.

[illegible]

Figure 28. 9247 Optical Disk Drive Permanent/Temporary Error Summary

- 1** REPORT DATE is the Julian date the report ran.
PERIOD FROM is the Julian date of the earliest record.
PERIOD TO is the Julian date of the latest record.
- 2** CHP-ID is the channel path ID.
- 3** DEVNO/CUA is the device number consisting of channel address and unit address.
- 4** CPU is the CPU version/serial number.
- 5** DTE is the date of incident.
- 6** TIME HHMMSS is the time of incident.
- 7** DRIVE NAME is the name of the drive.
- 8** VOLUME SERIAL NUMBER is the volume serial number of the mounted volume.
- 9** FAILING SCSI COMMAND is the SCSI command attempted when the failure occurred.
- 10** NUMBER OF RETRIES is the number of I/O retries.
- 11** SCSI ADPT RTRN CODE is the SCSI adapter return code.
- 12** SCSI ADPT CMPL CODE is the SCSI adapter completion code.

13

SCSI CMPL STAT is the SCSI completion status byte.

14

SENSE KEY is the sense key at the time of the failure.

15

PERM OR TEMP is the identifier of permanent versus temporary errors.

16

SENSE BYTE DATA is the 9247 device dependent sense data.

17CPU, MODEL, SERIAL NUMBER provides further information on the CPU listed **4** in the lines of the report (370-XA mode if MODEL ends in X'XA').**18**

FAILING SCSI COMMAND is the heading for the failing SCSI command summary.

19FREQUENCY is the accumulated number of each FAILING SCSI COMMAND **18**.**20**

SENSE KEY is the heading for the sense key summary.

21FREQUENCY is the accumulated number of each SENSE KEY **20**.**22**TOTAL is the accumulated total of column **21**.

9247 Error Code Summary

This error code summary presents 9247 permanent and temporary errors sorted by sense key (PFU), CUA, date, and time.

Figure 29 on page 177 shows an example of the 9247 error code summary.

9247 ERROR CODE SUMMARY																
										1	REPORT DATE 065 97					
											PERIOD FROM 054 97					
											TO 056 97					
****SORTED BY SENSE KEY(PFU), CUA, DATE AND TIME****																
2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
SENSE KEY	CHP -ID	DEVNO /CUA	C P U	TIME DTE	DRIVE HMMSS	NAME	VOLUME SERIAL NUMBER	FAILING SCSI COMMAND	NUMBER OF RETRIES	SCSI ADPT RTRN	SCSI ADPT CMPL	SCSI CMPL STAT	PERM OR TEMP	SENSE BYTE DATA		
NO SENSE	00	0AC0	00	054	142833	L1D2		INQUIRY		1	00	21	06	PERM		
00000000000000000000000000000000																
NO SENSE	00	0AC0	00	056	142833	L1D2		INQUIRY		1	00	21	06	PERM		
00000000000000000000000000000000																
17																
CPU	MODEL	SERIAL NUMBER														
00	3090XA	073676														

Figure 29. 9247 Optical Disk Drive Error Code Summary

1

REPORT DATE is the Julian date the report ran.

PERIOD FROM is the Julian date of the earliest record.

PERIOD TO is the Julian date of the latest record.

2

SENSE KEY is the sense key at the time of the failure.

3

CHP-ID is the channel path ID.

4

DEVNO/CUA is the device number consisting of channel address and unit address.

- 5** CPU is the CPU version/serial number.
- 6** DTE is the date of incident.
- 7** TIME HHMMSS is the time of incident.
- 8** DRIVE NAME is the name of the drive.
- 9** VOLUME SERIAL NUMBER is the volume serial number of the mounted volume.
- 10** FAILING SCSI COMMAND is the SCSI command attempted when the failure occurred.
- 11** NUMBER OF RETRIES is the number of I/O retries.
- 12** SCSI ADPT RTRN CODE is the SCSI adapter return code.
- 13** SCSI ADPT CMPL CODE is the SCSI adapter completion code.
- 14** SCSI CMPL STAT is the SCSI completion status byte.
- 15** PERM OR TEMP is the identifier of permanent vs. temporary errors.
- 16** SENSE BYTE DATA is the 9247 device dependent sense data.
- 17** CPU, MODEL, SERIAL NUMBER provides further information on the CPU listed **5** in the lines of the report (370-XA mode if MODEL ends in X'XA').

9247 Volume Error Summary

This volume error summary presents:

- 9247 permanent and temporary errors sorted by volume, CUA, date, and time
- A frequency table of failing SCSI commands versus optical device sense keys
- A frequency table of volume serial number versus drive

Figure 30 on page 179 shows an example of the 9247 volume error summary.

[illegible]

Figure 30. 9247 Optical Disk Drive Volume Error Summary

- 1** REPORT DATE is the Julian date the report ran.
PERIOD FROM is the Julian date of the earliest record.
PERIOD TO is the Julian date of the latest record.
- 2** VOLUME SERIAL NUMBER is the volume serial number of the mounted volume.
- 3** CHP-ID is the channel path ID.
- 4** DEVNO/CUA is the device number consisting of channel address and unit address.
- 5** CPU is the CPU version/serial number.
- 6** DTE is the is the date of incident.
- 7** TIME HHMMSS is the time of incident.
- 8** DRIVE NAME is the name of the drive.
- 9** FAILING SCSI COMMAND is the SCSI command attempted when the failure occurred.
- 10** NUMBER OF RETRIES is the number of I/O retries.
- 11** SCSI ADPT RTRN CODE is the SCSI adapter return code.
- 12** SCSI ADPT CMPL CODE is the SCSI adapter completion code.
- 13** SCSI CMPL STAT is the SCSI completion status byte.
- 14** SENSE KEY is the sense key at the time of the failure.
- 15** PERM OR TEMP is the identifier of permanent versus temporary errors.

16

SENSE BYTE DATA is the 9247 device dependent sense data.

17

CPU, MODEL, SERIAL NUMBER provides further information on the CPU listed **5** in the lines of the report (370-XA mode if MODEL ends in X'XA').

18

FAILING SCSI COMMAND is the heading for the failing SCSI command summary.

19

FREQUENCY is the accumulated number of each FAILING SCSI COMMAND **18**.

20

SENSE KEY is the heading for the sense key summary.

21

FREQUENCY is the accumulated number of each SENSE KEY **20**.

22

TOTAL is the accumulated total of column **21**.

Tape Subsystem Exception

The tape subsystem exception report series shows error data and usage statistics for tape subsystems. Data is summarized by component.

The series comprises any combination of the following tape reports:

Tape reports	
Subsystem exception	Permanent/recovered error summary
Permanent error summary	Error code summary report
Temporary error summary	Temporary error summary device
Forced error log	Temporary error summary channel
DEVNO/CUA statistics summary	Library permanent/recover report
Volume statistics summary	Library error code summary report
FRU summary	CUA statistics summary

Refer to your device maintenance information (MI) manual for the list of EREP reports that appear under the subsystem exception report for your specific device.

The reports are organized as shown in the following table:

ORGANIZED BY	DESCRIPTION
Exception type	Permanent errors and temporary errors that exceed the values in the LIMIT control statement
Suspected source of the error	Either hardware or the volume and the drive it has been created on.

The following table shows the type of error records and their source in the tape subsystem exception reports.

TYPE	SOURCE
A3	Tape devices (not 3590s) ; including controllers
MDR	Tape devices (not 3590s) ; including controllers

TYPE	SOURCE
OBR	Tape devices (not 3590s) ; including controllers

If the tape subsystem exception report indicates that corrective action is necessary, the summary reports provide the details required for correction.

The errors may relate to the megabytes processed and depend on product type and usage.

Set the values for temporary errors in the LIMIT control statement so the reports can be used as a maintenance tool. Refer to your MI manual for additional information.

Look for temporary errors that cause system degradation.

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
3490 Subsystem Exception Report Example	Figure 31 on page 182
3490 Forced Log Report Example	Figure 32 on page 185
3490 Temporary Error Summary Channel Example	Figure 33 on page 187
3490 Temporary Error Summary Device Example	Figure 34 on page 189
3420/3410 Temporary Error Summary	Figure 35 on page 192
9347 Temporary Error Summary	Figure 36 on page 193
3490 Volume Statistics Summary	Figure 37 on page 194
3490 Permanent/Recovered Error Summary Example	Figure 38 on page 197
3420/3410 Permanent Error Summary	Figure 39 on page 199
3424 Permanent / Recovered Error Summary	Figure 40 on page 199
3490 FRU Summary Report Example	Figure 41 on page 200
3490 Error Code Summary Example	Figure 42 on page 202
3490 DEVNO/CUA Statistics Summary Report Example	Figure 43 on page 204
3422 DEVNO/CUA Statistics Summary	Figure 44 on page 206
9347 DEVNO/CUA Statistics Summary	Figure 45 on page 207
Tape Library Permanent Error Summary Example	Figure 46 on page 208
Tape Library Service Alert Summary Example	Figure 47 on page 211
Tape Library Error Code Summary Example	Figure 48 on page 213

Important: Because the reports are hardware-specific, sample output may not match what you see when you request the system exception series for yourself.

Tape Subsystem Exception Report

This report indicates if the tape subsystem has permanent errors or is operating within acceptable limits. It is a good tool to use for system maintenance.

The following are recommendations for using this report:

- Set LIMITS on temporary errors to prevent printing excessive errors. See [“LIMIT Control Statement” on page 56](#) for LIMIT control statement details.

- Use temporary errors to track system degradation.
- The errors shown may relate to megabytes processed.
- The tape subsystem exception report format and content vary somewhat according to the device type involved. See for more information about specific products.

Figure 31 on page 182 shows an example of the tape subsystem exception report.

Note: The following example is for a 3490E tape subsystem. Column headings may differ depending upon the specific device.

SUBSYSTEM EXCEPTION										1		REPORT DATE 063 97													
3490												PERIOD FROM 049 97													
												TO 052 97													
2						TEMP WRT(CT)				TEMP RD(CT)															
CURRENT LIMITS		HARDWARE				999 5				999 1															
MBYTES/ERR		VOLUME				40 3				200 1															
3		4		5		6		7		8		9		10		11		12		13					
EXCEPTION		VOLUME		DEVNO		EQU		---MB/ERR		PERM----		---MB/ERR		TEMP----		BUS OVR		TOTAL -		MBYTES					
		SERIAL		/CUA		CPU		CHK		READ(CT)		WRITE(CT)		WRITE(CT)		READ(CT)		READ		WRITE					
HARDWARE																									
PERMANENT ERROR				5A3		E		1		0		0		0		0		3249		1339					
				5A7		E		0		0		0		0		0		3985		1160					
HARDWARE																									
FAILED TEMPORARY		READ OR		WRITE		LIMITS								428		1		428		1					
		5BC		E		0		0		0		0													
VOLUME OR CREATING DRIVE																									
PERMANENT READ OR WRITE ERRORS						ON MORE		THAN ONE		DRIVE															
		L30570		1		5A5		F		1		0		3		1		0		0					
		L27530				5A2		E		0		0		5		1		0		0					
VOLUME OR CREATING DRIVE																									
FAILED TEMPORARY		READ OR		WRITE		LIMITS		ON MORE		THAN ONE		DRIVE													
		L70630		5A4		F		0		0		0		0		12		0		0					
		L72930		5B2		F		0		0		0		0		0		39		1					
VOLUME																									
FAILED TEMPORARY		READ OR		WRITE		LIMITS								0		1		0		0					
		B42750		5BC		E		0		0		0		0		0		0		0					
		B07146		5A2		E		0		0		0		0		0		73		1					
15		TOTAL NUMBER OF DRIVES FAILING LIMITS										004 (20%)		16		TOTAL NUMBER OF VOLUMES USED = 823									
		PASSING LIMITS										016 (80%)				TOTAL NUMBER OF VOLUMES LISTED = 6									
14																									
CPU		MODEL		SERIAL NUMBER																					
E		3081		210819																					
F		3081		010819																					

Figure 31. 3490 Subsystem Exception Report Example

1

REPORT DATE is the Julian date the report ran.

PERIOD FROM is the Julian date of the earliest record.

PERIOD TO is the Julian date of the latest record.

2

CURRENT LIMITS and megabytes/error for both the hardware and the volume are the limit values from the limit control statement. For details on using the LIMIT statement, see [“LIMIT Control Statement”](#) on page 56 and [Chapter 19, “Magnetic Tape Devices,”](#) on page 327.

3

There are five exception categories:

- **Hardware Permanent Error**

All CUAs with a tape permanent error are listed, or there are read/write errors on more than one drive not identified by a common volume identifier. Details of the permanent errors are found on the Tape Permanent Error Summary report. When the CUA has an X as the last digit, sense bytes 16-17 have indicated a control unit failure.

- **Hardware Failed Temporary Read or Write Limits**

All CUAs that have an error rate equal to or exceeding the specified limits are shown (but are not identified by a common volume identifier). Use the Temporary Error Summary report and the Volume Statistics Summary report for more details.

- **Volume or Creating Drive Permanent Read or Write Errors on More Than One Drive**

The indicated volume has permanent errors on more than one drive. The volume may have been written (created) on one drive but has read errors detected on another drive. Use the Permanent Error Summary report and the Volume Statistics Summary report for more details.

- **Volume or Creating Drive Failed Temporary Read or Write Limits on More Than One Drive**

The indicated volume has an error rate equal to or exceeding the specified limit on more than one drive. The volume may have been written (created) on one drive but has read errors detected on another drive. Use the Temporary Error Summary report and the Volume Statistics Summary report for more details.

- **Volume Failed Temporary Read or Write Limits**

The indicated volumes has an error rate equal to or exceeding the specified volume limits as shown. Use the Temporary Error Summary report and the Volume Statistics report for more details.

4

The volume serial number.

5

The device number in XA mode or the primary control unit address (PCUA).

6

Identifies the host processor reporting the exception, and is shown as a value of A through H. The actual CPU model and serial number are shown at the bottom of the report **14**.

7

The number of equipment checks that have occurred.

8

MB/ERR PERM is the reliability and error counts for permanent errors as shown in the following table:

TYPE	DESCRIPTION
READ	Is the average number of megabytes read per permanent read error.
CT	Is the number of permanent read errors that have occurred.
WRITE	Is the average number of megabytes written per permanent write error.
CT	Is the number of permanent write errors that have occurred.

9

MB/ERR TEMP is the reliability and error counts for temporary errors as shown in the following table:

TYPE	DESCRIPTION
WRITE	Is the average number of megabytes written per temporary write error.
CT	Is the number of temporary write errors that have occurred.
READ	Is the average number megabytes read per temporary read error.
CT	Is the number of temporary read errors that have occurred.

10

The number of bus out checks that have occurred.

11

The number of overruns that have occurred.

12

Total-MBYTES

READ is the total number of megabytes read.

WRITE is the total number of megabytes written.

13

The header serial number on the tape volume. The header number is derived from the last 4 digits of the control unit serial number that wrote the volume, with the drive address added to the last position.

For example:

Header serial is 3892F.

The last 4 digits of the control unit serial number are 3892.

Drive address is F.

14

Identifies the CPU **6** listed in the error summary lines of the report.

15

Lists the total number of drives:

Pass or Fail	Description
FAILING LIMITS	The number and the percentage of drives that exceeded the limit controls for temporary errors and lists all drives that had permanent errors. These drives are included in this report.
PASSING LIMITS	The number and the percentage of drives that were within the limit controls for temporary errors and had no permanent errors. These drives are not included in this report.

16

Lists the total number of volumes:

Used or Listed	Description
USED	Is the number of volumes used during the report period that did not exceed the limit controls for temporary errors and had no permanent errors.
LISTED	Is the number of volumes used during the report period that exceeded the limit control values for temporary errors and all volumes that had permanent errors.

Tape Forced Error Log/Permanent Error Summary Reports

The tape forced log report and the permanent error summary report summarize the temporary error OBR records. Look for clusters of errors that occur within a string of drives or at specific times. This could indicate a control unit problem.

The Forced Error Log report is generated only when the forced error logging bit has been set.

Both types of reports have the same format. The only difference is the heading, one titled Permanent Error Summary and the other Forced Error Log. Sense byte 7 will be 19 to indicate format 19 sense (temporary errors) on the Forced Error Log report or 20 to indicate format 20 sense (permanent errors) on the Permanent Error Summary report.

Only the 3422, 3430, 3480, and 3490 devices produce this report.

The errors are listed by channel unit address (CUA) for hardware errors and by volume identifier (VOLID) for suspected volume errors. The errors are listed by the CUA unless they occur on the same VOLID on at least two different drive addresses, then they are listed by VOLID.

[Figure 32 on page 185](#) shows an example of the tape forced error log/permanent error summary reports.


```

3490 FORCED LOG REPORT                                1 REPORT DATE 063 97
                                                    PERIOD FROM 049 97
                                                    TO 052 97

**** HARDWARE ****                                8 18 10 11 13 14 15
16
2 2 4 6 17 1 1 1 1 1 2
2 2 2 2 3
2 3 C 5 7 R 9 SENSE BYTES--> 0 2 4 6 8 0 2 4 6 8 0
2 4 6 8 0
CHP DEVNO P TIME W CCW SCSW64-95 -----CU----- ---DR---
CU
-ID /CUA U DTE HHMMSS VOLID E CMD FLG /CSW32-63 ERR1 ERR2 ERR3 HW ERR4 ERR5
SER#

22 5A3 E 051 192213 B35790 E 01 64 060079E0 1044 394A 0000 2C20 0000 7151 7607 CCBB D708 0002 0000 0000 F680 0CE1
0813 3319
06 5A4 F 051 214532 0 00 00 26000000 4048 3934 0000 0020 730C 8E06 0000 0000 0000 0002 192C 0000 F680 0CE1
0813 4419
22 5A7 E 051 221637 TAPENO 0 02 44 06000050 0049 402E 0000 0020 0000 7161 7161 7161 0000 0002 0000 0000 F680 0CE1
0813 7700

**** VOLUME OR CREATING DRIVE ****

5A5 F 051 190322 L30570 W 01 64 0E007FF8 0A44 7025 0007 3F20 0000 7404 7401 7407 D007 0002 0000 0000 F680 0CE1
0819 5519
5A2 E 051 203122 L27530 W 01 64 06002090 0A44 3025 000C C620 0000 7401 7407 7401 D002 0002 0000 0000 F680 09E1
0813 2219
5B2 F 051 183221 L30570 W 01 64 0E007FF8 0A44 7025 0007 3F20 0000 7405 7405 7407 D012 0002 0000 0000 F680 0CE1
0819 2219

**** OPERATOR OR OPERATIONAL ****

06 5A3 E 051 205124 M11047 0 01 64 0E002B63 4244 783B 0001 BF20 0000 8202 0000 0000 0000 0002 0000 0000 F680 0CE1
0819 3319

CPU MODEL SERIAL NUMBER
E 3081 210819
F 3081 010819

3490E FORCED LOG REPORT

2 2 3 1 1 1 1 1 2 2 2
C R SENSE BYTES---> 0 2 4 6 8 0 2 4 6 8 0 2 4
6 8 0
CHP DEVNO P W CCW SCSW64-95 -----CU----- ---
DR--- CU
-ID /CUA U DTE TIME VOLID E CMD FLG /CSW32-63 FC-1 FC-2 FC-L HWFC FC-1
FC-2 SER#

06 05B3 F 051 192536 B04012 0 01 64 00000000 0244 6048 000F 5619 0000 7401 7401 0000 D002 0002 0000 0000 F680
0CE1 1249 330E

06 05BB F 051 155433 TAPENO 0 03 20 00000000 4240 6048 0000 0019 6C00 8E06 0000 0000 0000 0302 0075 0075 F680
0CE1 1249 BB00

19
CPU MODEL SERIAL NUMBER
E 3081 210819
F 3081 010819

```

Figure 32. 3490 Forced Log Report Example

1

REPORT DATE is the Julian date the report ran.
 PERIOD FROM is the Julian date of the earliest record.
 PERIOD TO is the Julian date of the latest record.

2

CHPID is the channel path ID (used in XA mode).

3

DEVNO/CUA is the device number in XA mode or the primary control unit address (PCUA).

4

CPU identifies the host processor reporting the exception and is shown as a value of A through H. The actual CPU model and serial number are shown at the bottom of the report.

- 5** **DTE** is the Julian date from the OBR record.
- 6** **TIME** is the time from the OBR record.
- 7** **VOLID** is the volume serial number.
- 8** **R/W/E/O** defines the type of check as Read, Write, Equipment or Other check.
- 9** **CMD** is the command code from the channel command word (CCW) in the OBR record.
- 10** **SENSE BYTES** is the sense data from the OBR record.
- 11** **CU-ERR1** is the microcode-detected error code for the first error (control unit or drive), from the OBR record (sense bytes 10 and 11). This error code should not be used as an entry to the maintenance package unless efforts using CU-HW **14** or DR-ERR1 **15** or both have not corrected the subsystem problem.
- 12** **CU-ERR2** is the microcode-detected error code for the second error (control unit or drive), from the OBR record (sense bytes 12 and 13). This error code can be a result of the first error indicated in CU-HW **14**, DR-ERR1 **15**, or CU-ERR1 **11**.
- 13** **CU-ERR1** is the microcode-detected error code for the last error (control unit or drive), from the OBR record (sense bytes 14 and 15). This error code can be a result of the first error indicated in CU-HW **14**, DR-ERR1 **15**, CU-ERR1 **11**, DR-ERR2 **16**, or CU-ERR2 **12**.
- 14** **CU-HW** is the control unit hardware-detected error code from the OBR record (sense bytes 16 and 17). This error code defines a control unit failure and should be used to enter the maintenance package if you have multiple drive failures.
- 15** **DR-ERR1** is the drive hardware-detected error code, from the OBR record (sense bytes 20 and 21). This error code defines the first failure for any drive and should be used to enter the maintenance package if you have single drive failures.
- 16** **DR-ERR2** is the drive hardware-detected error code, from the OBR record (sense bytes 22 and 23). This error code defines the second or last failure for any drive and should not be used to enter the maintenance package if you have single drive failures. This error information provides supplemental information and may be a result of the first failure (DR-ERR1) in the drive.
- 17** **CCW FLG** is CCW bits 32 to 39 from the OBR.
- 18** **SCSW/CSW** is:
 SCSW64—95 (in XA Mode)
 CSW32—63
 These are the SCSW or CSW bits from the OBR record.
- 19** **CPU, MODEL, SERIAL NUMBER** provides further information on the CPU listed **4** in the error summary lines of the report.

Tape Temporary Error Summary

This report presents *all* the temporary read/write errors recorded for tape hardware during the report period for all MDR records. Errors are listed by CUA or device number and density regardless of whether or not they exceeded the LIMIT values and appeared in the subsystem exception report.

The LIMIT control values specified when invoking EREP are ignored for this report.

The column headings may differ depending upon the specific device.

Only the 3480 and 3490 devices can produce a two-part temporary error summary report: one displaying device activity and the other displaying channel activity. The rest of the 34XX devices combine them in one report.

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
3490 Temporary Error Summary Channel Example	Figure 33 on page 187
3490 Temporary Error Summary Device Example	Figure 34 on page 189
3420/3410 Temporary Error Summary	Figure 35 on page 192
9347 Temporary Error Summary	Figure 36 on page 193

3490 TEMPORARY ERROR SUMMARY CHANNEL										1		REPORT DATE 067 97 PERIOD FROM 049 97 TO 052 97					
2		3	4	5	6	7	8	9									
10																11	
DEVNO /CUA	DRIVE ID	CPU	MOUNTS	--WRITE----		--READ-----		TOTAL	MBYTES	TOTAL BLOCKS		--READ-----		--WRITE----			
				MB/ERR	ERRCT	MB/ERR	ERRCT	READ	WRITE	READ	WRITE	MB/COR	ECC	MB/COR	ECC		
5A0	08160	0F	101	--	0	--	0	2495	2328	530176	300288	68	71	62	100		
5A1	08151	0F	94	--	0	--	0	4070	1691	458240	237824	74	146	49	101		
5A2	08152	0F	118	866	1	7030	1	7030	866	653056	94720	35	391	33	56		
5A3	08153	0F	151	2108	1	--	0	5563	2108	793088	330752	34	318	20	207		
5A4	08154	0F	94	179	12	--	0	6114	2148	802408	243968	49	243	41	102		
5A5	08155	0F	109	1516	1	--	0	6492	1516	797440	200448	60	215	59	51		
5A6	08156	0F	106	--	0	--	0	1676	1590	190464	283392	45	79	20	166		
5A7	08157	0F	127	--	0	--	0	5697	1970	705792	227072	85	248	56	121		
5B0	12450	0F	23	--	0	--	0	42	142	5376	13568	27	1	10	13		
5B1	12451	0F	35	--	0	--	0	2584	195	173070	25600	27	182	4	42		
5B2	12452	F0	29	--	0	528	1	528	55	95744	4096	132	15	44	1		
5B3	12453	F0	25	383	1	--	0	22	383	4864	46848	--	0	82	22		
5B4	12454	F0	18	--	0	--	0	541	481	48384	26112	19	87	80	17		
5B5	12455	F0	17	--	0	--	0	19	8	2048	1024	14	3	8	1		
5B8	12458	F0	21	--	0	--	0	5	553	3840	18432	--	0	66	21		
5B9	12459	F0	25	--	0	--	0	856	185	77568	6144	35	53	185	1		
5BA	1245A	F0	19	--	0	--	0	6	4	768	0	--	0	0	0		
5BB	1245B	F0	15	--	0	--	0	12	256	1024	23040	--	0	42	15		
5BC	1245C	F0	12	--	0	609	1	609	13	53760	3328	64	26	3	4		
5BD	1245D	F0	16	--	0	--	0	728	83	65792	6912	52	43	41	4		
TOTAL			1155		16		3	45076	17076	5534K	1899K		1843		950		
17																	
AVERAGE MEGABYTES/TEMPORARY READ ERROR								= 15025									
AVERAGE MEGABYTES/TEMPORARY WRITE ERROR								= 1067									
AVERAGE MEGABYTES/RECOVERED ERROR								= 15538									
AVERAGE MEGABYTES/PERMANENT READ ERROR								= *									
AVERAGE MEGABYTES/PERMANENT WRITE ERROR								= 8538									
AVERAGE MEGABYTES/PERMANENT ERROR #								= 12430									
AVERAGE MEGABYTES/PERMANENT HARDWARE ERROR								= 20717									
AVERAGE MEGABYTES/PERMANENT VOLUME ERROR								= 31076									
AVERAGE MEGABYTES/PERMANENT OTHER ERROR								= *									
TOTAL MEGABYTES PROCESSED								= 62152									
18																	
CPU MODEL		SERIAL NUMBER															
0E 3081		210819															
F0 3081		010819															

Figure 33. 3490 Temporary Error Summary Channel Example

1 REPORT DATE is the Julian date the report ran.

PERIOD FROM is the Julian date of the earliest record.

PERIOD TO is the Julian date of the latest record.

2

DEVNO/CUA is the device number in XA mode or the primary control unit address (PCUA).

3

DRIVE ID is the last 4 digits of the control unit serial number that wrote the volume, with the drive address added as the last digit.

4

CPU identifies the host processor reporting the exception. The actual CPU model and serial number are shown at the bottom of the report.

5

MOUNTS is the total number of all mounts on this device.

6

WRITE

MB/ERR is the average number of megabytes written per temporary write error from the channel.

ERRCT is the total count of all temporary write errors from the channel.

7

READ

MB/ERR is the average number of megabytes read per temporary read error from the channel.

ERRCT is the total count of all temporary read errors from the channel.

8

TOTAL MBYTES READ WRITE

READ is the total number of megabytes read on the channel.

WRITE is the total number of megabytes written on the channel.

9

TOTAL BLOCKS PROCESSED READ WRITE

READ is the total number of blocks read from the channel.

WRITE is the total number of blocks written from the channel.

10

READ MB/COR ECC

MB/COR is the average number of megabytes read on the device, per read ECC error.

ECC is the number of read ECC corrected blocks read from the device.

11

WRITE MB/COR ECC

MB/COR is the average number of megabytes written on the device, per correctable error.

ECC is the number of blocks that have been written with read ECC correctable errors, as determined by read-back ECC checking.

17

TOTAL and AVERAGE

- **AVERAGE** is the total number of megabytes divided by the total number of errors of a particular type, for all 3490 drives used by the operating system.

For example:

Average Megabytes/Temporary Read Errors is the total number of the megabytes read divided by the total number of the temporary read errors.

The PERMANENT ERROR values are meant to provide a source of performance information for all 3490 drives in the operating system. The TOTAL MEGABYTES read, written and processed are for all 3490 drives used by the operating system.

PERIOD TO is the Julian date of the latest record.

2

DEVNO/CUA is the device number in XA mode or the primary control unit address (PCUA).

3

DRIVE ID is the last 4 digits of the control unit serial number that wrote the volume, with the drive address added as the last digit.

4

CPU identifies the host processor reporting the exception. The actual CPU model and serial number are shown at the bottom of the report.

5

MOUNTS is the total number of all mounts on this device.

6

WRITE

MB/ERR is the average number of megabytes written per temporary write error on the device.

ERRCT is the total count of all temporary write errors on the device.

7

READ

MB/ERR is the average number of megabytes read per temporary read error on the device.

ERRCT is the total count of all temporary read errors on the device.

8

TOTAL MBYTES READ WRITE

READ is the total number of megabytes read from the device.

WRITE is the total number of megabytes written on the device.

9

TOTAL BLOCKS PROCESSED READ WRITE

READ is the total number of blocks read on the device.

WRITE is the total number of blocks written on the device.

10

READ MB/COR ECC

MB/COR is the average number of megabytes read on the device, per read ECC error.

ECC is the number of read ECC corrected blocks read from the device.

11

WRITE MB/COR ECC

MB/COR is the average number of megabytes written on the device, per correctable error.

ECC is the number of blocks that have been written with read ECC correctable errors, as determined by read-back ECC checking.

12

READ RECVY ACTS is the total number of correctable read errors detected during 3490 read error recovery.

13

WRITE ERASE GAPS is the total number of blocks rewritten during error recovery.

14

DRV DET ERR is the number of unit checks set by the drive.

15

CU EQU CHK is the number of errors found in the use of external regs in the CU for a given device.

16

TRA ERR Flag indicating that transient errors have been detected by hardware checkers.

17**TOTAL and AVERAGE**

- AVERAGE is the total number of megabytes divided by the total number of errors of a particular type, for all 3490 drives that were used by the operating system.

For example:

Average Megabytes/Temporary Read Errors is the total number of the megabytes read divided by the total number of the temporary read errors.

The PERMANENT ERROR values are meant to provide a source of performance information for all 3490 drives in the operating system.

The TOTAL MEGABYTES read, written and processed are for all 3490 drives used by the operating system.

An asterisk (*) in the calculation field (to the right of the equal sign) indicates that no errors were logged.

18

CPU, MODEL, SERIAL NUMBER further identifies the CPU listed in the error summary lines of the report.

9246/9247 Optical Subsystem Exception Report

3420/3410 TEMPORARY ERROR SUMMARY										REPORT DATE 065 97 PERIOD FROM 041 97 TO 059 97									
DEVNO	TAPE OVER /CUA RUN	UNIT IBG SER DET	C P U	DEN- SITY	TOTAL I/O	TOTAL CNT MOUNT	WRITE STATISTICS		READ STATISTICS		ENV	MTE	SRC	EDC	VEL	SKREW	R/W	WTM	PAR/ TACH
							MB/ERR(CT)	ERSGAP	MB/ERR(CT)	CLNACT	VRC	LRC	/PC	CRC	CHG	ERR	VRC	CHK	
0180	59437	07	6250		10	0	-- (0)	0	-- (0)	0	0	0	0	0	0	0	0	0	0
0180	59437	07	1600		7526	1	0 (4)	4	-- (0)	0	2	0	0	0	2	0	0	0	0
0181	N/A	07	6250		6	0	-- (0)	0	-- (0)	0	0	0	0	0	0	0	0	0	0
0570	N/A	03	6250		3961	2	-- (0)	0	-- (0)	0	0	0	0	0	0	0	0	0	0
0570	N/A	08	0THR		7	1	-- (0)	0	-- (0)	0	0	0	0	0	0	0	0	0	0
0572	N/A	09	6250		539	1	-- (0)	0	-- (0)	0	0	0	0	0	0	0	0	0	0
0573	N/A	03	6250		2314	1	-- (0)	0	-- (0)	0	0	0	0	0	0	0	0	0	0
0573	N/A	06	1600		1073	1	-- (0)	0	-- (0)	0	0	0	0	0	0	0	0	0	0
0575	N/A	03	1600		3	1	-- (0)	0	-- (0)	0	0	0	0	0	0	0	0	0	0
6250BPI TOTALS:					6830	4	(0)	0	(0)	0									
1600BPI TOTALS:					8602	3	(4)	4	(0)	0									
0THRBPI TOTALS:					7	1	(0)	0	(0)	0									
TOTALS:					15439	8	(4)	4	(0)	0									
AVERAGE MEGABYTES/TEMPORARY READ ERROR							=	-----											
AVERAGE MEGABYTES/TEMPORARY WRITE ERROR							=	0											
AVERAGE MEGABYTES/PERMANENT READ ERROR							=	-----											
AVERAGE MEGABYTES/PERMANENT WRITE ERROR							=	-----											
AVERAGE MEGABYTES/PERMANENT ERROR							=	-----											
TOTAL MEGABYTES PROCESSED							=	0											
TOTAL MEGABYTES READ							=	0											
TOTAL MEGABYTES WRITTEN							=	0											
CPU	MODEL	SERIAL NUMBER																	
00	9375	234567																	
01	3090XA	170028																	
02	3084XA	321128																	
03	3084XA	121128																	
04	3081XA	221170																	
05	4341	015085																	
06	3081XA	220447																	
07	4331	013078																	
08	3081XA	221573																	
09	3033	021928																	

Figure 35. 3420/3410 Temporary Error Summary

9347 TEMPORARY ERROR SUMMARY										REPORT DATE 065 97 PERIOD FROM 041 97 TO 059 97												
C DEVNO P		TIME	VOLUME	I/O--COUNTS		PERM ERROR		TEMP ERROR		RETRIES		REPSN	----- COUNT									
/CUA	U	DTE	HHMMSS	SERIAL	READ	WRITE	READ	WRITE	READ	WRITE	READ	WRITE	COUNT	OVR	MLT	RUP	IBG	WPC	SKW	TR4	TR5	
TRP	ECC																					
0C70	00	047	181315		0	1249	0	0	0	0	0	0	105	0	0	0	0	0	0	0	0	
0	0																					
0C70	00	049	060759		227	0	6	15	1	0	58	92	192	0	7	3	1	0	0	7	7	
4	224																					
0C70	00	049	061239		229	0	0	0	1	0	1	0	226	0	0	1	0	0	0	0	1	
0	224																					
CPU	MODEL	SERIAL NUMBER																				
00	9375	234567																				
01	3090XA	170028																				
02	3084XA	321128																				
03	3084XA	121128																				
04	3081XA	221170																				
05	4341	015085																				
06	3081XA	220447																				
07	4331	013078																				
08	3081XA	221573																				
09	3033	021928																				

Figure 36. 9347 Temporary Error Summary

Tape Volume Statistics Summary

This report provides an easy-to-use list of volumes with exceptions. It is useful in finding the media that is causing problems.

It is generated whenever a volume is listed on the tape subsystem exception report; therefore, only volumes that have permanent errors or have failed the temporary error limits are listed.

All the activity for every volume listed as an exception on the tape subsystem exception report as well as errors against the unit addresses (shown in the DEVNO/CUA statistics summary reports) is shown in chronological order. Entries are grouped by volume serial and listed in order of occurrence.

The report shows:

- Channel path ID
- Device or control unit address
- Number of permanent and temporary errors
- Serial number of the tape drive that created the volume

Note: This can be used to find a device that generates volumes which cause problems when used on other devices.

Erase gaps indicate the following sequence has occurred:

1. A write error has occurred.
2. The tape has been repositioned for the retry.
3. The second attempt also detected an error.
4. The tape has been repositioned again.
5. A section of tape is erased and the write operation is retried again.

Note: Excessive write erase gaps indicate a problem with a cartridge or a drive.

Figure 37 on page 194 shows an example of the tape volume statistics summary.

9246/9247 Optical Subsystem Exception Report

3490 VOLUME STATISTICS SUMMARY										1 REPORT DATE 067 97 PERIOD FROM 051 97 TO 051 97																																				
VOLUMES FAILING LIMITS OR PERMANENT ERRORS																																														
2 CURRENT LIMITS					TEMP WRT(CT)					TEMP RD(CT)																																				
MBYTES/ERR					VOLUME					40 (3) 200 (1)																																				
										12					14		15		16																											
										8																																				
17			4		5		6		7		R		9		10					11																										
3			READ		13																																									
VOLUME			DATE		TIME		CHP		DEVNO		W		BLOCK		---MB/ERR PERM---					---MB/ERR TEMP---					RECVY		ERASE		-BLKS PROC-		BLK															
--JOB---			P																																											
SERIAL			DAY		YR		HH:MM:SS		-ID		/CUA		E		ID		READ(CT)					WRITE(CT)					WRITE(CT)					READ(CT)					ACTNS		GAPS		READ		WRITE		LEN	
--NAME--			U																																											
B07146			051 97		18:48:31		00		5A2						-- (0) -- (0) -- (0) -- (0)										3		0		6144		6144															
0000					E																																									
B42750			051 97		15:34:33		00		5BC						-- (0) -- (0) -- (0) 0 (1)										0		0		0		0															
0000					E																																									
M11407			051 97		20:51:24		06		5A3		0		001BF		-- (0) -- (0) -- (0) -- (0)										0		0		0		0		2EE4													
C4KCC33E			E																																											
M11407			051 97		20:57:53		00		5A3				001BF		-- (0) -- (0) -- (0) -- (0)										0		0		0		256															
0000					E																																									
M11407			051 97		21:07:11		00		5A1				001C5		-- (0) -- (0) -- (0) -- (0)										0		0		0		0		0000													
TAPENO			051 97		22:16:18		22		5A7						-- (0) -- (0) -- (0) -- (0)										0		0		0		0		0000		EOX											
EXIT E																																														
TAPENO			051 97		22:16:37		22		5A7		0				-- (0) -- (0) -- (0) -- (0)										0		0		0		0		0050													
OPERX			E																																											
TAPENO			051 97		22:18:40		22		5A7						-- (0) -- (0) -- (0) -- (0)										0		0		0		0		0000		EOS											
EXIT E																																														
L30570			051 97		19:03:22		22		5A5		W				-- (0) -- (0) 3 (1) -- (0)										0		0		0		5934		0234		EOS											
EXIT E																																														
L27530			051 97		20:31:22		06		5A2		W				-- (0) -- (0) 5 (1) -- (0)										0		0		0		10120		0256		EOS											
EXIT E																																														
L70630			051 97		16:24:33		06		5A4						-- (0) -- (0) -- (12) -- (0)										0		0		0		9050		1250		EOS											
EXIT E																																														
L72930			051 97		11:22:19		22		5B2						-- (0) -- (0) -- (0) 39 (1)										0		0		20302		0		2350		EOS											
EXIT E																																														
B35790			051 97		19:22:13		22		5A3		E				-- (0) -- (0) -- (0) -- (0)										0		0		0		0															
0000					E																																									
COLUMN TOTALS:										(0)					(0)					(14)					(2)					(3)					(0)											
TOTALS:										MOUNTS = 9																																				
TOTALS:										MEGABYTES PROCESSED = 201																																				
18																																														
CPU MODEL			SERIAL NUMBER																																											
A 3081			210819																																											
B 3081			010819																																											

Figure 37. 3490 Volume Statistics Summary

- 1** **REPORT DATE** is the Julian date the report ran.
PERIOD FROM is the Julian date of the earliest record.
PERIOD TO is the Julian date of the latest record.
- 2** **CURRENT LIMITS (MB/ERR)** is the megabyte per temporary error limit threshold from the limit control cards. For details on using the LIMIT statement, see [“LIMIT Control Statement” on page 331](#).
- 3** **VOLUME SERIAL** is the volume serial number.
- 4** **DATE DAY YR** is the Julian date and year from the OBR or MDR record.
- 5** **TIME** is the time from the OBR or MDR record.
- 6** **CHP-ID** is the channel path ID (used in XA mode) and only appears if all errors have occurred on 1 CHP-ID.

7**DEVNO/CUA** is the device number in XA mode or the primary control unit address (PCUA).**8****R/W/E** defines the type of permanent error as a read, write, or equipment check.**9****BLOCK ID** is the logical block position for permanent errors.**10****MB/ERR PERM**

READ is the average number of megabytes read per permanent read error.

CT is the total count of all permanent read errors.

WRITE is the average number of megabytes written per permanent write error.

CT is the total count of all permanent write errors.

11**MB/ERR TEMP**

READ is the average number of megabytes read per temporary read error.

CT is the total count of all temporary read errors.

WRITE is the average number of megabytes written per temporary write error.

CT is the total count of all temporary write errors.

12**READ RECVY ACTNS** is the total count of recoverable read errors detected during 3490 read error recovery.**13****ERASE GAPS** is the number of times a block is rewritten during error recovery for the listed volumes.**14****BLKS PROCESSED**

READ is the total number of blocks read for a volume that has had at least one temporary, but no permanent, errors.

WRITE is the total number of blocks written for a volume that has had at least one temporary error, but no permanent errors.

15**BLK LEN** is the block length as taken from the OBR record for any listed volume that had permanent errors.**16****JOB NAME** is the job name from the OBR record for any listed volume that had permanent errors.**17****CPU** identifies the host processor reporting the exception.**18****CPU, MODEL, SERIAL, NUMBER** further identifies the CPU listed in the error summary lines of this report.

Tape Permanent/Recovered Error Summary

The tape permanent error summary report helps you analyze the causes of permanent errors. These errors require immediate attention because they indicate that something in the system needs to be fixed.

This report describes in more detail the permanent errors that appear on the tape subsystem exception report.

The following table shows how sense bytes 7 and 3 indicate the error type:

ERROR TYPE	SENSE BYTE VALUES
Permanent	Sense byte 7 will be 20 to indicate format 20 sense.
	Sense byte 3 will be a value other than 48.
Recovered	Sense byte 7 will be 20.
	Sense byte 3 will always indicate 48. See note.
Service alert	Sense byte 7 will be 20.
	Sense byte 3 will always indicate 48. See note.
Note: This indicates that an error occurred and it took host interaction to recover from the error (CU error recovery was not adequate).	

The errors are grouped under separate headings indicating classification of probable failures and are listed by CUA or VOLID (volume serial number) in the order they occurred.

Two groups of permanent errors are shown:

- Hardware
- Volume or creating drive

The following details are provided in the report:

- Channel path ID
- Device number
- CPU connection, which tells where the error was detected
- Date and time the error was logged
- Volume ID (VOLID), which indicates which volume experienced the failure
- Read, write, or equipment (RWE) column, which shows what type of error was experienced
- Channel command word (CCW) that failed, which supplies data such as command code, flag byte, and byte count
- Bits and bytes of pertinent information from command status word (CSW)
- Sense information from outboard records (OBR)
- Header serial (HDRSER) number (serial number of the creating drive)

The information is organized so that permanent errors are shown in the order in which they occur.

The long OBR format is used with tape drives.

The column headings may differ depending upon the specific device.

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
3490 Permanent/Recovered Error Summary Example	Figure 38 on page 197
3420/3410 Permanent Error Summary	Figure 39 on page 199
3424 Permanent/Recovered Error Summary	Figure 40 on page 199

3490 PERMANENT / RECOVERED ERROR SUMMARY										1 REPORT DATE 063 97 PERIOD FROM 049 97 TO 052 97																					
												11		12		13		14				15		16							
2	2	4	3			8	17	18	10			1	1	1	1	2	2														
2	2	3	C	6																											
6	8																														
CHP	DEVNO	P	5	TIME	7	W	9	CCW	SCSW64-95																						
-ID	/CUA	U	DTE	HMMSS		VOLID	E	CMD	FLG	/CSW32-63																					
												ERR1		ERR2		ERRL		HW				ERR1		ERR2						SER#	
**** DRIVE ****												***** PERMANENT ERRORS *****																			
22	05A3	07	051	192213	B35790	E	01	64	060079E0	1044	394A	0000	2C20	0000	7151	7607	CCBB	D708	0002	0000	0000	F680	0CE1	0813	3319						
06	05A4	17	051	214532		O	00	00	26000000	4048	3934	0000	0020	730C	8E06	0000	0000	0000	0002	192C	0000	F680	0CE1	0813	4419						
22	05A7	07	051	221637	TAPENO	O	02	44	06000050	0049	402E	0000	0020	0000	7161	7161	7161	0000	0002	0000	0000	F680	0CE1	0813	7700						
**** VOLUME OR CREATING DRIVE ****																															
	05A5	17	051	190322	L30570	W	01	64	0E007FF8	0A44	7025	0007	3F20	0000	7404	7401	7407	D007	0002	0000	0000	F680	0CE1	0819	5519						
	05A2	07	051	203122	L27530	W	01	64	06002090	0A44	3025	000C	C620	0000	7401	7407	7401	D002	0002	0000	0000	F680	0CE1	0813	2219						
**** OPERATOR OR OPERATIONAL ****																															
06	05A3	07	051	205124	M11047	O	01	64	0E002B63	4244	783B	0001	BF20	0000	8202	0000	0000	0000	0002	0000	0000	F680	0CE1	1249	330E						
												***** RECOVERED ERRORS *****																			
**** CONTROL UNIT ****																															
22	05A7	07	051	040633		O	01	64	0E007FF8	0A44	7048	0000	0020	0000	A130	3300	0000	D5C1	0002	0000	0000	F680	0CE1	0813	7719						
22	05A7	07	051	221838		O	02	43	00000000	0044	4048	0002	1720	0040	3300	0000	0000	0000	0002	0000	0000	F680	0CE1	0819	7700						
**** DRIVE ****																															
06	05A7	17	051	221618		O	02	24	00000000	0048	3948	0000	0020	0000	7161	7161	7161	0000	0002	0000	0000	F680	0CE1	0813	7700						
22	05A7	17	051	221840		O	02	24	00000000	0048	3948	0000	0020	0000	7161	7161	7161	0000	0002	0000	0000	F680	0CE1	0819	7719						
CPU	MODEL	SERIAL NUMBER																													
07	3081	210819																													
17	3081	010819		19																											
												Note: CU SER# = last four digits																			

3490 PERMANENT / RECOVERED ERROR SUMMARY										REPORT DATE 117 97 PERIOD FROM 062 97 TO 062 97																					
														10																	
		C				R		SENSE	BYTES-->	0	2	4	6	8		1	1	1	1	2	2	2	2	2	2	3					
CHP	DEVNO	P				W		CCW	SCSW64-95							0	2	4	6	8											
-ID	/CUA	U	DTE	TIME		VOLID	E	CMD	FLG	/CSW32-63						HDW-	STR-	V/C-													
																20		21		22											
**** CNTRL UNIT ****												***** SERVICE ALERTS *****																			
	0188	FF	062	081932		O	00	00	0E004000	0244	2048	002F	8820	0000	B010	8000	B180	D007	0002	0000	0000	F680	08E1	0140	6F00						
**** STRING 0 - 7 ****																															
	0185	FF	062	081932		O	00	00	0E004000	0244	2048	002F	8820	0000	B011	0400	B181	D007	0002	0000	0000	F680	08E1	0140	6F00						
**** STRING 8 - F ****																															
	0189	FF	062	081932		O	00	00	0E004000	0244	2048	002F	8820	0000	B012	2000	B140	D007	0002	0000	0000	F680	08E1	0140	6F00						
**** DEVICES ****																															
	0186	FE	062	081932		O	00	00	0E004000	0244	2048	002F	8820	0000	B013	0200	B108	D007	0002	0000	0000	F680	08E1	0140	6F00						
	0189	FE	062	081933		O	00	00	0E004000	0244	2048	002F	8820	0000	B013	1000	B120	D007	0002	0000	0000	F680	08E1	0140	6F00						
CPU	MODEL	SERIAL NUMBER																													
A	3031	010847		19																											
												Note: CU SER# = last four digits																			

Figure 38. 3490 Permanent/Recovered Error Summary Example

1

REPORT DATE, PERIOD FROM, PERIOD TO

REPORT DATE is the Julian date the report ran.

PERIOD FROM is the Julian date of the earliest record.

PERIOD TO is the Julian date of the latest record.

2

CHPID is the channel path ID (used in XA mode).

3

DEVNO/CUA is the device number in XA mode or the primary control unit address (PCUA).

4

CPU identifies the host processor reporting the exception. The actual CPU model and serial number are shown at the bottom of the report.

5**DTE** is the Julian date from the OBR record.**6****TIME** is the time from the OBR record.**7****VOLID** is the volume serial number.**8****R/W/E/O** defines the type of check as read, write, equipment, or other check.**9****CMD** is the command code from the channel command word (CCW) in the OBR record.**10****SENSE BYTES** is the sense data from the OBR record.

For sense byte definitions see the SENSE section of the maintenance information (MI) manual.

11**CU-ERR1** is the microcode-detected error code for the first error (control unit or drive), from the OBR record (sense bytes 10 and 11). This error code should not be used as an entry to the maintenance package unless efforts using CU-HW **14** and/or DR-ERR1 **15** have not corrected the subsystem problem.**12****CU-ERR2** is the microcode-detected error code for the second error (control unit or drive), from the OBR record (sense bytes 12 and 13). This error code can be a result of the first error indicated in CU-HW **14**, DR-ERR1 **15**, or CU-ERR1 **11**.**13****CU-ERR1** is the microcode-detected error code for the last error (control unit or drive), from the OBR record (sense bytes 14 and 15). This error code can be a result of the first error indicated in CU-HW **14**, DR-ERR1 **15**, CU-ERR1 **11**, DR-ERR2 **16**, or CU-ERR2 **12**.**14****CU-HW** is the control unit hardware-detected error code from the OBR record (sense bytes 16 and 17). This error code defines a control unit failure and should be used to enter the maintenance package if you have multiple drive failures.**15****DR-ERR1** is the drive hardware-detected error code, from the OBR record (sense bytes 20 and 21). This error code defines the first failure for any drive and should be used to enter the maintenance package if you have single drive failures.**16****DR-ERR2** is the drive hardware-detected error code, from the OBR record (sense bytes 22 and 23). This error code defines the second or last failure for any drive and should not be used to enter the maintenance package if you have single drive failures. This error information provides supplemental information and may be a result of the first failure (DR-ERR1) in the drive.**17****CCW FLG** is CCW bits 32 to 39 from the OBR.**18****SCSW/CSW** is:

SCSW64—95 (in XA Mode)

CSW32—63

These are the SCSW or CSW bits from the OBR record.

19**CPU, MODEL, SERIAL NUMBER** provides further information on the CPU listed **4** in the error summary lines of the report.

20

HDW-FSC is sense bytes 10 and 11. This is the error code for statistical analysis of temporary errors and will always be a B0nn type error code. This error code can be used for entry into the maintenance package.

21

STR-DEV is sense bytes 12 and 13. These sense bytes identify the drives within the string that are failing. See the FSI section table of contents for FSC B011 or B012 for a detailed explanation.

22

V/C-FSC is sense bytes 14 and 15. These sense bytes identify the types of unacceptable temporary errors. If sense byte 14 = B1, then sense byte 15 = the type of temporary errors that are unacceptable. See the FSI section table of contents a detailed explanation of B011 or B012.

```

3420/3410 PERMANENT ERROR SUMMARY                                REPORT DATE 065 97
                                                                PERIOD FROM 041 97
                                                                TO      059 97

CHP DEVNO P          R          SCSW64-95/          ...SENSE...
EXPLANATION HDR      W          1          1          2
-ID /CUA U DTE TIME VOLID E CMD FLG CNT CSW32-63 0      4      8      2      6
0

**** HARDWARE ****

0180 1B 043 00F3F9      02 20000050 0E000050 00430004 00400400 00080000 002F1F24 DD910100 001A0002 NOT
CAPABLE 00000

0181 1B 044 0101EE      02 20000050 0C080000 00000000 00000000 00000000 00000000 00000000 00000002
UNDEFINED 00000

NOTE: TO CONVERT 'HDR SER' TO 'CUA' USE 'TAPE UNIT SER' IN 'TAPE TEMPORARY ERROR SUMMARY' (NEXT REPORT).

```

Figure 39. 3420/3410 Permanent Error Summary

```

3424 PERMANENT / RECOVERED ERROR SUMMARY                        REPORT DATE 065 97
                                                                PERIOD FROM 041 97
                                                                TO      059 97

2  2  0          R  SENSE BYTES--> 0  2  4  6  8  0  2  4  6  8  0  2  4
6  8  0
CHP DEVNO P          W  CCW SCSW64-95      ER BLOCK SN  -- CU --  DR.
-ID /CUA U DTE TIME VOLID E CMD FLG /CSW32-63 PA ID  FM  FSC LVL  FSC
SERIAL#

***** PERMANENT ERRORS *****

**** DEVICE ****

4A1 21 045 090359 UA2940 W 00 00 00000000 0082 3825 0017 1D20 0080 3300 0000 0000 0000 0002 0000 0000 F680
0CF1 1783 6620

**** OTHER ****

4A3 21 045 090438 UC2942 0 00 00 00000000 0042 3821 0017 1D20 0080 3300 0000 0000 0000 0002 0000 0000 F680
0CF1 1783 6620

```

Figure 40. 3424 Permanent / Recovered Error Summary

3490 FRU Summary Report

THE FRU summary report provides a summary of error codes logged and is listed by CUA. THE FRU codes can provide an entry into the maintenance information (MI) manual for both drive and control unit failures.

Figure 41 on page 200 shows an example of the 3490 FRU summary report.

3490 FRU SUMMARY					<div>1</div> REPORT DATE 063 97 PERIOD FROM 049 97 TO 052 97									
DEVICE TYPE 3490														
<div>2</div>		C	<div>3</div>		P	<div>4</div>	<div>5</div>	<div>6</div>	<div>7</div>	<div>8</div>	<div>9</div>	<div>10</div>	<div>11</div>	<div>13</div>
DEVNO	P	C	C	T	***** FRU CODE *****								***** DATE/TIME *****	
/CUA	U	A	U	H	CU-1	F	CU-2	CU-L	CUHW	DR-1	F	DR-2	OCCURRENCES	***** LAST ENTRY *****
5A2	E	B	0	0	7401	00	7407	7401	D002	0000	00	0000	00001	051/97 19:22:13:31
5A3	E	B	0	1	7151	00	7607	CCBB	D708	0000	00	0000	00001	051/97 19:03:22:23
5A4	F	B	0	1	8E06	0C	0000	0000	0000	192C	00	0000	00001	051/97 21:45:32:21
5A5	F	B	1	0	7407	00	7401	7407	D007	0000	00	0000	00001	051/97 20:31:22:45
5A7	F	B	0	0	A130	00	3300	0000	D5C1	0000	00	0000	00001	051/97 04:06:33:44
5A7	E	B	0	0	7161	00	7161	7161	0000	0000	00	0000	00001	051/97 22:16:37:22
5A7	E	B	0	1	7161	00	7161	7161	0000	0000	00	0000	00001	051/97 22:16:18:54
5A7	F	B	0	0	3300	40	0000	0000	0000	0000	00	0000	00001	051/97 22:18:38:52
5A7	F	B	0	0	7161	00	7161	7161	0000	0000	00	0000	00001	051/97 22:18:40:60
CPU MODEL SERIAL NUMBER					<div>14</div>									
E	3081	210819												
F	3081	010819												

Figure 41. 3490 FRU Summary Report Example

1**REPORT DATE, PERIOD FROM, PERIOD TO**

REPORT DATE is the Julian date the report ran.

PERIOD FROM is the Julian date of the earliest record.

PERIOD TO is the Julian date of the latest record.

2**DEVNO/CUA** is the device number in XA mode or the primary control unit address (PCUA).**3**

CPU identifies the host processor reporting the exception and is shown as a value of A through H. The actual CPU model and serial number are shown at the bottom of the report. **CHA** identifies the channel adapter that was in use at the time of error. **CU** identifies the control unit containing the channel adapter. **PTH** identifies the control unit containing the buffer and data flow in use at the time of error.

4

CU-ERR1 is the microcode-detected error code for the first error (control unit or drive), from the OBR record (sense bytes 10 and 11). This error code should not be used as an entry to the maintenance package unless efforts using CU-HW **8** and/or DR-ERR1 **9** have not corrected the subsystem problem.

5

CU-F is a microcode-developed flag byte, from the OBR record (sense byte 9). This byte provides additional information, if available, for CU-ERR1 **4**.

6

CU-ERR2 is the microcode-detected error code for the second error (control unit or drive), from the OBR record (sense bytes 12 and 13). This error code can be a result of the first error indicated in CU-HW **8**, DR-ERR1 **9** or CU-ERR1 **4**.

7

CU-ERR1 is the microcode-detected error FRU code for the last error (control unit or drive), from the OBR record (sense bytes 14 and 15). This error code can be a result of the first error indicated in CU-HW **8**, DR-ERR1 **9**, CU-ERR1 **4**, DR-ERR2 **11**, or CU-ERR2 **6**.

8

CU-HW is the control unit hardware-detected error code from the OBR record (sense bytes 16 and 17). This error code defines a control unit failure and should be used to enter the maintenance package if you have multiple drive failures.

9

DR-ERR1 is the drive hardware-detected error code, from the OBR record (sense bytes 20 and 21). This error code defines the first failure for any drive and should be used to enter the maintenance package if you have single drive failures.

11

DR-ERR2 is the drive hardware-detected error code, from the OBR record (sense bytes 22 and 23). This error code defines the second or last failure for any drive and should not be used to enter the maintenance package if you have single drive failures. This error information provides supplemental information and can be a result of the first failure (DR-ERR1) in the drive.

12

OCCURRENCES is the total number of times this error code occurs.

13

DATE/TIME is the Julian date and time of the last occurrence.

14

CPU, MODEL, SERIAL NUMBER further identifies the CPU listed in the FRU SUMMARY REPORT.

3490 Error Code Summary

This report shows error codes for the control unit (CU) and the drive (DRV). Only the 3480/3490 devices produce this report.

The Error Code Summary report provides a summary of error codes logged and is listed by CUA. The error codes can provide an entry into the maintenance information (MI) manual for both drive and control unit failures.

[Figure 42 on page 202](#) shows an example of the 3490 error code summary.

3490 ERROR CODE SUMMARY REPORT												1 REPORT DATE 063 97 PERIOD FROM 049 97 TO 052 97			13	
2	3				4	5	6	7	8	9	10	11				
	12	C	C	C	C	-----CU-----				-----DR-----						
DEVNO	P	H	U	U								**** DATE/TIME				

/CUA	U	R	R	D	ERR1 F	ERR2	ERRL	HW	ERR1 F	ERR2	OCCURRENCES	**** LAST ENTRY				

5A2	E0	B	0	0	7401 00	7407	7401	D002	0000 00	0000	00001	051/97				
19:22:13:31																
5A3	E0	B	0	1	7151 00	7607	CCBB	D708	0000 00	0000	00001	051/97				
19:03:22:23																
5A4	F0	B	0	1	8E06 0C	0000	0000	0000	192C 00	0000	00001	051/97				
21:45:32:21																
5A5	F0	B	1	0	7407 00	7401	7407	D007	0000 00	0000	00001	051/97				
20:31:22:45																
5A7	F0	B	0	0	A130 00	3300	0000	D5C1	0000 00	0000	00001	051/97				
04:06:33:44																
5A7	E0	B	0	0	7161 00	7161	7161	0000	0000 00	0000	00001	051/97				
22:16:37:22																
5A7	E0	B	0	1	7161 00	7161	7161	0000	0000 00	0000	00001	051/97				
22:16:18:84																
5A7	E0	B	0	0	3300 40	0000	0000	0000	0000 00	0000	00001	051/97				
22:18:38:52																
5A7	F0	B	0	0	7161 00	7161	7161	0000	0000 00	0000	00001	051/97				
22:18:40:60																
CPU MODEL	SERIAL NUMBER				14											
E0 3081	210819															
F0 3081	010819															

Figure 42. 3490 Error Code Summary Example

1

REPORT DATE, PERIOD FROM, PERIOD TO

REPORT DATE is the Julian date the report ran.

PERIOD FROM is the Julian date of the earliest record.

PERIOD TO is the Julian date of the latest record.

2

DEVNO/CUA is the device number in XA mode or the primary control unit address (PCUA).

3

CPU identifies the host processor reporting the exception. The actual CPU model and serial number are shown at the bottom of the report. **CHR** identifies the channel adapter that was in use at the time of error. **CUR** identifies the control unit containing the channel adapter. **CUD** identifies the control unit containing the buffer and data flow in use at the time of error.

4

CU-ERR1 is the microcode-detected error code for the first error (control unit or drive), from the OBR record (sense bytes 10 and 11). This error code should not be used as an entry to the maintenance package unless efforts using CU-HW 8 and/or DR-ERR1 9 have not corrected the subsystem problem.

5

CU-F is a microcode-developed flag byte, from the OBR record (sense byte 9). This byte provides additional information, if available, for CU-ERR1 4.

6

CU-ERR2 is the microcode-detected error code for the second error (control unit or drive), from the OBR record (sense bytes 12 and 13). This error code can be a result of the first error indicated in CU-HW 8, DR-ERR1 9 or CU-ERR1 4.

7

CU-ERRL is the microcode-detected error FRU code for the last error (control unit or drive), from the OBR record (sense bytes 14 and 15). This error code can be a result of the first error indicated in CU-HW **8**, DR-ERR1 **9**, CU-ERR1 **4**, DR-ERR2 **11**, or CU-ERR2 **6**.

8

CU-HW is the control unit hardware-detected error code from the OBR record (sense bytes 16 and 17). This error code defines a control unit failure and should be used to enter the maintenance package if you have multiple drive failures.

9

DR-ERR1 is the drive hardware-detected error code, from the OBR record (sense bytes 20 and 21). This error code defines the first failure for any drive and should be used to enter the maintenance package if you have single drive failures.

10

DR-F is a microcode-developed flag byte, from the OBR record (sense byte 18). This byte provides additional information, if available, for DR-ERR1 **9**.

11

DR-ERR2 is the drive hardware-detected error code, from the OBR record (sense bytes 22 and 23). This error code defines the second or last failure for any drive and should not be used to enter the maintenance package if you have single drive failures. This error information provides supplemental information and can be a result of the first failure (DR-ERR1) in the drive.

12

OCCURRENCES is the total number of times this error code occurred.

13

DATE/TIME is the Julian date and time of the last occurrence.

14

CPU, MODEL, SERIAL NUMBER further identifies the CPU listed in the Error Code Summary report.

Tape DEVNO/CUA Statistics Summary

This report allows you to quickly see what has been happening to a device. Since all normal data is included, you can see how much activity has been experienced by a device and the pertinent exception data for the device.

The data in this report is listed by CUA for all device addresses that exceed hardware limits or had permanent errors. The data is a summary of all activity on the device for the given period in which the report was run. This includes permanent, temporary and statistical data.

Temporary errors for devices and control unit addresses are shown when the error count exceeds the LIMIT control statement.

Errors are listed by volume serial number in the order (date and time) in which they occur. The following are shown on the report:

- Date
- Time
- VOLID
- Permanent errors
- Megabytes processed per error shown

This report is different from other tape reports because the statistical data comes from the 3480 miscellaneous data record (MDR), which gets its information from the buffered tape control units. 3420 tape drives get statistical data from OBR demounts received and counts are kept in main storage by the operating system.

One of these reports is generated for each device (device number or CUA) that appears as a hardware exception on the tape subsystem exception report.

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The report presents the DEVNO/CUA's temporary errors that have failed the limits set in LIMIT control statements.

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
3490 DEVNO/CUA Statistics Summary Report Example	Figure 43 on page 204
3422 DEVNO/CUA Statistics Summary	Figure 44 on page 206
9347 DEVNO/CUA Statistics Summary	Figure 45 on page 207

[illegible]

Figure 43. 3490 DEVNO/CUA Statistics Summary Report Example

- 1 Report Date, Period From, Period To** REPORT DATE is the Julian date the report ran. PERIOD FROM is the Julian date of the earliest record. PERIOD TO is the Julian date of the latest record.
- 2 Current Limits, MB/Err** CURRENT LIMITS and megabytes/error for both the hardware and the volume are the limit values from the limit control cards.

3**DTE** is the Julian date from the OBR or MDR record.**4****VOLID** is the volume serial number.**5****ERA** is the error recovery action code to the host (contents of Sense Byte 3).**6****FMT** is the format of the sense record. Valid formats are 19, 20, 21 or 30.**7****MBPROC** is the number of megabytes processed. (Data from sense byte 14–15 for write and 16–17 for read in the format 21 statistical record. Data from sense bytes 38–40 for write and sense bytes 32–35 for read in format 30.)**8****DATA CHK** is the number of data checks corrected. (Criteria) (Data from sense byte 22 for write and 23 for read in format 21 statistical record or from sense byte 13 for write and sense byte 12 for read from format 30.)**9****DATA ERR** is the number of Hardware ERP made. (Data from sense byte 10 for write, from sense byte 8 for read forward, and from sense byte 9 for read backward in format 21 statistical record or data from sense byte 9 for write, from sense byte 8 for read forward and from sense byte 10 for read backward from format 30.)**10****MB/ERR**

WRITE is the average number of megabytes written per temporary write error.

READ is the average number of megabytes read per temporary read error.

11**ERSE GAPS** is the total number of blocks re-written during error recovery. (Data from sense byte 24 of the format 21 statistical record or from sense byte 15 from format 30.)**12****READ RTY** is the total number of correctable read errors detected during 3490 read error recovery. (Data from sense byte 30 of the format 21 or from sense byte 14 of format 30 statistical record.)**13****DRV DET** is the number of unit checks set by the drive. (Data from sense byte 25 of the format 21 or 30 statistical record.)**14****CU EQU CHKS** is the number of errors found in the use of external regs in the CU for a given device. (Data from sense byte 13 of the format 21 statistical record.)**15****INSTANT SPD VAR** flag indication that tape speed variations have been detected by hardware checkers. (A function of control unit microcode or sense bytes 22, 23 and 24 of format 30.)**16****BLK PROC** is the total number of blocks processed. (Data from sense byte 19 on a write and 18 on a read of the format 21 Statistical Record or sense bytes 47–49 on a write and sense bytes 50–52 on read from format 30.)**17****BLK COR** is the total number of blocks corrected. (ECC corrected) (Data from sense byte 12 on a write and 11 on a read of the format 21 statistical record or sense byte 19 on a write and sense byte 18 on a read from format 30.)**18****HDR SER** is the header serial number on the tape volume. The header number is derived from the last 4 digits of the control unit serial number that wrote the volume, with the drive address added to the last position. For example:

Header Serial is 3892F
The last 4 digits of control unit serial number is 3892
Drive address is F

19

CPU is the host processor reporting the data.

All error and statistical data (MDR records) are shown for devices which were listed in the Subsystem Exception Report. They are listed by CUA for the period indicated.

Note: Due to space limitations, this report does not show activity on all devices listed in the Subsystem Exception Report.

3422 DEVNO/CUA STATISTICS SUMMARY FOR-0156										REPORT DATE 065 97 PERIOD FROM 041 97 TO 059 97									
										----- 3422 -----									
		CURRENT LIMITS				1600 BPI		6250 BPI											
		MBYTES/ERR		HARDWARE		TEMP WRT(CT)		TEMP RD(CT)		TEMP WRT(CT)		TEMP RD(CT)							
						NONE ()		NONE ()		NONE ()		NONE ()							
DTE	TIME	VOLID-	R/W	-----MB/ERR	TEMP-----	LD	BST	FLS	EDC	VEL	OVR	RST							
TIE	CPU	DEN-	E/U	WRITE(CT)	READ(CT)	SIOCOUNT	FAL	CHK	VRC	END	CRC	MTE	CHK	RUN	INK	CU1	CU2	CU3	P
07	ID	SITY																	
042	091037	340002	R	-- (0)	-- (0)	101	0	0	0	1	1	0	0	0	0	0	0	0	0
00	1D 6250																		
050	084059	TAP156		-- (0)	-- (0)	84	0	0	0	0	0	0	0	0	0	0	0	0	0
00	1D 6250																		
COLUMN TOTALS:				(0)	-- (0)	185	0	0	0	1	1	0	0	0	0	0	0		
TOTALS:				MOUNTS		1													
AVERAGE MEGABYTES/TEMPORARY READ ERROR = --																			
AVERAGE MEGABYTES/TEMPORARY WRITE ERROR = --																			
CPU	MODEL	SERIAL NUMBER																	
00	9375	234567																	
01	3090XA	170028																	
02	3084XA	321128																	
03	3084XA	121128																	
04	3081XA	221170																	
05	3084XA	221103																	
06	3081XA	220447																	

Figure 44. 3422 DEVNO/CUA Statistics Summary

9347 DEVNO/CUA STATISTICS SUMMARY FOR-0C70										REPORT DATE 065 97 PERIOD FROM 041 97 TO 059 97													
										----- SENSE DATA -----													
2	2	TIME		R/W	SCSW64-95		FAULT				1	1	2										
-ID	CPU	DTE	HH:MM:SS	VOLID	E/O	CMD	FLG	/CSW32-63	SYMCD	0	4	8	2	6	0	4							
8																							
	00	042	09 55 02		R	02	04	0E000000	2007	08C00409	10000010	38280000	00004000	80000400	00000000								
00000000	00002007																						
	00	044	00 46 37		E	02	04	0E000000	3006	10240003	10000010	28380000	40000000	80000400	48C00000								
00000000	00003006																						
	00	044	04 08 28		W	02	04	0E000000	2003	0844000F	10100010	38380000	00200000	80000400	00000000								
00000000	00002003																						
	00	045	18 55 37		W	02	04	0E000000	2001	08441D07	10000010	38380000	00800000	80000400	00000000								
00000000	00002001																						
	00	045	20 02 06		E	02	04	0E000000	3006	10240003	10000010	28380000	40000000	80000400	48C00000								
00000000	00003006																						
	00	049	05 32 25		W	02	04	0E000000	2003	0844000F	10100010	38380000	00200000	80000400	00000000								
00000000	00002003																						
	00	049	05 38 59		W	02	04	0E000000	2003	0844000F	10100010	38380000	00200000	80000400	00000000								
00000000	00002003																						
	00	049	06 34 24		W	02	04	0E000000	2001	08440407	10000010	38380000	00800000	80000400	00000000								
00000000	01002001																						
	00	049	10 14 52		W	02	04	0E000000	2003	0844000F	10100010	38380000	00200000	80000400	00000000								
00000000	00002003																						
		TIME	VOLUME	I/O--COUNTS		PERM ERROR		TEMP ERROR		RETRIES		REPSN		----- COUNT -----									
DTE	HH:MM:SS	SERIAL		READ	WRITE	READ	WRITE	READ	WRITE	READ	WRITE	COUNT	OVR	MLT	RUP	IBG	WPC	SKW	TR4	TR5	TRP		
EC																							
C																							
	047	18 13 15		0	1249	0	0	0	0	0	0	105	0	0	0	0	0	0	0	0			
	0	0																					
	049	06 07 59		227	0	6	15	1	0	58	92	192	0	7	3	1	0	0	7	7	4		
	224																						
	049	06 12 39		227	0	0	0	1	0	1	0	226	0	0	1	0	0	0	0	1	0		
	224																						
		CPU	MODEL	SERIAL NUMBER																			
	00		9375	234567																			
	01		3090XA	170028																			
	02		3084XA	321128																			
	03		3084XA	121128																			
	04		3081XA	221170																			
	05		3084XA	221103																			

Figure 45. 9347 DEVNO/CUA Statistics Summary

EREP Reports for the Tape Library

The EREP reports for the tape library are included in the Subsystem Exception Report for the 3490E. The reports unique to the tape library are identified by “Tape Library” in the report title.

Important: The Tape Library report cannot be sorted by device type.

The following detail reports are available for the tape library:

- Permanent and Recovered Error Summary
 - Permanent Error
 - Recovered Error
 - Service Alert
- Error Code Summary Report

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
Tape Library Permanent Error Summary Example	Figure 46 on page 208
Tape Library Service Alert Summary Example	Figure 47 on page 211
Tape Library Error Code Summary Example	Figure 48 on page 213

Tape Library Permanent and Recovered Error Summary Report

[Figure 46 on page 208](#) shows a tape library permanent error summary report.

Note: Permanent errors are outboard recorder (OBR) format 23 records with the temporary bit off. Recovered errors are OBR format 23 records with the temporary bit on.

PERMANENT / RECOVERED ERROR TAPE LIBRARY										SUMMARY		1 REPORT DATE 285 93 PERIOD FROM 156 92 TO 156 92														

Because of the way unsolicited unit checks are handled, this field can contain the address of devices that are not physically present.

- 5** The date obtained from bytes 8–11 of the OBR 23 log record.
- 6** The time obtained from bytes 12–15 of the OBR 23 log record.
- 7** The central processing unit obtained from bytes 20–21 of the OBR 23 log record.
- 8** The status obtained from sense bytes 0–2.
- 9** The ERA code obtained from sense byte 3 of the OBR 23 log record.
- 10** The channel logical block number obtained from sense bytes 4–6 of the OBR 23 log record.
- 11** The sense format obtained from sense byte 7 of the OBR 23 log record. Sense byte 7 is 23 to indicate format 23.
- 12** The library error modifier obtained from sense byte 8 of the OBR 23 log record.
- 13** The library manager error code obtained from sense bytes 9–10 of the OBR 23 log record.
- 14** Contains zeros or contains additional information obtained from sense bytes 11–12 of the OBR 23 log record.
- 15** The volume serial number of sense bytes 13–18 of the OBR 23 log record.
- 16** The software EC level obtained from sense byte 19 of the OBR 23 log record.
- 17** The subsystem ID obtained from sense byte 20 of the OBR 23 log record.
- 18** The encoded serial number of the 3494 library.
- 19** The control unit channel interface information obtained from sense byte 24 of the OBR 23 log record.
- 20** The subsystem features obtained from sense byte 25 of the OBR 23 log record.
- 21** The control unit microcode EC level obtained from sense byte 26 of the OBR 23 log record.
- 22** The control unit hardware information and serial number obtained from sense bytes 27–29 of the OBR 23 log record.
- 23** The drive address obtained from sense byte 30 of the OBR 23 log record.
- 24** Reserved—obtained from sense byte 31 of the OBR 23 log record.
- 25** The volume serial number in printable form obtained and converted from sense bytes 13–18 of the OBR 23 log record.

Tape Library Permanent and Recovered Error Summary Report (Service Alerts)

Figure 47 on page 211 shows an example of the service alerts contained in the Permanent and Recovered Error Summary Report.

All service alerts are noted by ERA 74 (library information data) in sense byte 3. The ERA modifier field (sense byte 8) specifies which group or category the particular ERA 74 belongs to, while the OTH (Other) field (sense bytes 11 and 12) contains additional information about ERA 74.

The modifier and OTH fields combined with the library manager error code (sense bytes 9 and 10) describe the specific reason for each ERA 74 service alert entry.

The following table lists the definitions of the OTH field for ERA 74 and addresses component unavailability (modifier byte 01) and component availability (modifier byte 02) for the OTH field.

OTH Field	Definition
0011	The convenience input station is made unavailable or available. (See note.)
0021	The convenience output station is made unavailable or available. (See note.)
004X	The hard disk is made unavailable or available. (See note.) The X is 1 for the primary disk or 2 for the backup disk.
0051	The dual write is made unavailable or available. (See note.)
0111	The cartridge accessor is made unavailable or available. (See note.)
021X	The vision system is made unavailable or available. (See note.) The X is 1 for the bar code reader.
111X	The grip is made unavailable or available. (See note.)
Note: Check the modifier where 01 is unavailable and 02 is available.	

12

The library manager error code obtained from sense bytes 9–10 of the OBR 23 log record.

13

Contains zeros or contains additional information obtained from sense bytes 11–12 of the OBR 23 log record.

14

The volume serial number of the OBR 23 log record.

15

The software EC level obtained from sense byte 19 of the OBR 23 log record.

16

The subsystem ID obtained from sense byte 20 of the OBR 23 log record.

17

The encoded serial number of the 3494 library.

18

The control unit channel interface information obtained from sense byte 24 of the OBR 23 log record.

19

The subsystem features obtained from sense byte 25 of the OBR 23 log record.

20

The control unit microcode EC level obtained from sense byte 26 of the OBR 23 log record.

21

The control unit hardware information and serial number obtained from sense bytes 27–29 of the OBR 23 log record.

22

The drive address obtained from sense byte 30 of the OBR 23 log record.

23

Reserved—obtained from sense byte 31 of the OBR 23 log record.

24

The volume serial number in printable form obtained and converted from sense bytes 13–18 of the OBR 23 log record.

Tape Library Error Code Summary Report

The Tape Library Error Code Summary Report provides a summary of error codes logged and is listed by control unit address. [Figure 48 on page 213](#) shows an example of this report.

The error codes can provide an entry into the maintenance information manual for both drive and control unit failures.

TAPE LIBRARY ERROR CODE SUMMARY REPORT

1 REPORT DATE 285 93
 PERIOD FROM 156 92
 TO 156 92

SEQ	DEVNO /CUA	C P U	C H R	C U R	C U D	LM	OTH	OCCURRENCES	**** DATE/TIME **** *** LAST ENTRY ***
2	3	4	5	6	7	8	9	10	11
LIBRARY MANAGER									
OF4003	0811	01	D	0	0	6087	0000	1	156/92 09:18:42:81
OF4003	0814	00	D	0	0	6087	0000	1	156/92 09:28:03:87
OF4003	081A	01	D	0	0	6087	0000	1	156/92 09:15:42:58
OF4003	081C	02	D	0	0	6087	0000	1	156/92 09:34:15:28
OF4003	0810	00	D	1	1	6236	0000	5	156/92 00:53:49:45
OF4003	0810	00	D	0	0	623D	0000	1	156/92 17:12:37:35
OF4003	0810	00	D	0	0	62A1	0000	3	156/92 20:35:49:45
OF4003	0816	02	D	0	0	68E2	0000	1	156/92 08:26:17:57
OF4003	081D	02	D	0	0	6B12	0000	1	156/92 02:19:46:93
OF4003	0811	00	D	0	0	6B6C	0000	1	156/92 21:19:46:93
OF4003	0823	05	D	0	0	6B6C	0000	1	156/92 20:53:53:23
LIBRARY MANAGER									
OF4003	0811	01	D	0	0	76E0	0000	1	156/92 03:33:55:54
OF4003	0813	00	D	0	0	76F0	0081	1	156/92 10:17:51:96
OF4003	0811	00	D	0	0	76F0	0082	1	156/92 10:17:55:96
OF4003	0812	00	D	1	1	76F0	0091	1	156/92 10:19:00:88
OF4003	0813	00	D	1	1	76F0	0092	1	156/92 10:19:02:49
OF4003	0817	01	D	0	0	76FD	0000	1	156/92 21:57:31:75
LIBRARY MANAGER									
OF4003	0812	00	D	1	1	85EF	0111	1	156/92 10:18:02:32
OF4003	0811	00	D	0	0	85EF	0111	1	156/92 10:18:02:32
OF4003	0813	00	D	1	1	85EF	1111	1	156/92 10:18:26:05
OF4003	0813	02	D	0	0	85EF	1112	1	156/92 10:18:44:52
3490 CONTROL UNIT									
OF4003	0813	01	D	1	1	FB44	0000	1	156/92 03:50:26:74
CPU MODEL SERIAL NUMBER									
00	3090XA	345783							
01	3090XA	545783							
02	3090XA	445783							
03	3090XA	475783							
04	3090XA	375783							
05	3090XA	575783							

Figure 48. Tape Library Error Code Summary Example

1 Report Date, Period From, Period To

REPORT DATE is the Julian date the report ran.

TAPE Subsystem Exception

PERIOD FROM is the Julian date of the earliest record.

PERIOD TO is the Julian date of the latest record.

2

The sequence number obtained from sense bytes 21–23 of the OBR 23 log record.

3

The device number or the control unit address obtained from the offset (decimal) OBR format 23 log record.

Because of the way unsolicited unit checks are handled, this field may contain the address of devices that are not physically present.

4

The central processing unit obtained from bytes 20–21 of the OBR 23 log record.

5

Identifies the associated channel adapter to which command the error was reported.

6

Identifies the control unit reporting the error and refers to sense byte 2, bit 3 of the OBR 23 log record.

7

Identifies the control-unit-detected error and refers to sense byte 2, bit 4 of the OBR 23 log record.

8

The library manager error code obtained from sense bytes 9–10 of the OBR 23 log record.

9

Contains zeros or contains additional information obtained from sense bytes 11–12 of the OBR 23 log record.

10

Obtained by adding each of the same values from the error codes.

11

Obtained from bytes 8–11 and 12–15 of the OBR log record.

TAPE Subsystem Exception

This report shows conditions that may need maintenance action. Records that are included in other reports may *not* be listed in the system exception reports.

This exception report can be used to determine if the TAPE subsystem has excessive errors or is operating within acceptable limits.

The series contains the following types of reports:

TYPE	REPORT
1	“TAPE Subsystem Exception Report” on page 215
2	“TAPE Service Informational Messages (SIMs)” on page 217 <i>Informational Messages</i> help you define a problem to IBM customer service personnel.
3	“TAPE Media Informational Messages (MIMs)” on page 217 <i>Informational Messages</i> help you define a problem to IBM customer service personnel. These reports work together to provide a picture of the errors occurring in the system. The TAPE subsystem exception report determines if your TAPE subsystem is experiencing an excessive amount of errors.

The following table shows the type of error records and their source in the TAPE subsystem exception reports.

TYPE	SOURCE
A3	Tape devices (only 3590s) ; including controllers
OBR	Tape devices (only 3590s) ; including controllers

Valid records that do not indicate a need for maintenance action may be shown in reports other than the subsystem exception.

TAPE Subsystem Exception Report

This part of the exception report series provides the primary listing of events to determine if the TAPE subsystem has excessive errors or is operating within acceptable limits.

This report provides the information to connect these events to the other reports in the series that have more details.

Examples of these reports are listed as follows.

REPORT	REFER TO
3590 Subsystem Exception Report Example	Figure 49 on page 215
3592 Subsystem Exception Report Example	Figure 50 on page 216

TAPE SUBSYSTEM EXCEPTION REPORT			REPORT DATE 080 97 PERIOD FROM 037 97 TO 079 97				
*** SEQUENCE BY PROBABLE FAILING UNIT ***							
PROBABLE FAILING UNIT	DEVICE TYPE/ VOLID	FAILURE AFFECT	4 CPU	5 DEVNO /CUA	6 -----TOTALS----- SIMS MIMS OBR OBR TEMP		

2 MEDIA	1	3	TOTAL		0	2	0 0
	JANZ01	DATA DEGRADED IN PARTITION	08	0883	0	1	0 0
	JANZ99	DATA DEGRADED IN PARTITION	00	08A9	0	1	0 0
DEVICE			TOTAL		1	0	0 1
	3590-B11	PREVENTIVE MAINTENANCE COMPLETED	08	0883	1	0	0 0
	3590-B11	LOADER INTERVENTION REQUIRED	0A	0883	0	0	0 1
CONTROLLER			TOTAL		1	0	0 3
	3590-A00	RESETTING EVENT	08	0880	0	0	0 1
	3591/3490EMU	RECOVERED CHECK-ONE FAILURE	08	0880	0	0	0 1
	3590/3490EMU	TAPE LENGTH INCOMPATIBLE	08	0880	0	0	0 1
	3590-A00	EFFECT OF FAILURE IS UNKNOWN	08	0887	1	0	0 0
CPU	MODEL	SERIAL NUMBER					
00	3090XA	045783					
01	9021XA	110341					
02	9221XA	0D0481					
03	3090XA	245783					
04	3090XA	145783					
05	3090XA	155783					
06	3090XA	055783					
07	3090XA	255783					
08	9672XA	061035					
09	9672XA	461035					
0A	9672XA	161035					

Figure 49. 3590 Subsystem Exception Report Example

TAPE Subsystem Exception

1

If the record is a MIM, the information appearing in this column will be the valid. If the record is any other type, the device type will appear in this column.

2

This field shows the unit most likely to be the source of the failure, even if the failure is recorded against another unit. EREP identifies the PFU based on the failure affect and the units reporting errors.

PFU	DESCRIPTION
MEDIA	Media (tape volume)
DEVICE	Device involved (3590)
CONTROLLER	Controller (drive string controller, or something common to more than one device on the string)
LIBRARY	Tape library

3

This field defines the function or machine area affected by the failure.

4

The EREP-assigned CPU identifier. If there is more than one CPU, one is shown and a plus sign is printed to indicate that there is more than one.

5

Use the physical address to locate information on other EREP reports. EREP uses the primary channel and unit address (PCUA) or device number if the devices do not provide physical IDs.

6

This field contains the error totals under the error types shown in the following table:

TYPE	DESCRIPTION
SIMS	The count of SIM messages reported by the unit and totaled for the PFU within the given failure.
MIMS	The count of MIM messages reported by the unit and totaled for the PFU within the given failure.
PERM	The count of permanent errors recorded against the unit and totaled for the PFU within the given failure affect. (A permanent error is indicated by a zero temporary error bit in the OBR record.)
TEMP	The count of temporary errors recorded against the unit and totaled for the PFU within the given failure affect.

TAPE SUBSYSTEM EXCEPTION REPORT

REPORT DATE 220 05
PERIOD FROM 076 02
TO 077 02

*** SEQUENCE BY PROBABLE FAILING UNIT ***

PROBABLE FAILING UNIT	DEVICE TYPE/ VALID	FAILURE AFFECT	CPU	DEVNO /CUA	-----TOTALS-----			
					SIMS	MIMS	OBR PERM	OBR TEMP

LIBRARY				TOTAL	0	0	0	1
	3570-CXX	LIBRARY INFORMATIONAL DATA	00	07C2	0	0	0	1
DEVICE				TOTAL	0	0	2	1
	3590-H1X	LIBRARY DRIVE NOT UNLOADED	02	0C24	0	0	1	0
	3592-J1X	WORM OVERWRITE REJECTED	03	0C27	0	0	0	1
	3592-E05	LIBRARY DRIVE NOT UNLOADED	00	1B90	0	0	0	1
	3592-E06	LIBRARY DRIVE NOT UNLOADED	00	1B90	0	0	0	1

Figure 50. 3592 Subsystem Exception Report Example


```

3590 DEVICE SUMMARY                                REPORT DATE 295 07
                                                    PERIOD FROM 195 06
                                                    TO    195 06

DEVICE ADDRESS      REAL    / EMULATED DEVICE TYPE

0FA2                3592-J1X / 3490-CXX

0FA3                3592-E05 / 3590-B1X
0FA4                3592-E06 / 3590-B1X

CPU   MODEL      SERIAL NUMBER
00    2084XA     132906
01    2084XA     142906

```

Figure 51. 3592 Emulated Device Summary Report

TAPE Service Informational Messages (SIMs)

This report relates to hardware failures that may require the customer to call for service.

Refer to the device maintenance library for information about the SIMs and actions required.

Figure 52 on page 217 shows an example of the TAPE service informational messages.

```

TAPE SERVICE INFORMATION MESSAGES (SIMS)          REPORT DATE 028 97
                                                    PERIOD FROM 023 97
                                                    TO    028 97

*****
DEVICE-0883 S/N 0113-00001 DATE-023/90 TIME-06:54:49:45 ID=21
* SERVICE ALERT          D/T-3590-B11 REF1-D1C1 REF2-D5E9 REF3-F0F2 UM-1229
* DV PREVENTIVE MAINTENANCE COMPLETED
* DV CLEANING COMPLETE

DEVICE-0887 S/N 0113-23456 DATE-023/90 TIME-09:26:32:65 ID=73
* SERIOUS ALERT          D/T-3590-A00 REF1-D1C1 REF2-D5E9 REF3-F0F4 UM-0000
* EFFECT OF FAILURE IS UNKNOWN
* REPAIR IMPACT IS UNKNOWN

DEVICE-08A9 S/N 0113-23456 DATE-023/90 TIME-15:35:30:19 ID=73
* SERIOUS ALERT          D/T-3590/3490EMU REF1-D1C1 REF2-D5E9 REF3-F0F4 UM-0000
* EFFECT OF FAILURE IS UNKNOWN
* REPAIR IMPACT IS UNKNOWN

```

Figure 52. TAPE Service Information Messages (SIMS)

TAPE Media Informational Messages (MIMs)

This report relates to media failures that may require the customer to call for service.

Refer to the device maintenance library for information about the MIMs and actions required.

Figure 53 on page 218 shows an example of the TAPE media informational messages.

TAPE Subsystem Exception

```
TAPE MEDIA INFORMATION MESSAGES (MIMS)                                REPORT DATE 028 97
                                                                    PERIOD FROM 023 97
                                                                    TO    028 97

*****
VOLUME-JANZ01  DEVICE-0883  DATE-023/90 TIME-06:54:49:45
* D/T-3590-B11      S/N 0113-00001
* SERVICE ALERT     REFCODE-0057  MEDIA IDENTIFIER-0021  FORMAT IDENTIFIER-00
* DATA DEGRADED IN PARTITION 1229
* REFERENCE MEDIA MAINTENANCE PROCEDURE 57

VOLUME-JANZ98  DEVICE-08A9  DATE-023/90 TIME-15:35:30:19
* D/T-3590-A00      S/N 0113-23456
* SERIOUS ALERT     REFCODE-0000  MEDIA IDENTIFIER-0073  FORMAT IDENTIFIER-00
* EXCEPTION 00
* REFERENCE MEDIA MAINTENANCE PROCEDURE 00

VOLUME-JANZ99  DEVICE-08A9  DATE-023/90 TIME-15:35:30:19
* D/T-3590/3490EMU  S/N 0113-23456
* SERIOUS ALERT     REFCODE-0000  MEDIA IDENTIFIER-0073  FORMAT IDENTIFIER-00
* EXCEPTION 00
* REFERENCE MEDIA MAINTENANCE PROCEDURE 00

VOLUME-SL0001  DEVICE-0DC1  DATE-297/07 TIME-08:39:56:05
* D/T-3592-E06      S/N 0000-00000
* SERIOUS ALERT     REFCODE-1011  MEDIA IDENTIFIER-0120  FORMAT IDENTIFIER-01
* EXCEPTION 10
* REFERENCE MESSAGE CODE 10
```

Figure 53. TAPE Media Information Messages (MIMS)

Chapter 12. Threshold Summary Report

The threshold summary report shows all the permanent read/write errors, temporary read/write errors, and media statistics for each volume mounted, using the OBR and MDR records, for 3410, 3420, and 8809 tape devices.

Note: The system exception series is a replacement for the threshold summary. Consider switching to the system exception series.

Description of the Threshold Summary Report

The data in the threshold summary report is grouped by tape subsystem. The report has four sections as shown in the following table:

SECTION	DESCRIPTION
DEV(ice) STATISTICS	Shows one line of statistical and error data for every demount record whose error count exceeds the read or write threshold you coded on the report parameter.
PERMANENT ERROR SUMMARY	Shows a one-line entry for <i>every</i> permanent error. A permanent error can be a read error, a write error, or an equipment check. This section ignores threshold settings so there are no limits.
TEMPORARY ERROR SUMMARY	Shows a summary of all temporary errors recorded for each device number or CUA, whether they exceeded your threshold or not.
VOLUME STATISTICS	Shows the errors and usage statistics by volume serial number using <i>each</i> MDR and OBR record from the first three sections of the report. This section also ignores threshold settings so there are no limits.
Note: <ul style="list-style-type: none"> The first three sections appear once for each processor in your installation. The columns in the fourth section of the report are titled differently depending on the device type involved. See “Threshold Summary Report Information” on page 328 for how the columns differ and for the device types supported by the threshold summary reports. Information for up to 256 CPUs can be provided in the threshold summary. It is possible to have multiple internal processors reported under one serial number and thus increase EREP’s capabilities. See “SYSIMG Control Statement” on page 62 for details. 	

Examples of the Threshold Summary Reports

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
34XX/3803/8809 Subsystem Summary	“34XX/3803/8809 Subsystem Summary” on page 219
34XX/3803/8809 Subsystem Summary–Volume Statistics	“34XX/3803/8809 Subsystem Summary–Volume Statistics” on page 223

34XX/3803/8809 Subsystem Summary

```

1  XXXXX 34XX/3803/8809 SUBSYSTEM SUMMARY XXXXX
   XXXXX PRIMARY DEV 0180-018F XXXXX

```

Threshold Summary Report

2 DEV STATISTICS - DEVS EQUAL TO OR EXCEEDING 001 TEMP RDS OR 001 TEMP WRTS

[illegible]

1 PERMANENT ERROR SUMMARY

[illegible]

1 34XX/3803/8809 SUBSYSTEM TEMPORARY ERROR SUMMARY

DEV	ERRORS/100K		DATE	TOTAL	TOTAL	READ	WRITE	ECC	STRD	PART	OVER	VEL	IBG	
	IOS	WRITE				-FROM---	TO--							IOS
0180	0.00	53.10	04797	04797	7532	2	0	0	4	4	2	0	2	0
TOTAL	0.00	53.10			7532	2	0	4						
XXXXX 34XX/3803/8809 SUBSYSTEM SUMMARY XXXXX XXXXX PRIMARY DEV 01A0-01AF XXXXX DEV STATISTICS - DEVS EQUAL TO OR EXCEEDING 001 TEMP RDS OR 001 TEMP WRTS														

PERMANENT ERROR SUMMARY

NO PERMANENT ERRORS ENCOUNTERED: 97047 TO 97047

[illegible]

34XX/3803/8809 SUBSYSTEM TEMPORARY ERROR SUMMARY

34XX/3803/8809 SUBSYSTEM SUMMARY															
DEV	ERRORS/100K I/O		DATE -FROM---TO--	TOTAL I/O	TOTAL MOUNTS.	READ STATISTICS		WRITE STATISTICS		ECC VRC ENV	STRD CHK	PART RECK	OVER RUN	VEL CHG	IBG DET
	READ	WRITE				CLNNRAC	ERRORS	ERSGAP							
01A0	0.00	66.54	04797	04797	7514	2	0	0	5	5	5	0	0	0	0
TOTAL	0.00	66.54			7514	2	0		5						
XXXXX 34XX/3803/8809 SUBSYSTEM SUMMARY XXXXX XXXXX PRIMARY DEV 0570-057F XXXXX DEV STATISTICS - DEVS EQUAL TO OR EXCEEDING 001 TEMP RDS OR 001 TEMP WRTS															

PERMANENT ERROR SUMMARY

NO PERMANENT ERRORS ENCOUNTERED: 97042 TO 97044

[illegible]

Threshold Summary Report

[illegible]

00 00																		
XX XXXXXXXXXX																		
34XX/3803/8809 SUBSYSTEM TEMPORARY ERROR SUMMARY																		
ERRORS/100K			DATE		TOTAL	TOTAL	READ		WRITE		ECC	STRD	PART	OVER	VEL	IBG		
DEV	READ	WRITE	-FROM--TO--	IOS	IOS	MOUNTS.	STATISTICS	CLNRAC	STATISTICS	ERSGAP	VRC ENV	CHK	RECK	RUN	CHG	DET		
0570	0.00	0.00	04197 04197		103	1 .	0	0 .	0	0 .	0	0	0	0	0	0		
0571	0.00	60.71	04197 04197		1647	1 .	0	0 .	1	1 .	1	0	0	0	0	0		
0572	0.00	0.00	04197 04197		539	1 .	0	0 .	0	0 .	0	0	0	0	0	0		
0574	0.00	0.00	04197 04197		2945	1 .	0	0 .	0	0 .	0	0	0	0	0	0		
0575	100+	0.00	04197 04197		38	2 .	2	0 .	0	45 .	0	0	0	0	0	0		
0577	0.00	0.00	04197 04197		636	2 .	0	0 .	0	0 .	0	0	0	0	0	0		
0578	100+	0.00	04697 04697		9	1 .	2	0 .	0	0 .	1	0	0	0	0	0		
TOTAL 67.60 16.90					5917	9	4		1									
XXXXX 34XX/3803/8809 SUBSYSTEM SUMMARY XXXXX																		
XXXXX PRIMARY DEV 0BA0-0BAF XXXXX																		
DEV STATISTICS - DEVS EQUAL TO OR EXCEEDING 001 TEMP RDS OR 001 TEMP WRTS																		
DEV	DATE	VOLUME	TIME	TEMP	IO	COUNT												
	DAY YR	SERIAL	HH MM SS TH	RDS WRTS	RDS	WRTS	MTE EDC SRC RBF ENV NOP CRE SKEW VEL MODEL SERIAL											
0BAE	045 97		16 08 04.23	77 145	18	0	0 0 0 0 33 0 0 1 0 0 3033 020808											
XX XXXXXXXXXX																		
PERMANENT ERROR SUMMARY																		
NO PERMANENT ERRORS ENCOUNTERED: 97045 TO 97045																		
34XX/3803/8809 SUBSYSTEM TEMPORARY ERROR SUMMARY																		
ERRORS/100K			DATE		TOTAL	TOTAL	READ		WRITE		OVER	VEL						
DEV	READ	WRITE	-FROM--TO--	IOS	IOS	MOUNTS	STATISTICS	RETRIES	STATISTICS	ERS GAP	RUN	CHK						
0BAE	100+	0.00	04597 04597		18	0	0	77	1	145 256	0	0						
TOTAL 100+ 0.00					18	0	0	77		145								
XXXXX 34XX/3803/8809 SUBSYSTEM SUMMARY XXXXX																		
XXXXX PRIMARY DEV 0BA0-0BAF XXXXX																		
DEV STATISTICS - DEVS EQUAL TO OR EXCEEDING 001 TEMP RDS OR 001 TEMP WRTS																		
DATE	VOLUME	TIME	TEMP	IO	COUNT													
DEV	DAY YR	SERIAL	HH MM SS TH	RDS WRTS	RDS	WRTS	MTE EDC SRC RBF ENV NOP CRE SKEW VEL MODEL SERIAL											
0BA2	045 97	SSAG03	16 07 45.45	78 46	18	0	0 0 0 0 33 0 0 1 0 4 3033 020868											
0BA2	045 97	SSAG25	16 08 58.51	26 97	6	0	0 6 55 33 0 0 0 0 0 3033 020868											
0BA1	045 97	SSAG02	16 09 07.02	26 254	6	0	0 6 92 33 0 0 0 0 0 3033 020868											
0BA2	045 97	SSAG03	16 11 49.05	78 51	18	0	0 0 0 0 33 0 0 0 0 0 3033 020868											
0BA8	045 97	SSAG20	16 13 22.22	104 143	24	0	0 24 139 33 0 0 0 0 0 3033 020868											
XX XXXXXXXXXX																		
PERMANENT ERROR SUMMARY																		
PW	PERMANENT WRITE				PR	PERMANENT READ				PF	CAUSE UNKNOWN							
EC	EQUIPMENT CHECK, CAUSE UNKNOWN				EE	ERASE HEAD				EB	TAPE BOTTOM, LEFT OR RIGHT							
EL	LOAD FAILURE				EP	AIR BEARING PRESSURE				ET	TACH START FAILURE							
EV	VELOCITY CHECK				ER	RESET KEY				WC	WRITE CURRENT CHECK							
EM	MODE SET																	
DEV	ERR	VOL ID	LAST CCW	FL CT	STATUS	DATE	TIME	100	SYMP									
			CC CA		US CS CT	DAY YR	HH MM SS TH	IPS	LGM	CODE								
0BA0	WC	T2DLIB	00 000000	00 0000	00 00 0000	041 97	01 05 07.33	0	0	1E1F								
0BA2	WC	T2DLIB	00 000000	00 0000	00 00 0000	041 97	01 30 02.09	0	0	3E3F								
0BA3	WC	T2DLIB	00 000000	00 0000	00 00 0000	041 97	01 47 17.48	0	0	5E5F								
0BA7	WC	T77371	00 000000	00 0000	00 00 0000	041 97	08 45 21.71	0	0	7E7F								
0BA8	WC	T75537	00 000000	00 0000	00 00 0000	041 97	08 58 44.67	0	0	9E9F								
0BAA	WC	DUMPTP	00 000000	00 0000	00 00 0000													

1

The first three parts of this report are produced for each processor (CPU) involved.

2

DEV is the device number; same as the CUA.

34XX/3803/8809 Subsystem Summary–Volume Statistics

1

VOLUME STATISTICS -		VOLUMES EQUAL TO OR		EXCEEDING 001 TEMPORARY READS OR		001 TEMPORARY WRITES OR		PERMANENT ERRORS																	
VOLUME	DATE	TIME	TU	RD/	--PERM--	--TEMP--	RD RTRY/	ERASE	IO	COUNT	BLOCK	PROGRAM	----	CPU----											
MOD	DEN-	HDR	SERIAL	DAY	YR	HH	MM	SS	TH	DEV	SERIAL	WRT	RDS	WRTS	RDS	WRTS	CLNR	ACT	GAPS	RDS	WRTS	LENGTH	ID	ID	SERIAL
#	SITY	SER																							
5	800	5347	041	97	16	23	48.93	0575	55560	E			0	0	0	0		0	0	9		80	E17JWS1C	3033	021928
1600		0	043	97	00	13	49.44	0180	59437	R			0	0	0	0		0	0	10		0	ICFSMPLB	4331	013078
N/A	N/A	N/A	044	97	01	01	33.70	0181	N/A	R			0	0	0	0		0	0	6		0	ICFSMPLB	4331	013078
B61204	N/A	57569	045	97	16	08	04.23	0BAE							77	145		1	256	18	0	0		3033	020808
N/A	N/A	4092	041	97	11	41	46.48	0BA0	N/A	W											32768	H92RCS1B	3033	020868	
DUMPTP	N/A	41121	041	97	11	40	33.00	0BAA	N/A	W											24576	REL3DUMP	3033	020868	
D12213	N/A	4092	042	97	01	17	46.99	0574	N/A				0	0	0	1		0	1	1018		0	BATCH	3081	020447
LM2.0C	N/A	4309	058	97	09	38	39.23	0574	N/A				0	0	0	4		0	4	8069		0	D58RAM10	3084	121128
L00000	N/A	5560	046	97	12	14	06.32	0575	N/A				0	0	0	13		0	14	4112		0	D15ELP1F	3033	021929
RMFD01	N/A	4092	042	97	02	11	43.07	0574	N/A				0	0	0	1		0	1	563		0	BATCH	3081	020447
SMP010	N/A	5560	041	97	18	12	27.52	0575	N/A				1	0	2	0		0	0	10		3200	E17JWS1E	3033	021928
SSAG02	N/A	3758	045	97	16	09	07.02	0BA1							26	254		0	0	6	0	0		3033	020868
SSAG03	N/A	3758	045	97	16	07	45.45	0BA2							78	46		0	256	18	0	0		3033	020868
SSAG03	N/A	3758	045	97	16	11	49.05	0BA2							78	51		1	0	18	0	0		3033	020868
SSAG20	N/A	3758	045	97	16	13	22.22	0BA8							104	143		1	1	24	0	0		3033	020868
SSAG25	N/A	3758	045	97	16	08	58.51	0BA2							26	97		0	0	6	0	0		3033	020868
T2DLIB	N/A	3758	041	97	01	05	07.33	0BA0	N/A	R											4096	D86RAS11	3033	020868	
T2DLIB	N/A	3758	041	97	01	30	02.09	0BA2	N/A	R											8192	D86RAS13	3033	020868	
T2DLIB	N/A	3758	041	97	01	47	17.48	0BA3	N/A	R											12288	D86RAS14	3033	020868	
T28375	N/A	3758	041	97	18	13	28.09	0571	N/A				0	0	0	1		0	1	1647		0	#IPORS2	3033	021928
T69217	N/A	3758	047	97	19	50	58.03	0583	N/A				0	0	0	1		0	1	2671		0	#TS0013	3084	221128
T69299	N/A	3758	047	97	19	52	36.88	0584	N/A				0	0	0	9		0	12	2609		0	#TS0105	3084	321128
T69299	N/A	3758	057	97	19	52	36.88	0584	N/A				0	0	0	9		0	12	2609		0	#TS0105	3084	021103
T75537	N/A	3758	041	97	08	58	44.67	0BA8	N/A	W											20480	D24WLF1M	3033	020868	
T77371	N/A	3758	041	97	08	45	21.71	0BA7	N/A	R											16384	D24WLF1L	3033	020868	
T81582	N/A	3758	046	97	04	26	26.14	0572	N/A				0	0	0	1		0	1	1781		0	D10LLC1C	3084	121128
XXXXXX	N/A	3758	047	97	01	07	6D.B9	0180	59437				0	0	0	4		0	4	7526		0		4331	013078
XXXXXX	N/A	3758	047	97	01	03	65.35	01A0	N/A				0	0	0	5		0	5	7508		0		4331	013078
ZDA12A	N/A	3758	041	97	11	42	45.57	0BA1	N/A	W											40960	D24LAC1A	3033	020868	
12121	N/A	3758	041	97	11	41	09.86	0BA5	55560	W											28672	E17JWS1A	3033	020868	
12121	N/A	3758	041	97	11	41	53.25	0BA5	N/A	R											36864	E17JWS1A	3033	020868	
69945	N/A	3758	046	97	13	32	08.20	0578	N/A				0	0	2	0		0	0	9		0	D10LEM1B	3033	021928

1

The volume statistics summarize all the permanent errors presented in the preceding parts of the report.

Chapter 13. Detail Edit and Summary Reports

The detail edit and summary reports provide environmental information, hexadecimal dumps and summaries of errors to determine their nature and causes.

Description of the Detail Edit and Summary Reports

The detail edit and summary reports allow you to look at the error records on the two levels shown in the following table:

REPORT TYPE	DESCRIPTION
Detail edits	Format every record you have selected on a separate page, including a hexadecimal dump of the record
Detail summaries	Summarize selected data from the record and total the number of records that meet your selection criteria; some detail summaries show only the total number of selected records. EREP produces one detail summary per processor (CPU) for each record type selected.

Note:

1. The format and content of the detail edits and summaries vary according to the type of record and the device or product involved.
2. These reports cover all products and devices and all record types except DASD CCH.
3. DASD does not use the combined outboard record/miscellaneous data record (OBR/MDR) detail summary (PRINT=PS|SD|SU,TYPE=OT) or the MDR detail edit and summary reports, because the DASD subsystem exception report summarizes the DASD devices.
4. VTAM OBRs do not appear on the print summary reports.

Examples of the Detail Edit and Summary Report

This section covers the following reports:

REPORT
“External Timer Reference Maintenance Information Detail Edit (A1) Report” on page 226
“Link Maintenance Information Detail Edit (A2) Report” on page 227
“Asynchronous Notification Record Detail (A3) Report” on page 228
“A3 Report for Incorrect Record” on page 228
“Channel Check Handler (CCH) Detail Reports” on page 230
“Channel Report Word (CRW) Detail Report” on page 236
“Dynamic Device Reconfiguration (DDR) Detail Report” on page 237
“Data Reduction Report” on page 238
“Recovery/Termination (EOD) Detail Reports” on page 239
“Machine Check Handler (MCH) Detail Reports” on page 241
“Miscellaneous Data Record (MDR) Detail Reports” on page 249
“Missing Interrupt Handler (MIH) Detail Reports” on page 255

REPORT
“Outboard Record (OBR) Detail Edit Reports” on page 257
“Software (SFT) Detail Edit Reports” on page 277
“Subchannel Logout Handler (SLH) Detail Edit Reports” on page 290
“Unknown Detail Edit Reports” on page 296

It is unlikely that you would request all of these reports at once, but it is possible to do so. The output would include many detail edit reports for each record type.

Important: All possible PRINT report combinations for each record type are not shown in the following examples. Maintenance documentation for most devices includes sample detail edit reports for the relevant records.

External Timer Reference Maintenance Information Detail Edit (A1) Report

This detail edit report provides a printout of the information contained in the external timer reference maintenance information (A1) records (ETR). The report is used when detailed information must be gathered for a particular ETR-related event.

Figure 54 on page 226 contains an example of the external timer reference maintenance information detail edit (A1) report.

```
REPORT: ETR MAINTENANCE INFORMATION - DETAIL EDIT
SCP:    VS 2 REL.  3
MODE IS: 370XA
DATE:    043  97
        HH MM SS.TH

1
NETWORK ID = 1
2
REASON CODE = 0 NO PROBLEMS REPORTED BY 9037
ALTERNATE PORT INFORMATION
-----
1
NETWORK ID = 1
3
BOX ID = 2
4
PORT ID = 7
CONSOLE ERROR MESSAGE
-----
IEA263I BOTH CPC PORTS ARE CONNECTED TO THE SAME SIDE OF ETR 2. 5
HEX DUMP OF RECORD 6
HEADER A1831800 00000000 0097043F 10031436 A6110074 90210000
0018 C8000000 000000F0 A3071F6B 00000180 00010207 A3071F6B 0011708F C4C4C4C4
0038 00000000 00000000 00000000 00000000 00010207 00000000 00000000
0058 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0078 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0098 00000000 00000000 C9C5C1F2 F6F3C940 C2D6E3C8 40C3D7C3 40D7D6D9 E3E240C1
00B8 D9C540C3 D6D5D5C5 C3E3C5C4 40E3D640 E3C8C540 E2C1D4C5 40E2C9C4 C540D6C6
00D8 40C5E3D9 4040F24B 40404040 40404040 40404040 40404040 40404040 40404040
00F8 40404040 40404040 00000000 00000000 00000000 00000000 00000000 00000000
```

Edit (A1) Report

Figure 54. External Timer Reference Maintenance Information Detail

- 1 The NETWORK ID (ETR-network ID) identifies the time source for all CPCs directly connected to the ETR.
- 2 The REASON CODE specifies the probable area of errors or contains information about exception conditions.

- 3** The BOX ID (ETR ID) of the ETR to which the alternate CPC port is connected.
- 4** The PORT ID (port number) of the ETR (output) port to which the alternate CPC port is immediately connected.
- 5** The text of a message issued to the console or to the system log (SYSLOG).
- 6** The contents of the record are displayed in hex format.

Link Maintenance Information Detail Edit (A2) Report

The link maintenance information detail edit report provides a printout of the information contained in a link maintenance information (A2) record. The report is used when detailed or model-dependent information must be gathered for a particular unit or link incident.

Figure 55 on page 227 contains an example of the link maintenance information detail edit (A2) report.

```

REPORT: LINK MAINTENANCE INFORMATION - DETAIL EDIT          DAY YEAR
SCP:    VS 2 REL.  3                                DATE:  043  97
MODE IS: 370XA                                           HH MM SS.TH
REPORTING PATH: N/A 1                                TIME: 00 12 34.08
2
INCIDENT CODE = 03 DEDICATED CONNECTION INTERFACE = N/A
LINK TYPE: LASER CHANNEL TYPE: ESCON
4
  NODE      OFFSET      5      6      7      8      9
  DESCRIPT  BYTES 0-3  TYPE-MODEL  MFG  PLANT  SEQUENCE NUMBER  INTERFACE
  -----
INCIDENT    1C1CFF08    003090-60J  IBM   00      0000000070039    0073
ATTACHED    00000A00    009032-002  IBM   02      000000010148    00DF

HEX DUMP OF RECORD 10
HEADER (0000) A2831800 00000000 0097043F 00123408 63330039 30900000 0
        (0018) 0A030000
INC ND (001C) 1C1CFF08 F0F0F3F0 F9F0F6F0 D1C9C2D4 F0F0F0F0 F0F0F0F0 0 F0F7F0F0 F3F90073
ATT ND (003C) 00000A00 F0F0F9F0 F3F2F0F0 F2C9C2D4 F0F2F0F0 F0F0F0F0 0 F0F1F0F1 F4F800DF
        (005C) 00000000 00000000 00000000 00000000 00000000 00000000 0 00000000 00000000
        (007C) 00000000

```

Figure 55. Link Maintenance Information Detail Edit (A2) Report

- 1** If a channel path ID (CHPID) is identified for the link incident described in the report, it is printed in the REPORTING PATH field. If CHPID is not specified, N/A (not applicable) is printed. (A CHPID is only specified when the incident node is a channel.)
- 2** The INCIDENT CODE is a hex byte that indicates the type of incident detected.
- 3** If the incident node is the director port in a dedicated connection, then the other port participating in the connection is indicated in the DEDICATED CONNECTION INTERFACE (DCI) field. For all other link connections, the DCI is N/A (not applicable).
- 4** The NODE field indicates whether the node specified is the incident node (the node that detected the link incident) or an attached node (the node attached to the incident node through a link). If the attached node is not known, the node is all zeros. The attached node in a dedicated connection in a director port is always all zeros.
- 5** TYPE-MODEL contains the type and model of the unit presenting both the incident and attached nodes.

6

MFG is the manufacturer as shown in both the incident and attached nodes.

7

PLANT is the plant of manufacture as shown in both the incident and attached nodes.

8

SEQUENCE NUMBER is the manufacturing sequence number as shown in both the incident and attached nodes for the TYPE-MODEL.

9

INTERFACE is the specific port as shown in both the incident and attached nodes.

10

The contents of the record are displayed in hex format. Model-dependent data is contained in the last 36 bytes of the record.

Asynchronous Notification Record Detail (A3) Report

The A3 report shows the details of the service information messages (SIMs).

Figure 56 on page 228 contains an example of the asynchronous notification record detail (A3) report.

```
REPORTING DEVICE:      000350    REPORT: ASYNCHRONOUS
REPORTING DEVICE TYPE: 3390      REPORTING SYSTEM: VS 2 REL. 3 370XA DATE: DAY YEAR
REPORTING PATH:       08-0350    SUBCHANNEL ID: 00010029          HH MM SS.TH
                                           TIME: 15 39 44.04
RECORD TYPE:          DASD SIM
DEVICE DEPENDENT DATA
    DASD SERVICE INFORMATION MESSAGE
    * SERVICE ALERT      2107      S/N 0112-B7425 REFCODE 43C0-2400-0003 ID=C2
    * MEDIA EXCEPTION ON SSID 0041, VOLSER PACSM3 DEV 0350, 08
      PHYSICAL DEVICE 10, CYLINDER 003B HEAD 0C
    * REFERENCE MEDIA MAINTENANCE PROCEDURE 1
HEX DUMP OF RECORD
HEADER  A3831810  00000000  0097043F  15394404  61572320  30900000
0018  00000000  00000000  00000000  00000000  00000000  00000000  20 080350  80062032
0038  08000350  D7C1C3E2  D4F30000  00900600  10328FC2  11010124  00 000304  22204411
0058  004143C0  05108202  FF003B0C
```

Figure 56. Asynchronous Notification Record Detail (A3) Report

A3 Report for Incorrect Record

This report is received when there is an incorrect A3 record.

```

*****
REPORTING DEVICE: 00023F    REPORT: ASYNCHRONOUS    DAY YEAR
REPORTING DEVICE TYPE: 3390    REPORTING SYSTEM: VS 2 REL. 3    370XA DATE: 068 97
REPORTING PATH: 19-023F    HH MM SS.TH
                                TIME: 07 04 49.80

RECORD TYPE:    DASD SIM
DEVICE DEPENDENT DATA
  SERVICE INFORMATION MESSAGE    -----00000000000000
  * SERVICE ALERT 3390-02 S/N 0113-12931 REFCODE 62AC-0000-000F ID=02
  ** INVALID EXCEPTION CODE F FOR SENSE BYTE 28 = FE    1
  DEVICE DEPENDENT DATA NOT FORMATTED    2
SYSTEM INFORMATION DATA    3
BYTE 00 01 02 03 04 05 06 07
      D1 C5 E2 D7 D3 F2 00 00

SUBSYSTEM INFORMATION DATA    4
BYTE 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
      00 00 06 20 20 27 8F 02 FC 00 00 00 00 0F 04
BYTE 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
      23 00 32 83 00 02 62 AC 05 10 46 00 FE 00 00 00

HEX DUMP OF RECORD
HEADER  A3831810 00000000 0097068F 07044980 A2221023 90210000
        0018 00000000 00000000 00000000 00000000 00000000 2019023F 80062027
        0038 0800023F D1C5E2D7 D3F20000 00000620 20278F02 FC000000 00000F04 23003283
        0058 000262AC 05104600 FE000000

REPORTING DEVICE: 004400    REPORT: ASYNCHRONOUS
REPORTING DEVICE TYPE: 3390    REPORTING SYSTEM: VS 2 REL. 3
REPORTING PATH: 66-4400

RECORD TYPE:    DASD SIM
DEVICE DEPENDENT DATA
  DASD SERVICE INFORMATION MESSAGE
  * REMOTE SESSION 2107 S/N 0175-ANLX1 REFCODE BE81-00
  ** INVALID EXCEPTION CODE 8 FOR SENSE BYTE 28 = FE    1
  ** REQUIRE MANUAL INTERVENTION FROM CE.
  DEVICE DEPENDENT DATA NOT FORMATTED    2
SYSTEM INFORMATION DATA    3
BYTE 00 01 02 03 04 05 06 07
      D4 E5 E2 C5 E2 C1 00 00

SUBSYSTEM INFORMATION DATA    4
BYTE 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
      00 80 10 00 00 3C CF 01 8F 40 40 00 81 FF 09 04
BYTE 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
      E5 2C 03 5D 00 00 BE 81 04 10 02 00 F3 00 00 00

HEX DUMP OF RECORD
HEADER  A3831810 00000000 0005304F 10393729 00116D3A 20640000
        0018 00000000 00000000 00000000 00000000 00000000 0000
        0038 08004400 D4E5E2C5 E2C10000 00801000 003CCF01 8F40
        0058 0000BE81 04100200 F3000000 00000000 00000000 0000

```

Figure 57. A3 Report for Incorrect Record

- 1** The exception code is used to identify the TYPE and LOCATION of the error and the effect that the repair will have on the subsystem.
- 2** The TYPE, LOCATION, and REPAIR information normally provided by the EXCEPTION CODE will not be printed.
- 3** Device dependent data from the control program. May include the VOLID.
- 4** Device dependent information from the reporting subsystem.

Channel Check Handler (CCH) Detail Reports

The operating system writes a CCH record when a channel failure occurs but does not terminate the system control program. The errors recorded include channel control checks, channel data checks, and interface control checks.

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
CCH Detail Report for 3090, Record Type 20	“CCH Detail Report for 3090, Record Type 20” on page 230
CCH Summary Report for 3090, Record Type 20	Figure 58 on page 231
CCH Detail Report for 3090, Record Type 21	Figure 59 on page 232
CCH Summary Report for 3090, Record Type 21	Figure 60 on page 233
CCH Detail Report for 4341	“CCH Detail Report for 4341” on page 233
CCH Summary Report for 4341	Figure 61 on page 234
CCH (Inboard) Detail Report for 9373	“CCH (Inboard) Detail Report for 9373” on page 234
CCH (Inboard) Summary Report for 9373	Figure 62 on page 236

CCH Detail Report for 3090, Record Type 20

```

CPU MODEL:      3090      REPORT:  CCH EDIT      DAY YEAR      JOB IDENTITY: C078938B
C3F0F78F9F3F8C2      DATE:  042  97
CPU ID:      370150      SCP:  V370 REL.  6      HH MM SS.
TIME:  02 18 50.57

CHANNEL UNIT ADDR: 1481

CHANNEL TYPE:      INTEGRATED BLOCK MPX

      CC DA      FL      CT
FAILING CCW      02 9D6ED0 04 90 7D00

      K CA      US CS CT
CSW      00 9D6ED0 00 02 7D80

      UNIT STATUS
ATTENTION      0
STATUS MODIFIER      0
CONTROL UNIT END      0
BUSY      0
CHANNEL END      0
DEVICE END      0
UNIT CHECK      0
UNIT EXCEPTION      0

      CHANNEL STATUS
PROGRAM CONTROLLED INTERRUPT      0
INCORRECT LENGTH      0
PROGRAM CHECK      0
PROTECTION CHECK      0
CHANNEL DATA CHECK      0
CHANNEL CONTROL CHECK      0
INTERFACE CONTROL CHECK      1
CHAINING CHECK      0

      SOFTWARE RECOVERY STATUS
HARD FAIL      1
DEGRADE FAIL      0
SOFT FAIL      0
PASSED      0

I/O UNIT FOUND BUSY

CHANNEL/UNIT ADDR:      1481

CHANNEL ERROR ANALYSIS

```

CSW STORED BY -- UNKNOWN

TERMINATION BY -- SELECTIVE RESET -- CODE 2
 TIME CHANNEL DETECTED ERROR - COMMAND ACCEPTED BUT NO DATA HAS BEEN TRANSFERED
 RETRY CODE 2

VALIDITY OF RECORDED DATA
 FULL CHANNEL LOGOUT = VALID
 SEQUENCE CODE = VALID
 UNIT STATUS = INVALID
 CSW ADDRESS = VALID
 CHANNEL ADDRESS = VALID
 DEVICE ADDRESS = VALID
 PROBABLE SOURCE OF ERROR - CONTROL UNIT

MODEL-DEPENDENT DATA

HEX DUMP OF RECORD

HEADER	20660800	00010000	0097042F	02185057	40370150	30900000			
0018	C3F0F7F8	F9F3F8C2	14810000	00000000	00000000	00000000	029D6ED0	04907D00	
0038	009D6ED0	00027D80	44091782	01000810	03001481	00000010	400C1481	80020262	
0058	A0810081	40004088	42001782	4011017F					

CPU MODEL:	3090	REPORT: CCH SUMMARY	REPORT DATE: 073 97
CPU ID NUMBER:	370150		PERIOD FROM: 042 97
CHANNEL NUMBER:	14		TO: 042 97
NUMBER OF RECORDS: 001			
ERROR SOURCE:			
CPU	0000		
CHAN	0000		
SCU	0000		
SU	0000		
CU	0001		
UNIT STATUS		CHANNEL STATUS	
ATTENTION	0000	PROGRAM CONTROLLED INTERRUPT	0000
STATUS MODIFIER	0000	INCORRECT LENGTH	0000
CONTROL UNIT END	0000	PROGRAM CHECK	0000
BUSY	0000	PROTECTION CHECK	0000
CHANNEL END	0000	CHANNEL DATA CHECK	0000
DEVICE END	0000	CHANNEL CONTROL CHECK	0000
UNIT CHECK	0000	INTERFACE CONTROL CHECK	0001
UNIT EXCEPTION	0000	CHAINING CHECK	0000
SOFTWARE RECOVERY STATUS			
HARD FAIL	0001		
DEGRADE FAIL	0000		
SOFT FAIL	0000		
PASSED	0000		

Figure 58. CCH Summary Report for 3090, Record Type 20

Detail Edit and Summary Reports

```

CPU MODEL:      3090      REPORT:  CCH EDIT      DAY YEAR      JOB IDENTITY: *MASTER*
                  CPU ID: 170044      SCP:  VS 2 REL.  3      DATE: 042  97      5CD4C1E2E3C5D95C
                                      HH MM SS.TH
                                      TIME: 08 59 03.32

CHANNEL UNIT ADDR: 0063

CHANNEL TYPE:      INTEGRATED MULTIPLEXOR(MPX)

Failing CCW      CC DA      FL      CT
03 DE3B89 30 00 0001
K CA      US CS CT
CSW      01 000000 00 02 0080

UNIT STATUS      CHANNEL STATUS
ATTENTION      0      PROGRAM CONTROLLED INTERRUPT      0
STATUS MODIFIER      0      INCORRECT LENGTH      0
CONTROL UNIT END      0      PROGRAM CHECK      0
BUSY      0      PROTECTION CHECK      0
CHANNEL END      0      CHANNEL DATA CHECK      0
DEVICE END      0      CHANNEL CONTROL CHECK      0
UNIT CHECK      0      INTERFACE CONTROL CHECK      1
UNIT EXCEPTION      0      CHAINING CHECK      0

SOFTWARE RECOVERY STATUS
HARD FAIL      0
DEGRADE FAIL      0
SOFT FAIL      0
PASSED      0
I/O UNIT FOUND BUSY
CHANNEL/UNIT ADDR: 0063

CHANNEL ERROR ANALYSIS

CSW STORED BY -- SIO
TERMINATION BY -- SELECTIVE RESET -- CODE 2

TIME CHANNEL DETECTED ERROR - COMMAND SENT OR SENT BUT NOT ACCEPTED

RETRY CODE 4

VALIDITY OF RECORDED DATA
FULL CHANNEL LOGOUT      = VALID
SEQUENCE CODE      = VALID
UNIT STATUS      = INVALID
CSW ADDRESS      = INVALID
CHANNEL ADDRESS      = VALID
DEVICE ADDRESS      = VALID
PROBABLE SOURCE OF ERROR - CONTROL UNIT

CCH FOOTPRINTS: 8468

IOS GPRS SAVED      1
UCB ADDRESS ZERO      0
ERPIB EXISTS      0
IGFCCHSI ENTERED      0
IGFCCHII ENTERED      0
IGFCCHF ENTERED      1
IGFC60 ENTERED      0
IGFC70 ENTERED      0
IGDC80 ENTERED      0
IGFCIC ENTERED      1
IGFCCHRD ENTERED      1
IGFCCHMP ENTERED      0
IGFCCHUC ENTERED      1
IGFCCHAS ENTERED      0
IGFCCHIO ENTERED      0
IGFCCHX ENTERED      0

MULTIPROCESSING INFORMATION

CPU/CHANNEL SET ID 0000 CHANNELS ON LINE      0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
CPU/CHANNEL SET ID 0001 CHANNELS ON LINE      X X X X X X X X X X X X X X X X X X

*MODEL-DEPENDENT DATA*
HEX DUMP OF RECORD
HEADER 21830800 20000000 0097042F 08590332 00170044 30900000
0018 5CD4C1E2 E3C5D95C 00630000 00000000 00000000 00000000 03 DE3B89 30000001
0038 01000000 00020080 80091384 12501009 01000063 00630060 FF FFFFFF FFFFFFFF
0058 FFFFFFFF FFFFFFFF 80001011 F0040063 06000C08 00001384 FF FFFFFF FFFFFFFF
0078 FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FF FFFFFF FFFFFFFF
0098 FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF 84 680000 00000002
00B8 00000000 00010000 00000000 00000000 00000000 00000000 00 000000 00000000
00D8 00000000 00000000 00000000 00000000 00000000 00000000 00 000000 00000000

```

Figure 59. CCH Detail Report for 3090, Record Type 21


```

CPU MODEL:      3090          REPORT:  CCH SUMMARY          REP ORT DATE: 073 97
CPU ID NUMBER   : 170044      PER IOD FROM: 042 97
CHANNEL NUMBER:  00          TO:      042 97
NUMBER OF RECORDS: 001

ERROR SOURCE:

      CPU      0000
      CHAN     0000
      SCU      0000
      SU       0000
      CU       0001

      UNIT STATUS                                CHANNEL STATUS

ATTENTION      0000      PROGRAM CONTROLLED INTERRUPT 00 00
STATUS MODIFIER 0000      INCORRECT LENGTH           00 00
CONTROL UNIT END 0000      PROGRAM CHECK              00 00
BUSY            0000      PROTECTION CHECK            00 00
CHANNEL END     0000      CHANNEL DATA CHECK         00 00
DEVICE END     0000      CHANNEL CONTROL CHECK        00 00
UNIT CHECK     0000      INTERFACE CONTROL CHECK      00 01
UNIT EXCEPTION  0000      CHAINING CHECK              00 00

      SOFTWARE RECOVERY STATUS

HARD FAIL      0000
DEGRADE FAIL   0000
SOFT FAIL      0000
PASSED         0000

```

Figure 60. CCH Summary Report for 3090, Record Type 21

CCH Detail Report for 4341

```

MODEL 4341          SERIAL NO.
015085 VS 2 REL.    03
--- RECORD SOURCE - CCH          TYPE - INBOARD
JOB NAME            IEEVMPCR
      DAY YEAR              HH MM SS.TH
DATE  045  97            TIME _ 11 48 44 81
CHANNEL/UNIT ADDRESS 0001C1

ADDR.STORED IN HARDWARE LOC 186 - 187:      01C1
      CC  DA  FL  CT
FAILING CCW  31 63A847 40 80 0005

      K  CA  US CS CT
CSW         10 619EC8 00 42 0000

---UNIT STATUS---          ---CHANNEL STATUS---
ATTENTION      0          PRGM-CTLD IRPT      0
STATUS MODIFIER 0          INCORRECT LENGTH    0
CONTROL UNIT END 0          PROGRAM CHECK      0
BUSY            0          PROTECTION CHECK    0
CHANNEL END     0          CHAN DATA CHECK    0
DEVICE END     0          CHAN CTRL CHECK      1
UNIT CHECK     0          I/F CTRL CHECK      0
UNIT EXCEPTION  0          CHAINING CHECK      0

I/O UNIT FOUND BUSY
CHANNEL/UNIT ADDR      0131 01C1

--- CHANNEL TYPE ---
INTGTD BLK MPX

*****
                        CHANNEL ERROR ANALYSIS
CSW STORED BY INTERRUPT
TERMINATION BY -- SELECTIVE RESET- CODE 2
TIME CHANNEL DETECTED ERROR - COMMAND ACCEPTED-DATA TRANSFER UNDETERMINED
                        RETRY CODE 5
VALIDITY OF RECORDED DATA
COUNT              = NOT VALID
SENSE DATA         = NOT STORED
UNIT STATUS         = NOT VALID

```

Detail Edit and Summary Reports

```
COMMAND ADDRESS = VALID
CHANNEL ADDRESS = VALID
DEVICE ADDRESS = VALID
PROBABLE SOURCE OF ERROR- COULD NOT BE ASSESSED
*****
NO CHANNEL LOGOUT RECORDED

CCH FOOTPRINTS: 8468
IOS GPRS SAVED      1
UCB ADDRESS ZERO    0
ERPIB EXISTS        0
IGFCCHSI ENTERED    0
IGFCCHII ENTERED    0
IGFCCHFE ENTERED    1
IGFC60 ENTERED      0
IGFC70 ENTERED      0
IGDC80 ENTERED      0
IGFCIC ENTERED      1
IGFCCHRD ENTERED    1
IGFCCHMP ENTERED    0
IGFCCHUC ENTERED    1
IGFCCHAS ENTERED    0
IGFCCHIO ENTERED    0
IGFCCHEX ENTERED    0

MULTIPROCESSING INFORMATION
      0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
CPU/CHAN SET ID 0000 CHANNELS ON LINE X X X X X X
HEX DUMP OF RECORD
HEADER 21830800 20000000 0097045F 11484481 02015085 43410000

0000 C9C5C5E5 D4D7C3D9 013101C1 00000000 00000000 00000000 3163A847 40800005
0020 10619EC8 00420000 40481785 3030200E 030001C1 84680000 00000001 00000000
0040 000003FF 00000000 00000000 00000000 00000000 00000000 00000000
0060 00000000 00000000 00000000
```

```
MODEL 4341 CHANNEL CHECK RECORDS DAY YEAR DAY YEAR
DATE RANGE - FROM 045 97 TO 045 97
SERIAL NO. 015085
NO.OF RECORDS 00009
--- SUMMARY OF MODEL 4341 CHANNEL CHECK RECORDS ---

ERROR SOURCE
CPU 0000
CHAN 0009
SCU 0000
SU 0000
CU 0009

--- UNIT STATUS ---
ATTENTION 0000 CHANNEL END 0000 PRGM-CTLD IRPT 0000 CHAN DATA CHECK 0000
STATUS MODIFIER 0000 DEVICE END 0000 INCORRECT LENGTH 0000 CHAN CTL CHECK 0000
CONTROL UNIT END 0000 UNIT CHECK 0000 PROGRAM CHECK 0000 I/F CTL CHECK 0009
BUSY 0000 UNIT EXCEPTION 0000 PROTECTION CHECK 0000 CHAINING CHECK 0000

--- CHANNEL STATUS ---
```

Figure 61. CCH Summary Report for 4341

CCH (Inboard) Detail Report for 9373

```
MODEL 9373 SERIAL NO. 237967
V370 REL. 06
--- RECORD SOURCE - CCH TYPE - INBOARD
JOB NAME CP/370
DAY YEAR HH MM SS.TH
DATE _ 048 97 TIME _ 04 36 54 15
```

CHANNEL/UNIT ADDRESS 000700

	CC	DA	FL	CT
FAILING CCW	00	000000	00 00	0000

	K	CA	US	CS	CT
CSW	00	000000	00 04	0000	

---UNIT STATUS---

ATTENTION	0
STATUS MODIFIER	0
CONTROL UNIT END	0
BUSY	0
CHANNEL END	0
DEVICE END	0
UNIT CHECK	0
UNIT EXCEPTION	0

---CHANNEL STATUS---

PRGM-CTLD IRPT	0
INCORRECT LENGTH	0
PROGRAM CHECK	0
PROTECTION CHECK	0
CHAN DATA CHECK	0
CHAN CTRL CHECK	1
I/F CTRL CHECK	0
CHAINING CHECK	0

---LIMITED CHANNEL LOGOUT DATA EDITING---

---FIELD VALIDITY FLAGS---

SEQUENCE CODE STORED IS VALID	0	---TERMINATION CODE---	
UNIT STATUS STORED IS VALID	0	INTERFACE DISCONNECT	0
CCW ADDR AND KEY IN CSW ARE VALID	0	STOP, STACK OR NORMAL	0
CHANNEL ADDRESS STORED IS VALID	1	SELECTIVE RESET	0
DEVICE ADDRESS STORED IS VALID	0	INTERFACE INOPERATIVE	0
		ERROR ALERT	0

---SEQUENCE CODE---

ERROR DETECTED DURING TEST I/O OR CLEAR I/O	1
COMMAND WENT OUT, DEVICE STATUS NOT IN	0
COMMAND ACCEPTED, NO DATA TRANSFERRED	0
AT LEAST ONE DATA BYTE TRANSFERRED	0
COMMAND EITHER NOT SENT OR NOT ACCEPTED	0
COMMAND ACCEPTED BUT DATA XFER UNPREDICTABLE	0

---MEASUREMENT BYTE---

BYTE: 00000000 NUMBER OF PENDING OPERATIONS (NPO): 000
 (CCH - Inboard - Detail Report)
 (Part 1 Continued)

---DELAY CODE---

CHANNEL BUSY	0
CONTROL UNIT BUSY	0
DEVICE BUSY	0

I/O UNIT FOUND BUSY

CHANNEL/UNIT ADDR 0740

--- CHANNEL TYPE ---

INTGTD MPX

CHANNEL ERROR ANALYSIS

CSW STORED BY INTERRUPT
 TERMINATION BY -- SYSTEM RESET- CODE 3
 TIME CHANNEL DETECTED ERROR - COULD NOT BE ASSESSED
 VALIDITY OF RECORDED DATA

COUNT	= NOT VALID
SENSE DATA	= STORED
UNIT STATUS	= NOT VALID
COMMAND ADDRESS	= NOT VALID
CHANNEL ADDRESS	= VALID
DEVICE ADDRESS	= NOT VALID

PROBABLE SOURCE OF ERROR- CHANNEL

HEX DUMP OF RECORD

HEADER	20660800	00000000	0097048F	5204552	00234567	93730000	
0000	4040C3D7	61F3F7F0	07400000	00000000	00000000	00000000	00000000
00000000							
0020	00000000	00040000	444002C0	00000000	01000700	00000000	00000700
00000000							

MODEL 9373 CHANNEL CHECK RECORDS				DAY YEAR	DAY YEAR
DATE RANGE - FROM				044 97 TO	048 97
				SERIAL NO.	234567
				NO.OF RECORDS	00002
--- SUMMARY OF MODEL 9373 CHANNEL CHECK RECORDS ---					
ERROR SOURCE					
		CPU	0000		
		CHAN	0002		
		SCU	0000		
		SU	0000		
		CU	0000		
--- UNIT STATUS ---			--- CHANNEL STATUS ---		
ATTENTION	0000	CHANNEL END	0000	PRGM-CTLD IRPT	0000
STATUS MODIFIER	0000	DEVICE END	0000	INCORRECT LENGTH	0000
CONTROL UNIT END	0000	UNIT CHECK	0000	PROGRAM CHECK	0000
BUSY	0000	UNIT EXCEPTION	0000	PROTECTION CHECK	0000
				CHAN DATA CHECK	0000
				CHAN CTL CHECK	0002
				I/F CTL CHECK	0000
				CHAINING CHECK	0000

Figure 62. CCH (Inboard) Summary Report for 9373

Channel Report Word (CRW) Detail Report

In a 370/XA environment, the CRW describes channel incidents reported through machine checks. The CRW specifies the error environment and the severity of the error.

Figure 63 on page 236 and Figure 64 on page 237 contain examples of the channel report word (CRW) detail report.

DEVICE NUMBER:	00000	REPORT: CRW EDIT	DAY YEAR	RECORDING MODULE: IOSREIPH		
DEVICE TYPE:	N/A	SCP: VS 2 V2 R3	DATE: 260 04	C9D6E2D9C5C9D7C8		
CHANNEL PATH ID:	**	CPU MODEL: 2084	HH MM SS.TH			
		CPU ID : 340105	TIME: 17 08 15.64			
CHANNEL REPORT WORD INFORMATION						
CRW VALIDITY:	VALID	1				
CRW:	0903 001E					
RECORDING CODE:	01	2				
ORIGIN:	CRW PENDING MACHINE CHECK					
STORED BY:	HARDWARE					
CREATED BY:	HARDWARE					
PROCESSOR ADDR:	0000					
CRW SEQUENCE NUMBER:	00000000					
ASSOCIATED CRW SEQUENCE NUMBER:	00000000					
INTERRUPT SUBCLASS DEFINITION TABLE:	00081018 20283038					
PATH MANAGEMENT CONTROL WORD 3						
SUBCHANNEL ENABLED	0					
PROG CHECK ADDR >= LIMIT	0					
PROG CHECK ADDR <= LIMIT	0					
STORE MEASUREMENTS IN CMB	0					
STORE DCTI IN EXT STAT WORD	0					
DYNAM PATH MULTI-PATH STATE	0					
TIMING FACILITY AVAILABLE	0					
VALID DEVICE NUMBER ASSIGNED	0					
UCB INFORMATION		CHANNEL PATH INFORMATION				
UCB LEVEL VALUE:	00	CHANNEL PATH RECOVERY COUNT: **				
UCB LEVEL BIT MASK:	00000000					
SUBCHANNEL RECOVERY ANCHOR:	00000000					
-----UCB DEVICE STATUS FLAGS-----		----CHPID ICHPT FLAGS----				
UCB TEMPORARILY UNUSABLE	0	INTRCEPT CNDITION EXISTS	0	CHP VALID FOR INSTLATION *		
DEVICE NOT READY	0	DEVICE HAS NO USABLE PATH	0	CHP OWNED BY THIS SYSTEM *		
DEVICE SUBCHAN UNUSABLE	0	DEVICE HAS NO SUBCHANNEL	0	CHP IS ONLINE *		
PENDING SENSE OPERATION	0	ABNORMAL UCBLEVEL VALUE	0	CHP UNDERGOING CHP RCVRV *		
START SUBCHANNEL ISSUED	0	RESERVED	0	VARY OFF IN PROG FOR CHP *		
HALT SUBCHANNEL ISSUED	0	RESERVED	0	FORCE CHP OFFLINE FAILED *		
CLEAR SUBCHANNEL ISSUED	0	RESERVED	0	RECOVERY IN LAST UCB SCAN *		
DVICE OFFLN DUE TO ERROR	0	RESERVED	0	RESERVED *		
HEX DUMP OF RECORD						
HEADER	25361000	00001100	0097043F	17081564		
	0018 C9D3E5D9	C1E2F0F4	01800001	00000000		
	0038 00000000	00000000	00000000	00000000		
			00000000	00000000		
			00E00008	10182028		
				30380000		
				00000000		

Figure 63. CRW Detail Report with Recording Code of X'01'

1

If the words OVERFLOW INDICATED appear here, it means that CRW records have been lost because they are being produced on the hardware queue faster than the recording service can retrieve them.

2

The product dependent part of this report is affected by the recording code. Valid codes are X'01' and X'02'.

3

All zeros indicates that the UCB is not available.

4

The channel path table flags appear only if the CRW indicates a channel path ID (CHPID).

DEVICE NUMBER:	0000	REPORT: CRW EDIT	DAY	YEAR	RECORDING MODULE: ILVRAS04
			DATE: 043	97	C9D3E5D9C1E2F0F4
DEVICE TYPE:	N/A	SCP: VSE/ESA V5 R2			
		CPU MODEL: 9121	HH	MM	SS.TH
CHANNEL PATH ID:	**	CPU ID : 340105	TIME: 17	08	15.64
CHANNEL REPORT WORD INFORMATION					
CRW VALIDITY:	VALID				
CRW:	0903 001E				
RECORDING CODE:	02				
ORIGIN:	CRW PENDING MACHINE CHECK				
STORED BY:	HARDWARE				
CREATED BY:	HARDWARE				
PROCESSOR ADDR:	0000				
MACHINE CHECK INTERRUPT CODE: 00000000 00000000					
RDEV STATUS INFORMATION					
REAL DEVICE IS BUSY	0				
IORBK QUEUED FOR LATER START	0				
DEVICE IS OCCUPIED	0				
ERROR RECOVERY PROC ACTIVE	0				
DEVICE TEMPORARILY DOWN	0				
RDEV IS INITIALIZED AT IPL	0				
DEVICE ALLOC CONTROL FLAGS			ERROR RECOVERY CONTROL FLAGS		
DEVICE IS OFFLINE	0		MSG HNDLR WAIT FOR DEV END	0	
DEVICE ATTACHED TO SYSTEM	0		INTENSIV RECRDING MODE ACT	0	
DEVICE IS NOT IN USE	0		INTRVNTION REQUIRED ON DEV	0	
CP VOLUME IS ATTACHED	0		DEVICE IS BEING RESET	0	
DEVICE IS ATTACHED TO USER	0		SENSE CONTINGENT CONNECTN	0	
DEVICE IS FOR SPOOLING	0		DEVICE HAS BEEN RESERVED	0	
DEV MOUNTED, NOT ATTACHED	0		UNSOLICITED DEV END IN ERP	0	
XVOLID SPECED FOR DASD/TAPE	0		MISSING INTERRUPT MSG SENT	0	
SCHIB INFORMATION					
CONTROL FLAGS			CHANNEL PATH IDS		
SUBCHANNEL ENABLED	0		INTERRUPT REQUEST CODE	00	E0 00 08 10 18 20 28
PROG CHECK ADDR >= LIMIT	0		LOGICAL PATH MASK	0	0 0 0 0 0 0 0 0
PROG CHECK ADDR <= LIMIT	0		PATH NOT OPERATIONAL MASK	0	0 0 0 0 0 0 0 0
MEASUREMENTS ARE PERMITTED	0		LAST PATH USED MASK	0	0 0 0 0 0 0 0 0
TIMING IS PERMITTED	0		PATH INSTALLED MASK	0	0 0 0 0 0 0 0 0
DYNAMIC PATHING AVAILABLE	0		PATH OPERATIONAL MASK	0	0 0 0 0 0 0 0 0
TIMING FACILITY AVAILABLE	0		PATH AVAILABLE MASK	0	0 0 0 0 0 0 0 0
VALID DEVICE NUM ASSIGNED	0				
HEX DUMP OF RECORD					
HEADER	25361000	00001100	0097043F	17081564	40340105 91210000
0018	C9D3E5D9	C1E2F0F4	02800001	00000000	0903001E 00000000 00000000 00000000
0038	00000000	00000000	00000000	00000000	00E00008 10182028 30380000 00000000

Figure 64. CRW Detail Report with Recording Code of X'02'

Dynamic Device Reconfiguration (DDR) Detail Report

A dynamic device reconfiguration (DDR) record is created for each operator-initiated or system-initiated swap between direct-access devices having buffered logs and demountable disk packs (such as the IBM 3330, 3330 MOD 11, and 3340 devices) and between magnetic tape devices.

The DDR record identifies the physical devices involved in the swap.

Figure 65 on page 238 and Figure 66 on page 238 contain examples of the dynamic device reconfiguration (DDR) detail report.

```

--- RECORD ENTRY TYPE - DDR    SOURCE - DDR    MODEL - 3090    SERIAL NO. 170802
MVS/370    V2 R1

                                DAY YEAR    HH.MM.SS.TH    JOB IDENTITY CPSB46
                                042  97      20 32 10 71      C3D7E2C2F4F64040

FROM UCB DEVICE TYPE          32108003          TO UCB DEVICE TYPE          32108003
FROM CHANNEL UNIT ADDRESS      000580          TO CHANNEL UNIT ADDRESS      000581 1
FROM VOLUME SERIAL NUMBER      F22011          TO VOLUME SERIAL NUMBER
FROM PHYSICAL ID                00              TO PHYSICAL ID                00

RECORD DEPENDENT SWITCH        50

SECONDARY STORAGE RECONFIGURATION

RECONFIGURATION PERFORMED AS A RESULT OF A PERMANENT ERROR

    HEX DUMP OF RECORD
    HEADER    60890A50    00000000    0097042F    20321071    61170802    30900000
                0000    C3D7E2C2    F4F64040    C6F2F2F0    F1F10000    00000000    00000580    32108003    00000581
                0020    32108003

```

Figure 65. Dynamic Device Reconfiguration (DDR) Detail Report

```

SUMMARY OF DDR RECORDS          DEV 000580

RECORD DATE RANGE              DAY YEAR    DAY YEAR
                                042  97      042  97

MODEL - 3090    SERIAL NO - 170802

TOTAL NUMBER OF RECORDS=0001

```

Figure 66. Dynamic Device Reconfiguration (DDR) Summary Report

1

For records created in 370XA mode, the device number (DEV) replaces control unit address (CUA).

Data Reduction Report

This report is device specific because it formats and summarizes environmental data gathered by the device. The report is used by IBM service representatives to solve problems that are causing random/intermittent errors.

Figure 67 on page 239 contains an example of the data reduction report.

```

*****
      MAINTENANCE DEVICE CODE FOR DEVICE TYPE = 3370
      DEVICE ADDRESS = 0701  SHARED      SERIAL = 700006

1
      MD CODE TYPE = DC1  MDC=0008  SAMPLES= 1
      MD CODE TYPE = FC1  MDC=0200  SAMPLES= 1 2
      MD CODE TYPE = SV   MDC=0130  SAMPLES= 2
MODIFIERS: 3
      EXPECTED      ACTUAL      ACCESS      EVEN      OVER/      DIFFERENCE CT
      DESTINATION    DESTINATION  DIRECTION  TRACK     UNDER     REMAINDER
      CCC-HH-M/F-SM  CCC-HH-M/F-SM  F/R       E/O       OS/US     DIFF
      7 0 M 0      0 15 F 3      R        0        OS- 7     0
      7 0 M 0      0 15 F 3      R        0        OS- 7     0
4
      MD CODE TYPE = SVE  MDC=8130  SAMPLES= 1
MODIFIERS:
      EXPECTED      ACTUAL      ACCESS      EVEN      OVER/      DIFFERENCE CT
      DESTINATION    DESTINATION  DIRECTION  TRACK     UNDER     REMAINDER
      CCC-HH-M/F-SM  CCC-HH-M/F-SM  F/R       E/O       OS/US     DIFF
      7 0 M 0      0 15 F 3      R        0        OS- 7     0
      MD CODE TYPE = SC   MDC=0001  SAMPLES= 2
      MD CODE TYPE = SCE  MDC=8001  SAMPLES= 1
      MD CODE TYPE = RW   MDC=0132  SAMPLES= 6
      MD CODE TYPE = DC   MDC=0300  SAMPLES= 1

      ECC CORRECTABLE      UNCORRECTABLE      NO SYNC BYTE FOUND
      ALTERNATE DATA BLOCK      N/A      N/A
      CCC = 999 HH = 2 BB = 2

      IFC1691      6 RECORDS NOT USED BY IFCNFPDR FOR THIS CUX 070X 5

```

Figure 67. Data Reduction Report

- 1 There are six different types of maintenance device codes (MDC), each using a particular subset of fault symptom codes.
- 2 The number of records used to build this MDC.
- 3 Two of the MDCs have additional information printed.
- 4 An additional MDC is printed for records with only the environmental data bit on.
- 5 To build the MDC, only selected OBR (by fault code) records from a 3370 are used.

Recovery/Termination (EOD) Detail Reports

The recovery/termination record contains information relating to the cause of termination and system environmental information. If the record is documenting normal termination, it consists only of the 24-byte header. In a record written for abnormal termination, the header is followed by fields of variable length containing data relevant to the system termination or wait state codes.

Record type X'80' indicates that the system terminated normally under program control, at the request of the operator. With MVS Only:

- Record type X'81' is written when the system is put in a nonrestartable wait by the operating system following a machine check.
- Record type X'84' indicates a restartable wait state requiring operator intervention.

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
End of Day (EOD) Detail Report	Figure 68 on page 240
End of Day (EOD) Summary Report	Figure 69 on page 240

Detail Edit and Summary Reports

REPORT	REFER TO
System Termination Detail Report	Figure 70 on page 240
System Termination Summary Report	Figure 71 on page 241

```
EOD RECORD EDIT AND PRINTING SECTION
      DAY  YEAR      HH MM SS TH
DATE -193   08      TIME -16 27 45 97
MODEL - 2097      CPU SERIAL NO. - 0706C0
MVS/ESA    V7 R0

      HEX DUMP OF RECORD
      HEADER      809C1800      00000000      0108193F      16274597      000706C0      20978000

      0000
```

Figure 68. End of Day (EOD) Detail Report

```
SUMMARY OF EOD RECORDS
      DAY YEAR      DAY YEAR      MODEL 2097
      DATE RANGE FROM 193 08 TO 193 08 CPU SERIAL 0706C0

      NO. OF RECORDS 001

      XXXXXXXX END OF EOD SUMMARY XXXXXX
```

Figure 69. End of Day (EOD) Summary Report

```
EOD RECORD EDIT AND PRINTING SECTION

SYSTEM TERMINATION RECORD EDIT AND PRINT SECTION

      DAY  YEAR      HH MM SS TH
DATE -046   08      TIME -04 00 00 25

MODEL - 2097      CPU SERIAL NO. - 0706C0

      VS 2      REL. 3

      HEX DUMP OF RECORD
      HEADER      81000800      00000000      0008046F      04000025      230706C0      20970000

      0000 00000088      00000014      00FD3E04      80FD3DD8      00000042      00FD3E04      00000C00      00000000
      0020 0004C1D1      00FFBB40      00FDF890      7004B1D2      00031358      00029DE0      00FFBB40      00000000
      0040 0004B1D0      000487A2      DD84EE40      0FC98C00      00040011      00000000      070C0000      000487A2
      0060 00000000      00000000      00FDF890      00FDF890
```

```
EOD RECORD EDIT AND PRINTING SECTION

SYSTEM TERMINATION RECORD EDIT AND PRINT SECTION

      DAY  YEAR      HH MM SS TH
DATE -056   08      TIME -04 00 00 25

MODEL - 2097      CPU SERIAL NO. - 0706C0

      VS 2      REL. 3

      HEX DUMP OF RECORD
      HEADER      81000800      00000000      0008056F      04000025      230706C0      20970000

      0000 00000088      00000014      00FD3E04      80FD3DD8      00000042      00FD3E04      00000C00      00000000
      0020 0004C1D1      00FFBB40      00FDF890      7004B1D2      00031358      00029DE0      00FFBB40      00000000
      0040 0004B1D0      000487A2      DD84EE40      0FC98C00      00040011      00000000      070C0000      000487A2
      0060 00000000      00000000      00FDF890      00FDF890
```

Figure 70. System Termination Detail Report


```

SUMMARY OF SYSTEM TERMINATION RECORDS
                                DAY YEAR      DAY YEAR      MODEL
                                046  97      TO 056  97      CPU SERIAL  220344
DATE RANGE FROM
NO. OF RECORDS  002

XXXXXXXX END OF SYSTEM TERMINATION SUMMARY XXXXXXXX

```

Figure 71. System Termination Summary Report

System Initialization (IPL) Detail Reports

IPL records are written to document operating system initialization.

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
Initial Program Load (System Initialization) Detail Report (IPL) for 2084	Figure 72 on page 241
Initial Program Load (System Initialization) Summary Report (IPL) for 2084	Figure 73 on page 241

```

IPL RECORD EDIT AND PRINTING SECTION
  DAY YEAR      HH MM SS TH
DATE -159  07      TIME -11 12 48 89
MODEL - 2084      CPU SERIAL NO. - 159BBE
MVS/ESA  V7 R0

IPL REASON CODE - DF  DEFAULT -U-
SUBSYSTEM ID - 00      SUBSYSTEM NAME - NULL
HIGHEST STORAGE ADDRESS 7FFFFFFF

LAST ACTIVITY INFORMATION :
  DAY YEAR      HH MM SS TH
DATE -159  07      TIME -11 09 45 48
END OF IPL RECORD

HEX DUMP OF RECORD
HEADER  509C1880  00000000  0107159F  11124889  FF159BBE  20840000
        0000  00000000  C4C60000  00000000  00000000  7FFFFFFF  00000000  0107159F  11094548

```

Figure 72. Initial Program Load (System Initialization) Detail Report (IPL) for 2084

```

SUMMARY OF IPL RECORDS
                                DAY YEAR      DAY YEAR      MODEL 2084
                                158  07      TO 159  07      CPU SERIAL  159BBE
DATE RANGE FROM
NO. OF RECORDS  002

XXXX  SUBSYSTEM NAME AND NUMBER OF OCCURRENCES XXXX
NULL      002      PROCESSOR      000
TAPE      000      TELEPROCESSING      000
MICR/OCR  000      GRAPHIX/DISPLAY/AUDIO      000
CARD/PRINT 000      IBM SYSTEM CONTROL PROGRAM      000
DIRECT ACCESS 000      IBM PROGRAMMING PRODUCT      000
OTHER      000
XXXX IPL REASON CODE AND NUMBER OF OCCURRENCES XXX
NORMAL      000      MEDIA      000
UNKNOWN      000      OPERATIONAL      000
USER PROGRAM 000      ENVIRONMENTAL      000
IBM HARDWARE PROGRAMMING PROBLEM-CE/SE NOT REQUIRED 000
IBM HARDWARE PROGRAMMING PROBLEM-CE/SE REQUIRED      000
CE/SE HAS THE SYSTEM      000
DEFAULT -U-      002
INVALID IPL REASON CODE 000

```

Figure 73. Initial Program Load (System Initialization) Summary Report (IPL) for 2084

Machine Check Handler (MCH) Detail Reports

MCH records document the occurrence of processor, storage, storage key or timing facility (external damage) failures under the following conditions:

- The problem is recovered by the hardware or the software.

Detail Edit and Summary Reports

- The problem is not corrected by hardware. A hard machine check is one that cannot be corrected or circumvented, so the software recovery routines are given control for the task.
- The problem resulted in the loss of a processor.

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
Machine Check handler (MCH) Detail Report for 2084-XA (MVS)	“Machine Check Handler (MCH) Detail Report for 2084-XA (MVS)” on page 242
Machine Check Handler (MCH) Summary Report for 2084-XA (MVS)	“Machine Check Handler (MCH) Summary Report for 2084-XA (MVS)” on page 244
Machine Check handler (MCH) Detail Report for 2084-XA (VM)	“Machine Check Handler (MCH) Detail Report for 2084-XA (VM)” on page 245
Machine Check Handler (MCH) Summary Report for 2084-XA (VM)	“Machine Check Handler (MCH) Summary Report for 2084-XA (VM)” on page 247
Machine Check Handler (MCH) Detail Report for 9373	“Machine Check Handler (MCH) Detail Report for 9373” on page 248
Machine Check Handler (MCH) Summary Report for 9373	“Machine Check Handler (MCH) Summary Report for 9373” on page 249

1

In a processor resource/system manager (PR/SM) environment, the logical CPU ID and physical CPU address are shown. In non-PR/SM environments, only physical CPU ID is shown.

Machine Check Handler (MCH) Detail Report for 2084-XA (MVS)

MODEL: 2084-XA	REPORT: MACHINE CHECK EDIT	DAY	
YEAR	YEAR	DATE: 215 04	REPORT
DATE: 289 04	SCP: VS2 REL. 3		
CPU ID: 270044			
ADDRESS: 00			
1 MACHINE VERSION CODE: 20		HH MM SS.TH	
		TIME: 00 20 32.34	
MACHINE CHECK OLD PSW:	SM KS CM UA IA		
	07 0E 00 00 00000000		
ERROR ID:	SEQ CPU ASID TIME		
	15759 0000 0000 0 0 00.0		
FAILING STORAGE ADDRESS:	NOT APPLICABLE		
REGION CODE:	NOT APPLICABLE		
EXTERNAL DAMAGE CODE:	NOT APPLICABLE		
SOFTWARE RECOVERY STATUS			
HARD FAIL	0		
DEGRADE FAIL	0		
SOFT FAIL	0		
PASSED	0		
**** NOTE: THE PRODUCT FUNCTIONAL CHARACTERISTICS PUBLICATION DESCRIBES THE MACHINE CHECK INTERRUPT CODE SUPPORT. ****			
MACHINE CHECK INTERRUPT CODE (MCIC)			
SUBCLASS			
SYSTEM DAMAGE	(SD) 0	RESERVED	
INSTR-PROCESSING DAMAGE	(PD) 0	DEGRADATION	(DG) 0
SYSTEM RECOVERY	(SR) 0	WARNING	(W) 0
RESERVED		CHANNEL REPORT PENDING	(CP) 0
TIMING-FACILITY	(CD) 1	SERVICE-PROCESSOR DAMAGE	(SP) 0
EXTERNAL DAMAGE	(ED) 0	CHANNEL-SUBSYSTEM DAMAGE	(CK) 0

INTERRUPT TENSE CODES

BACKED UP (B) 0

STORAGE AND PROTECTION ERROR CODES

STORAGE ERROR UNCORRECTED (SE) 0 STOR-KEY ERROR UNCORRECTED (KE) 0
STORAGE ERROR CORRECTED (SC) 0 STORAGE DEGRADATION (DS) 0

M.C. OLD PSW VALIDITY CODES

EMWP BITS ARE VALID (WP) 1 PROGRAM MASK IS VALID (PM) 1
SYSTEM MASK IS VALID (MS) 1 INSTR ADDRESS IS VALID (IA) 1

MISCELLANEOUS VALIDITY CODES

FAILING STOR ADDR IS VALID (FA) 0 CNTRL REGS STORED VALID (CR) 1
RESERVED (LG) 0
EXTERNAL DAMAGE CODE VALID (EC) 0 INSTR MODIFIED STOR VALID (ST) 1
FP REGS STORED ARE VALID (FP) 1 CPU-TIMER IS VALID (CT) 1
GEN REGS STORED ARE VALID (GR) 1 CLOCK-COMPARATOR IS VALID (CC) 1
IPD MODIFIER 0

EXTENDED LOGOUT LENGTH 0000

FLOATING POINT REGISTERS

FP REGS 0,2 00 00 00 00 00 00 00 00 00 00 00 00 00 00
FP REGS 4,6 00 00 00 00 00 00 00 00 00 00 00 00 00 00

GENERAL PURPOSE REGISTERS

GP REGS 0-3 00 00 00 00 00 00 00 00 00 00 00 00 00 00
GP REGS 4-7 00 00 00 00 00 00 00 00 00 00 00 00 00 00
GP REGS 8-B 00 00 00 00 00 00 00 00 00 00 00 00 00 00
GP REGS C-F 00 00 00 00 00 00 00 00 00 00 00 00 00 00

CONTROL REGISTERS

CT REGS 0-3 7E B0 EE 40 03 F7 E0 7F 00 00 00 00 00 00 00 01
CT REGS 4-7 00 01 00 01 82 60 20 00 FE 00 00 00 03 F7 E0 7F
CT REGS 8-B 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
CT REGS C-F 01 40 A4 B0 00 00 00 00 DF 88 3D 8F 00 00 00 00

MODEL-DEPENDENT DATA

MAINTENANCE LOG CORRELATOR:

DAY YEAR
DATE: 220 04

HH MM SS.TH
TIME: 00 22 31.95

ADDITIONAL MCIC FLAGS

VECTOR FACILITY FAILURE (VF) 0
VECTOR FACILITY SOURCE (VS) 0

SCP-DEPENDENT DATA

RECORD LENGTH: 0000014C

WAIT STATE: 00000A28
MCH ERROR INDICATION AREA

TERMINAL ERROR INDICATORS

RESERVED		CHECK STOP	0
RESERVED		POWER WARNING	0
THRESHOLD REACHED	0	SYSTEM DAMAGE	0
SECONDARY ERROR	0	INVALID LOGOUT	0

HARD MACHINE ERROR SWITCHES

HARD ERROR ASSUMED	0	REGISTER OR PSW INVALID	0
RESERVED		HARD STORAGE ERROR	0
RESERVED		HARD STORAGE PROTECTION KEY ERROR	0
SYSTEM DAMAGE	0	INSTRUCTION PROCESSING DAMAGE	0

INTERMEDIATE ERROR SWITCHES

RESERVED		TOD CLOCK ERROR	0
RESERVED		CLOCK COMPARATOR ERROR	0

Detail Edit and Summary Reports

RESERVED		CPU TIMER ERROR	0
RESERVED		INTERVAL TIMER ERROR	0
SOFT MACHINE ERROR SWITCHES			
SOFT ERROR ASSUMED	0	EXTERNAL DAMAGE	0
RESERVED		ECC-CORRECTED STORAGE ERROR	0
RESERVED		HIR-CORRECTED PROCESSOR(CPU) ERROR	0
RESERVED		BUFFER ERROR	0
PROGRAM DAMAGE ASSESSMENT AND REPAIR(PDAR)			
RECOVERY TERMINATION MANAGER SOFTWARE STATES			
RESERVED		RECONFIG STATUS AT OFFSET 37	0
RESERVED		RECONFIGURATION NOT ATTEMPTED	0
RESERVED		RESERVED	
STORAGE RECONFIGED,PAGE INVALID	0	RESERVED	
STORAGE RECONFIGURATION STATUS			
RESERVED		FRAME OFFLINE OR SCHEDULE OFFLINE	0
RESERVED		INTERCEPT	0
RESERVED		PERMANENT ERROR OCCURED IN FRAME	0
RESERVED		FRAME HAS RESIDENT SYSTEM STORAGE	0
RESERVED		FRAME IS IN USE FOR SQA	0
RESERVED		FRAME IS IN USE FOR LSQA	0
STORAGE ERROR SET IN FRAME	0	FRAME CONTAINS PAGE-FIXED DATA	0
FRAME HAD CHANGE INDICATOR ON	0	FRAME IS V=R OR SCHEDULED V=R	0
CHECKING BLOCK LENGTH: 80			
NO MACHINE CHECK EXTENDED LOGOUT HAS BEEN STORED			
HEX DUMP OF RECORD			
HEADER	13831818	FF000000	0097042F 00203234 20270044 30900000
0018	0000014C	00000A28	00000000 00000080 070E0000 00000000 08000F1D 00030000
0038	00000000	00000000	00000000 00000000 98F62D02 39AC0000 00000000 00000000
0058	00000000	00000000	00000000 00000000 00000000 00000000 00000000 00000000
0078	00000000	00000000	00000000 00000000 00000000 00000000 00000000 00000000
0098	00000000	00000000	00000000 00000000 00000000 00000000 00000000 00000000
00B8	00000000	00000000	00000000 00000000 00000000 00000000 00000000 00000000
00D8	00000000	00000000	00000000 00000000 00000000 00000000 00000000 00000000
00F8	00000000	00000000	00000000 00000000 7EB0EE40 03F7E07F 00000000 00000001
0118	00010001	82602000	FE000000 03F7E07F 00000000 00000000 00000000 00000000
0138	0140A4B0	00000000	DF883D8F 00000000 00000000 00000000

Machine Check Handler (MCH) Summary Report for 2084-XA (MVS)

MODEL: 2084	REPORT: MACHINE CHECK SUMMARY	DAY	
YEAR	DAY YEAR		
DATE: 289 04	DATE RANGE: 215 04	REPORT	
CPU ID: 270044			
MACHINE VERSION CODE: 20			
NO. OF RECORDS:	1		
NO. OF 370 RECORDS:	0		
NO. OF XA RECORDS:	1		
SOFTWARE RECOVERY STATUS			
HARD FAIL	0		
DEGRADE FAIL	0		
SOFT FAIL	0		
PASSED	0		
**** NOTE: THE PRODUCT FUNCTIONAL CHARACTERISTICS PUBLICATION DESCRIBES THE MACHINE CHECK INTERRUPT CODE SUPPORT. ****			
MACHINE CHECK INTERRUPT CODE (MCIC)			
SUBCLASS			
SYSTEM DAMAGE	(SD)	0	RESERVED

INSTR-PROCESSING DAMAGE	(PD)	0	DEGRADATION	(DG)	0
INSTR-PROCESSING BACKUP	(PD)	0	WARNING	(W)	0
SYSTEM RECOVERY	(SR)	0	PENDING CRW REPORT	(CP)	0
INTERVAL-TIMER DAMAGE	(TD)	0	SERVICE PROCESSOR DAMAGE	(SP)	0
TIMING-FACILITY DAMAGE	(CD)	1	CHANNEL SUBSYSTEM DAMAGE	(CK)	0
EXTERNAL DAMAGE	(ED)	0			
INTERRUPT TENSE CODES					
BACKED-UP	(B)	0	DELAYED	(D)	0
STORAGE AND PROTECTION ERROR CODES					
UNCORRECTED STOR ERRORS	(SE)	0	STOR-KEY ERROR UNCORRECTED	(KE)	0
CORRECTED STORAGE ERRORS	(SC)	0	STORAGE DEGRADATION	(DS)	0
M.C. OLD PSW VALIDITY CODES					
EMWP BITS ARE VALID	(WP)	1	PROGRAM MASK IS VALID	(PM)	1
SYSTEM MASK IS VALID	(MS)	1	INSTR ADDRESS IS VALID	(IA)	1
MISCELLANEOUS VALIDITY CODES					
FAILING STOR ADDR IS VALID	(FA)	0	CNTRL REGS STORED VALID	(CR)	1
REGION CODE IS VALID	(RC)	0	EXTENDED LOGOUT AREA VALID	(LG)	0
EXTERNAL DAMAGE CODE VALID	(EC)	0	INSTR MODIFIED STOR VALID	(ST)	1
FP REGS STORED ARE VALID	(FP)	1	CPU TIMER IS VALID	(CT)	1
GEN REGS STORED ARE VALID	(GR)	1	CLOCK COMPARATOR IS VALID	(CC)	1

Machine Check Handler (MCH) Detail Report for 2084-XA (VM)

MODEL: 2084-XA	REPORT: MACHINE CHECK EDIT	DAY			
YEAR	DAY YEAR				
DATE: 289 04	DATE: 215 04				REPORT
CPU ID: 511353	SCP: VM/ESA V1 R2				
ADDRESS: 00				HH MM SS.TH	
MACHINE VERSION CODE: 00				TIME: 12 07 30.59	
MACHINE CHECK OLD PSW:	SM KS CM UA IA				
	07 0E 00 00 00000000				
ERROR ID:	SEQ CPU ASID TIME				
	00000 8000 4100 0 0 00.0				
FAILING STORAGE ADDRESS:	NOT APPLICABLE				
REGION CODE:	NOT APPLICABLE				
EXTERNAL DAMAGE CODE:	NOT APPLICABLE				
SOFTWARE RECOVERY STATUS					
HARD FAIL		0			
DEGRADE FAIL		0			
SOFT FAIL		0			
PASSED		0			
**** NOTE: THE PRODUCT FUNCTIONAL CHARACTERISTICS PUBLICATION DESCRIBES THE MACHINE CHECK INTERRUPT CODE SUPPORT. ****					
MACHINE CHECK INTERRUPT CODE (MCIC)					
SUBCLASS					
SYSTEM DAMAGE	(SD)	1	RESERVED		
INSTR-PROCESSING DAMAGE	(PD)	0	DEGRADATION	(DG)	0
SYSTEM RECOVERY	(SR)	0	WARNING	(W)	0
RESERVED			CHANNEL REPORT PENDING	(CP)	0
TIMING-FACILITY	(CD)	0	SERVICE-PROCESSOR DAMAGE	(SP)	0
EXTERNAL DAMAGE	(ED)	0	CHANNEL-SUBSYSTEM DAMAGE	(CK)	0
INTERRUPT TENSE CODES					
BACKED UP	(B)	0			
STORAGE AND PROTECTION ERROR CODES					
STORAGE ERROR UNCORRECTED	(SE)	0	STOR-KEY ERROR UNCORRECTED	(KE)	0
STORAGE ERROR CORRECTED	(SC)	0	STORAGE DEGRADATION	(DS)	0
M.C. OLD PSW VALIDITY CODES					

Detail Edit and Summary Reports

EMWP BITS ARE VALID	(WP)	1	PROGRAM MASK IS VALID	(PM)	0
SYSTEM MASK IS VALID	(MS)	1	INSTR ADDRESS IS VALID	(IA)	0
MISCELLANEOUS VALIDITY CODES					
FAILING STOR ADDR IS VALID	(FA)	0	CNTRL REGS STORED VALID	(CR)	1
RESERVED			EXTENDED LOGOUT AREA VALID	(LG)	1
EXTERNAL DAMAGE CODE VALID	(EC)	0	INSTR MODIFIED STOR VALID	(ST)	0
FP REGS STORED ARE VALID	(FP)	1	CPU-TIMER IS VALID	(CT)	1
GEN REGS STORED ARE VALID	(GR)	1	CLOCK-COMPARATOR IS VALID	(CC)	1
IPD MODIFIER		0			
EXTENDED LOGOUT LENGTH	0588				
FLOATING POINT REGISTERS					
FP REGS 0,2	00 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00	
FP REGS 4,6	00 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00	
GENERAL PURPOSE REGISTERS					
GP REGS 0-3	00 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00	
GP REGS 4-7	00 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00	
GP REGS 8-B	00 00 00 00	00 00 00 00	00 00 00 00	20 64 00 00	
GP REGS C-F	00 00 00 00	00 00 00 00	98 EB 99 BB	04 CF 71 01	
CONTROL REGISTERS					
CT REGS 0-3	80 02 00 01	00 00 00 41	01 0A C3 32	00 F8 0A A4	
CT REGS 4-7	00 00 00 00	04 88 00 00	00 00 00 00	00 00 00 00	
CT REGS 8-B	00 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00	
CT REGS C-F	00 00 00 00	00 00 00 00	00 01 00 19	C9 C5 C1 E5	

MODEL-DEPENDENT DATA

MAINTENANCE LOG CORRELATOR:

DAY YEAR

DATE: 220 04

HH MM SS.TH

TIME: 16 47 41.98

ADDITIONAL MCIC FLAGS

VECTOR FACILITY FAILURE (VF) 0

VECTOR FACILITY SOURCE (VS) 0

MACHINE CHECK EXTENDED LOGOUT BYTES

0000	C5C4E2F0	C9C5C1E5	C5C4E2F0	C9C5C1E5	C5C4E2D9	00F80A50	00000000	00000000
0020	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0040	00000000	FFFF0003	00F80C70	00000000	00000000	00000000	00000000	00000000
0060	00000000	0007F7EE	00FFA0D2	1106C9C8	C1D7E2C1	15020224	120400FB	30801502
0080	021C1204	00000000	150202EC	12040000	00001502	049C1204	00000008	1107C9C8
00A0	C1C1E2C3	C2150200	80120400	00000015	0200E812	04000000	00150200	EC120400
00C0	00000015	0200B412	04000000	00150201	3C120400	00000015	02014812	04000000
00E0	001107C9	C8C1D3C3	C3C11502	036C1204	00000000	1502021C	12020000	1502053C
0100	120C0000	00000000	00000000	00001106	C9C8C1E2	E5E31502	001C1204	00000000
0120	00000000	1018E2C3	D9C100FF	B1E800F8	04E08000	000000F8	08480400	0000E2C3
0140	F1C3F5C9	C5C1E5C5	C4E2F000	00000000	00000000	00000000	0000F0F1	61F2F961
0160	F8F540D1	C2C2F2F1	F3F30000	0000C9C5	C1E5C5C4	E2D90000	00000000	00000000
0180	00000400	00000000	0000810B	09D00000	00000000	00000000	00000000	00000000
01A0	00000000	00000000	00000000	00000000	00000000	00000000	0000D203	824095FE
01C0	D20303A4	038000FB	308003F7	E07F900F	30000000	00000000	00000000	00004000
01E0	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0200	00000000	00000019	00410001	0007F7EE	00000000	00000000	00000000	00000000
0220	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0240	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0260	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0280	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
02A0	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
02C0	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
02E0	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0300	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0320	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0340	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0360	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0380	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
03A0	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
03C0	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
03E0	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000

```

0400 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0420 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0440 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0460 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0480 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
04A0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
04C0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
04E0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0500 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0520 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0540 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0560 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0580 00000000 00000000

```

HEX DUMP OF RECORD

```

HEADER 10661010 FF000000 0097042F 12073059 00511353 30900000
0018 000006D0 00000000 00180000 00000008 070E0000 00000000 80000C1E 00030588
0038 00000000 00000000 00000000 00000000 80004100 00000000

```

Machine Check Handler (MCH) Summary Report for 2084-XA (VM)

```

MODEL: 2084          REPORT: MACHINE CHECK SUMMARY          DAY
YEAR              DAY  YEAR
DATE: 289  04          DATE RANGE: 214  04          REPORT
CPU ID: 511353

MACHINE VERSION CODE: 00

NO. OF RECORDS:          1
NO. OF 370 RECORDS:      0
NO. OF XA RECORDS:       1

SOFTWARE RECOVERY STATUS

HARD FAIL                0
DEGRADE FAIL             0
SOFT FAIL                0
PASSED                   0

**** NOTE: THE PRODUCT FUNCTIONAL CHARACTERISTICS PUBLICATION DESCRIBES THE MACHINE CHECK INTERRUPT
CODE SUPPORT. ****

MACHINE CHECK INTERRUPT CODE (MCIC)

SUBCLASS

SYSTEM DAMAGE (SD) 1 RESERVED
INSTR-PROCESSING DAMAGE (PD) 0 DEGRADATION (DG) 0
INSTR-PROCESSING BACKUP (PD) 0 WARNING (W ) 0
SYSTEM RECOVERY (SR) 0 PENDING CRW REPORT (CP) 0
INTERVAL-TIMER DAMAGE (TD) 0 SERVICE PROCESSOR DAMAGE (SP) 0
TIMING-FACILITY DAMAGE (CD) 0 CHANNEL SUBSYSTEM DAMAGE (CK) 0
EXTERNAL DAMAGE (ED) 0

INTERRUPT TENSE CODES

BACKED-UP (B ) 0 DELAYED (D ) 0

STORAGE AND PROTECTION ERROR CODES

UNCORRECTED STOR ERRORS (SE) 0 STOR-KEY ERROR UNCORRECTED (KE) 0
CORRECTED STORAGE ERRORS (SC) 0 STORAGE DEGRADATION (DS) 0

M.C. OLD PSW VALIDITY CODES

EMWP BITS ARE VALID (WP) 1 PROGRAM MASK IS VALID (PM) 0
SYSTEM MASK IS VALID (MS) 1 INSTR ADDRESS IS VALID (IA) 0

MISCELLANEOUS VALIDITY CODES

FAILING STOR ADDR IS VALID (FA) 0 CNTRL REGS STORED VALID (CR) 1
REGION CODE IS VALID (RC) 0 EXTENDED LOGOUT AREA VALID (LG) 1
EXTERNAL DAMAGE CODE VALID (EC) 0 INSTR MODIFIED STOR VALID (ST) 0

```

Detail Edit and Summary Reports

FP REGS STORED ARE VALID (FP)	1	CPU TIMER IS VALID (CT)	1
GEN REGS STORED ARE VALID (GR)	1	CLOCK COMPARATOR IS VALID (CC)	1

Machine Check Handler (MCH) Detail Report for 9373

--- MACHINE CHECK DATA EDITING ---

MODEL=9373 SERIAL NO= 234567

V370 REL. 06

DATE - DAY YEAR TIME - HH MM SS
044 97 07 19 52

SM KS CM UA IA
00 0C 30 0000 01AADC

OLD MACHINE CHECK PSW

JOB NAME=

PROGRAM NAME= CP/370

NOTE: THE PRODUCT FUNCTIONAL CHARACTERISTICS PUBLICATION DESCRIBES THE MACHINE CHECK INTERRUPT CODE SUPPORT.

--- MACHINE CHECK INTERRUPT CODE ---

--- SUB CLASS ---

SYSTEM DAMAGE (SD)	0	CLOCK DAMAGE (CD)	0
PROC. DAMAGE (PD)	0	WARNING (W)	0
SYSTEM RECOVERY (SR)	0	DEGRADATION (DG)	0

--- INTERRUPT TENSE CODES ---

--- STORAGE AND PROTECTION ERROR CODES ---

UNCORRECTED STORAGE ERRORS (SE)	0	KEY IN STOR ERR(KE)	0
CORRECTED STORAGE ERRORS (SC)	0	STOR DEGRADATION (DS)	0

--- PSW VALIDITY CODES ---

EMWP BITS OF M.C. OLD ARE VALID (WP)	1	SYSTEM MASK OF M.C. OLD IS VALID (MS)	1
PROGRAM MASK OF M.C. OLD IS VALID (PM)	1	INSTR ADDR OF M.C. OLD IS VALID (IA)	1

--- MISC VALIDITY CODES ---

FAILING STORAGE ADDR IS VALID (FA)	0	INSTR MODIFIED STORAGE IS VALID (ST)	1
FP REGS STORED ARE VALID (FP)	1	GP REGS STORED ARE VALID (GP)	1
CONTROL REGS STORED ARE VALID (CR)	1	CLOCK COMPARATOR STORED IS VALID(CC)	1
REGION CODE IS VALID (RC)	0		
EXTERNAL LOGOUT AREA IS VALID(CC)	0	EXTERNAL DAMAGE CODE IS VALID (EC)	1

EXTENDED LOGOUT LENGTH 0000 FAILING STORAGE ADDRESS 00000000

--- EXTERNAL DAMAGE CODE ---

EXTERNAL SECONDARY REPORT	1	CHANNEL NOT OPERATIONAL	0
I/O INTERRUPT TIMEOUT	0	I/O INSTRUCTION TIMEOUT	1

--- REGION CODE ---

DAMAGE DURING I/O INSTRUCTION DEVICE 0000

--- FLOATING POINT REGISTERS ---

FP REGS 0,2	00 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00
FP REGS 4,6	00 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00

--- GENERAL PURPOSE REGISTERS ---

GP REGS 0-3	00 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00
GP REGS 4-7	00 00 00 00	00 00 00 00	00 00 00 00	00 00 00 00
GP REGS 8-B	00 00 00 00	00 00 00 00	00 00 00 00	20 09 00 02
GP REGS C-F	00 00 00 00	00 00 00 00	98 F6 2F 1D	00 01 DF 01

--- CONTROL REGISTERS ---

```

CT REGS 0-3    80 02 00 01    00 00 00 42    01 0A C3 32    00 F9 EA A4
CT REGS 4-7    00 00 00 00    04 88 00 00    00 00 00 00    00 00 00 00
CT REGS 8-B    00 00 00 00    00 00 00 00    00 00 00 00    00 00 00 00
CT REGS C-F    00 00 00 00    00 00 00 00    00 01 00 11    C9 C5 C1 E5

```

--- MACHINE CHECK LOGOUT BYTES ---

```

0000 0400043D 00030000 00000000 24000000    00000000 00000000 00000000 00000000    00000000 00000000
00000000 00000000
0030 00000000 00000000 00000000 00000000    00000000 00000000 00000000 00000000    00000000 00000000
070E0000 00000000
0060 00000000 00042000 040C0000 810B09D0    00000000 00042000 00000000 00000000    00000000 00000000
00000000 00000000
0090 00000000 00000000 00000000 00000000    00000000 00000000 00000000 00000000    00000000 00000000
00000000 00000000
00C0 00000000 00000000 00000000 00000000    98F62F1D 0001DF01 80020001 00000042    010AC332 00F9EAA4
00000000 04880000
00F0 00000000 00000000 00000000 00000000    00000000 00000000 00000000 00000000    00010011 C9C5C1E5

```

```

      HEX DUMP OF RECORD
      HEADER    10660800    00000000    0097044F    07195268          00234567    93730000

      0018    4040C3D7    61F3F7F0    00000000    00000000          000C3000    0001AADC    04000F3D
00030000
      0038    00000000    24000000    00000000    00000000          00000000    00000000    00000000
00000000
      0058    00000000    00000000    00000000    00000000          00000000    00000000    00000000
00000000
      0078    00000000    00000000    00000000

```

Machine Check Handler (MCH) Summary Report for 9373

```

      MODEL 9373 MACHINE CHECK RECORDS      DAY YEAR      DAY YEAR
      DATE RANGE - FROM 044 97 TO 044 97

      SERIAL NO.          234567
      NO.OF RECORDS      00001

--- SUMMARY OF MODEL 9373 MACHINE CHECK RECORDS ---

--- MACHINE CHECK INTERRUPT CODE ---

--- SUB CLASS ---

SYSTEM DAMAGE (SD)    0000          CLOCK DAMAGE (CD)    0000
PROC. DAMAGE (PD)    0000          EXTERNAL DAMAGE (ED)  0001
SYSTEM RECOVERY (SR)  0000          AUTO-CONFIG (AC)     0000
TIMER DAMAGE (TD)    0000          WARNING (W)          0000

--- INTERRUPT TENSE CODES ---

BACK-UP (B)          0000          DELAYED (D)          0000

--- STORAGE AND PROTECTION ERROR CODES ---

UNCORRECTED STORAGE ERRORS (SE)    0000          UNCORRECTED PROTECTION ERRORS (PE)    0000
CORRECTED STORAGE ERRORS (SC)      0000          STORAGE DEGRADATION (DS)              0000

```

Miscellaneous Data Record (MDR) Detail Reports

MDR records contain error and usage data from buffered control units or communications controllers, or they document device failures on teleprocessing (TP) devices connected to a communications controller.

The following are some of the events that can cause MDR recording:

- Overflow of the statistical counters in a buffered control unit
- Overflow of the network control program (NCP) counter in a communications controller
- TP device failure

Detail Edit and Summary Reports

- DASD volume demounts
- Operator-initiated end of day (EOD), record on demand (ROD), or VARY OFFLINE commands
- Invocations of EREP that force the writing of statistical data

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
MDR Detail Edit Report for 3800-3-8	Figure 74 on page 250
MDR Detail Summary Report for 3800-3-8	Figure 75 on page 251
MDR Detail Edit Report (Outboard)	Figure 76 on page 252
MDR Detail Summary Report	Figure 77 on page 253
MDR Detail Edit Report, BSC/SS Permanent Line Error	Figure 78 on page 254
MDR Summary Report, BSC/SS Permanent Line Error	Figure 79 on page 254
MDR Detail Edit Report, SDLC Link Errors	Figure 80 on page 254
MDR Detail Summary Report, SDLC Link Errors	Figure 81 on page 255

---RECORD ENTRY TYPE - MDR		SOURCE - MISC		CPU MODEL 3084XA		SERIAL NO. 121128												
VS 2 REL. 03																		
DATE - 048		DAY 97	TIME - 07 31 10 71		BTS COUNT (DECIMAL)		00116000											
					CFS COUNT (DECIMAL)		00000000											
					PAPER COUNT (DECIMAL)		00000000											
DEVICE TYPE		3800-3,8																
DEVICE SERIAL NO.		0000																
DEVICE NUMBER		0B03																
NUMBER OF ENTRIES IN THIS RECORD (DECIMAL) - 00																		
INTERNAL LOG ENTRY BYTES 0-15 ARE SAME AS SENSE BYTES 4-19																		
ENTRY NO.	STATUS CODE	STATUS NAME	----- SENSE BYTES -----															
			5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
HEX DUMP OF RECORD																		
HEADER	90831800	20000000	0097048F	07311071				66121128	30840000									
0018	0B030000	00000000	00000000	00000000				00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
0038	00000000	00000000	00000000	00000000				00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
0058	00000000	00000000	00000000	00000000				00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
0078	00000000	00000000	00000000	00000000				00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	

Figure 74. MDR Detail Edit Report for 3800-3-8

SUMMARY OF I/O RECORDS										TYPE-OBR/SDR/MDR		SOURCE-OUTBOARD/MISC		DEVICE		3800 MOD 3,8		CPU MODEL-		3084XA SERIAL NO. 121128			
DAY YEAR		DAY YEAR																					
DATE RANGE		048 97 TO		048 97																			
						NO. OBR SHORT RECORDS				0000													
						NO. OBR LONG RECORDS				0000													
						NO. MDR RECORDS				0001													

CHANNEL UNIT ADDRESS/DEVICE NUMBER 0B03						TOTAL NUMBER OF RECORDS				0001													
--SUMMARY BY ERROR TYPE (COUNTS IN DECIMAL) --																							
1						2						3											
SDR COUNTERS						LONG OBR DATA						MDR RECORDS											
TEMP CHL DATA CK		0000		CFS MISFOLD (32)		0000		PERM CHL DATA CK		0000		INTVN RQD CK		0000		NO. INT LOG ENTRY		0000					
TEMP CHL CTL CK		0000		BUR/TRIM JAM(40)		0000		PERM CHL CTL CK		0000		EQUIP CK		0000									
TEMP INTF CTL CK		0000		NO BURST CK (41)		0000		PERM INTF CTL CK		0000		TEMP BOPAR		0000									
						BUR/STKR JAM(42)		0000				PERM BOPAR		0000									
--SUMMARY OF PERMANENT ERRORS FROM OBR RECORDS BY STATUS CODE (SENSE BYTE 4) - COUNTS IN DECIMAL																							
11 XFR UNDETENTED		0000		33 DATA WIDTH CK		0000		73 RPG SHIFTER CK		0000		95 POST XFR CRNA		0000		B3 PLTN OVTEMP		0000					
14 XFR ST/SP CK		0000		34 FSR OUTPUT CK		0000		74 STRIP BUFFER CK		0000		96 LSR PWR SUPPLY		0000		B4 PLN THRM OPEN		0000					
15 XFR MISREG/JAM		0000		3B X/F PG CT CK		0000		75 CG XEQ CS CK		0000		97 MIRROR DR CK		0000		B5 HR THRMSTR OPN		0000					
16 XFR ENCODER CK		0000		43 EARLY BURST CK		0000		76 LASER POWER CK		0000		98 DVM CHECK		0000		B6 FSR CURRENT CK		0000					
17 XFR MTR OVRLD		0000		4B BTS LOOP CK		0000		77 MIRROR SPD CK		0000						B7 THERMAL- NO CK		0000					
18 XFR PRT POS CK		0000						78 SERIALIZER CK		0000		A0 PRNT PWR NRDY		0000		B8 NVS CHECK		0000					
1C XFR TRACTOR CK		0000		51 MISSING FO FLH		0000		79 SRLZR INTRF CK		0000						B9 PROC PAPER CK		0000					
1E X/F LOOP CK		0000		52 EXTRA FO FLASH		0000		7A MIRR ROTATE CK		0000		A2 PROC VOLT CP		0000		BA SYS CHNL CK		0000					
						62 PRINT CONTRAST		0000		7C SER SYNCH CK		0000		A3 LOGIC VOLT CP		0000		BB DISK FILE CK		0000			
21 FSR TEMP CK		0000		63 VACUUM SYS CK		0000		7D S/B OVER-RUN		0000		A4 MIRROR MTR TH		0000		BC FILE READ CK		0000					
22 PLATN TEMP CK		0000		64 OPT STP LMT CK		0000		7E CG CS START CK		0000		A5 DR COOLR CHECK		0000		BD FILE WRITE CK		0000					
23 FSR BUR NCLOSD		0000		65 CLNR BRUSH CK		0000		7F CG CS CMPLT CK		0000		A6 CYC BLWR MT TH		0000		BF DISK DAMAGED		0000					
24 FSR BUR NOPEN		0000		66 ERASE LAMP CK		0000		80 RETRY G LOG FL		0000		A7 DEV MOTOR THRM		0000		D0 EXGRF-CGEN CK		0000					
25 FSR PRT ALGNMT		0000		67 MARK SENSOR CK		0000		89 PERM IEU PE		0000		A8 CLNR BR MTR TH		0000		D1 X/G CPS CHECK		0000					
26 FSR WIDTH CK		0000		68 DRUM SLOW		0000		8B SUBSYS CLK CK		0000		A9 CTL ASM GT TH		0000		D2 X/G RD WR CK		0000					
27 FSR MTR OVRLD		0000		69 DRUM FAST		0000		8D SUC PRT RSTART		0000						D3 EXGRF-DECOMP CK		0000					
28 FSR PAPER SKEW		0000		6A DRUM MTR OVLD		0000		8E SUBSYS RUN RST		0000		AB FSR SCFF MT TH		0000		D4 CPS ER-DECOMP		0000					
2A X/F SHORT LOOP		0000		6C TONER OVRFEED		0000		8F CHAN SEL RESET		0000		AC CFS ELEV MT TH		0000		D8 ACCUMULATOR CK		0000					
2B X/F LONG LOOP		0000		6D TONER LOOP OPN		0000		90 PROC CLOCK CK		0000		AD CFS MOTOR THRM		0000		D9 ACCUM STRG CK		0000					
2E FSR ROLL WRAP		0000						91 CHARGE CRNA CK		0000		AE MUL THRM SW CK		0000		DA ACCUM/SB CK		0000					
						70 CGEN INTRF CK		0000		92 XFR CORONA CK		0000		AF FSR THERM CHK		0000		DB NO RSP TIMEOUT		0000			
30 OUTPT LNGTH CK		0000		71 CGEN CNTRL CK		0000		93 PRCLN CRNA CK		0000		B1 BTS CAM MT TH		0000		DD CPS RD/WR CK		0000					
31 DRDY LNGTH CK		0000		72 RPG CHECK		0000		94 MAG BR BIAS CK		0000		B2 FSR ROLL OVR T		0000		DF EXGRF DEC CK		0000					
--SUMMARY OF RECOVERED ERRORS FROM MDR RECORDS BY STATUS CODE (INTERNAL LOG ENTRY BYTE 0) - COUNTS IN DECIMAL--																							
51 MISSING FO FLH		0000		72 RPG CHECK		0000		79 SRLZR INTRF CK		0000		93 PRCLN CRNA CK		0000		D1 X/G CPS CHECK		0000					
52 EXTRA FO FLASH		0000		73 RPG SHIFTER CK		0000		7C SER SYNCH CK		0000		94 MAG BR BIAS CK		0000		D2 X/G RD WR CK		0000					
63 VACUUM SYS CK		0000		74 STRIP BUFFER CK		0000		7D S/B OVER-RUN		0000		95 POST XFR CORONA		0000		D8 ACCUMULATOR CK		0000					
65 CLNR BRUSH CK		0000		75 CG XEQ CS CK		0000		7E CG CS START CK		0000		96 LSR PWR SUPPLY		0000		D9 ACCUM STRG CK		0000					
66 ERASE LAMP CK		0000		76 LASER POWER CK		0000		7F CG CS CMPLT CK		0000		97 MIRROR DR CK		0000		DA ACCUM/SB CK		0000					
6A DRUM MTR OVLD		0000		77 MIRROR SPD CK		0000						BA SYS CHNL CK		0000									
70 CGEN INTRF CK		0000		78 SERIALIZER CK		0000		91 CHSRGE CRNA CK		0000		BC FILE READ CK		0000									
												BD FILE WRITE CK 0000											
--SUMMARY OF STATISTICAL USAGE DATA FROM INTERNAL LOG FOR DATE RANGE INDICATED ABOVE - COUNTS IN DECIMAL--																							
BTS COUNT		000000116000		4																			
CFS FEET COUNT		000000000000																					
PAPER COUNT		000000000000																					

Figure 75. MDR Detail Summary Report for 3800-3-8

- 1** The statistical data counters keep track of the number of temporary data and equipment checks experienced by the device.
- 2** OBR records reflect permanent (uncorrectable) data and equipment checks. In this report, the data is from long OBR records only.
- 3** Error information kept on the device's internal log becomes MDR records. This column shows the number of entries in the log; the data is summarized below as recovered errors.
- 4** These counts do *not* represent total paper usage. They are used as a diagnostic tool by IBM service representatives.

---RECORD ENTRY		SOURCE	-MDR-	TYPE- OUTBOARD		DEVICE TYPE 2305-2				
VS 2 REL.		03								
		DAY	YEAR			HH MM SS.TH		MODEL-	3033	SERIAL NO. 021929
		DATE-	048	97	TIME-	01 44 34 44				
CHANNEL/UNIT ADDR--01CX (INCLUDES ALT PATH RECORDS)										
-----BUFFERED LOG DATA-----										
NAME		--BYTE 0--	--BYTE 1--	--BYTE 2--	--BYTE 3--	--BYTE 4--	--BYTE 5--	--BYTE 6--	--BYTE 7--	
CU SEL RESET			ERROR PATT	TC REG X	TG REG X	HIGH ADD	LOW ADD	CK 1 0-7	CK 1 8-15	
			00000000	11010001	00000000	00010000	00000000	10000111	00000000	
X REGISTERS WILL BE ZERO IF SELECTIVE RESET CAUSED BY TYPE 1 ERROR.										
HEX DUMP OF RECORD										
HEADER		90830800	020000E3	0097048F	01443444	00021929	303304C8	01C8		
0000		00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	
0020		00000000	00000000	00000000						

Figure 76. MDR Detail Edit Report (Outboard)

SUMMARY OF I/O OUTBOARD ENVIRONMENT RECORDS										DAY YEAR		DAY YEAR		CHANNEL UNIT ADDR		0001CX																																																															
DATE RANGE - FROM										048 97		TO		048 97		DEVICE TYPE-MODEL		2305-2																																																													
																SERIAL NO.		021929																																																													
----- SUMMARY BY ERROR TYPE FOR MODULES 0 AND 1 ----- TOTAL NO. OF RECORDS 001																																																																															
MODULE 0										MODULE 1																																																																					
DATA CHECKS										000		000		OVERRUN CHANNEL A		00000																																																															
EQUIPMENT CHECKS										000		000		OVERRUN CHANNEL B		00000																																																															
BUS OUT PARITY										000		000		OVERRUN CHANNEL C		00000																																																															
MISSING ADDR MK										00000		00000		OVERRUN CHANNEL D		00000																																																															
														CTL UNIT SEL RESET		00001																																																															
														MPL FILE READ CHK		00000																																																															
														MPL FILE SEEK CHK		00000																																																															
----- DATA CHECK ERROR RATE FOR MODULES 0 AND 1 -----																																																																															
TOTAL GIGABYTES				TOTAL				GIGABYTES				-----ERROR DESCRIPTION-----																																																																			
READ				DATA CHECKS				READ/ERROR				CORRECTABLE				CU RETRY		RETRY INHIB		PERMANENT																																																											
MODULE 0				00000.00				000				N/A				000				002		000		000																																																							
MODULE 1				00000.00				000				N/A				000				000		000		000																																																							
----- SUMMARY OF EQUIPMENT CHECKS FOR MODULE 0 -----																																																																															
BYTE			-----ERROR NAME----			QTY			BYTE			-----ERROR NAME----			QTY			BYTE			-----ERROR NAME----			QTY																																																							
16			MODEL 1/MODEL 2						17			MODEL 1/MODEL 2						18			MODEL 1/MODEL 2																																																										
0			XOVERSKEW/SD PAR			000			0			SD PAR 0/IW PAR			000			0			DR+BR P0/DRV SEL			000																																																							
1			XOVERRUN /OVERRUNX			000			1			SD PAR 1/DR+BR CHK			000			1			DR+BR P1/INV TAG			000																																																							
2			MARK OUT/IR PAR			000			2			IW REG 0/CUE A+B X			000			2			2VFO CK P0+1/DEV CK			000																																																							
3			FETCH CT/CBO PAR			000			3			IW REG 1/MISS PLO			000			3			3PLO CK P0+1/TA REG			000																																																							
4			ECC CK 1/ECC CK A			000			4			IR REG 0/VFO PHSE			000			4			ECC DEC /CUDI REG			000																																																							
5			ECC CK 2/ECC CK B			000			5			IR REG 1/CHAN CK			000			5			CHAN CK /TD REG			000																																																							
6			ECC INPT/ECC INPT			000			6			SKBO 0 /DATA ERRX			000			6			XDATA ERR/SRCH COM			000																																																							
7			BYTE CTR/BYTE CTR			000			7			SKBO 1 /CUDI CK			000			7			CUDI CK /ECC CHK			000																																																							
----- SUMMARY OF EQUIPMENT CHECKS FOR MODULE 1 -----																																																																															
BYTE			-----ERROR NAME----			QTY			BYTE			-----ERROR NAME----			QTY			BYTE			-----ERROR NAME----			QTY																																																							
20									21									22																																																													
0			INOPERATIVE			000			0			BUS OUT PAR			000			0			CLIP ERROR			000																																																							
1			DISK SPEED			000			1						000			1			ADDRESS REG			000																																																							
2			APC FAILURE			000			2						000			2			WRT IX(MOD 1)			000																																																							
3			APC SYNC			000			3			BUS IN PAR			000			3			RD SEQ FAIL			000																																																							
4			378 JUMP			000			4			BOTH PATHS(MOD 1)			000			4						000																																																							
5			378 SEQUENCE			000			5						000			5			WRT SEQ FAIL			000																																																							
6			378 ILLEGAL			000			6						000			6			SIMULT R/W			000																																																							
7			PLO SYNC			000			7			PATH 1(MOD 1)			000			7			I SINK ON			000																																																							
NOTE -- AN X BEFORE OR AFTER AN EQUIPMENT CHECK INDICATES THAT IT WILL NOT CAUSE AN EQUIPMENT CHECK BUT MAY BE ON IF AN EQUIPMENT CHECK WAS CAUSED BY OTHER ERRORS																																																																															
----- LISTING OF DATA CHECKS FOR MODULE 0 -----																																																																															
SYSTEM										----- DRIVE ADDRESS -----										----- ERROR DESCRIPTION -----																																																											
ADDRESS																																																																															
CYL HEAD										SPARE SIDE COL CARD X SLDR DISK ELE										DISK HALF										CORRECTABLE										CU RETRY										RETRY INHIB										PERMANENT																			
213 195										1 A 1 1 0 5 3										(MOD 1)																				(RETRY NO)																																							
000 000										1 A 0 0 0 0 0																														22																																							
																																								20																																							
X ON MODEL 1 THIS IS THE FAILING PATH - A U INDICATES THE FAILING PATH CANNOT BE DETERMINED,A 2 INDICATES BOTH PATHS FAILED																																																																															
----- LISTING OF DATA CHECKS FOR MODULE 1 -----																																																																															
SYSTEM										----- DRIVE ADDRESS -----										----- ERROR DESCRIPTION -----																																																											
ADDRESS																																																																															
CYL HEAD										SPARE SIDE COL CARD X SLDR DISK ELE										DISK HALF										CORRECTABLE										CU RETRY										RETRY INHIB										PERMANENT																			
																														(MOD 1)																				(RETRY NO)																													
X ON MODEL 1 THIS IS THE FAILING PATH - A U INDICATES THE FAILING PATH CANNOT BE DETERMINED,A 2 INDICATES BOTH PATHS FAILED																																																																															

Figure 77. MDR Detail Summary Report (Outboard)

Detail Edit and Summary Reports

```

DEVICE NUMBER: 06FF          REPORT: MISCELLANEOUS DATA EDIT
97                          SCP: VS 2 REL. 3          DATE: DAY 070 YEAR 97
DEVICE TYPE: 3705                                REPORT DATE: DAY 071 YEAR

                                MODEL : 3033
                                CPU ID: 021929          TIME: HH MM SS.TH
                                                16 11 42.31

CHANNEL PATH ID: 00

RESOURCE ID: D877
RECORD TYPE: BSC/SS PERMANENT LINE ERROR
LIA: 00A2
TERMINAL NAME: NTVLN0A2
SIO COUNTER: 00002
TEMPORARY ERROR COUNTER: 00000

BASIC TRANSMISSION UNIT
BTU COMMAND 02          IOB COMMAND 10          IOB INITIAL ERROR STATUS 0000
BTU MODIFIER 0B        IOB MODIFIERS 2000        IOB INITIAL ERROR EXTENDED STATUS 00
BTU FLAGS 0080         IOB IMMEDIATE CONTROL COMMAND 00 IOB STATUS 069C
                                                IOB EXTENDED STATUS 00

HEX DUMP OF RECORD
HEADER 91830800 158A0000 0097070F 16114231 00021929 303304C8
0018 06FFD5E3 E5D3D5F0 C1F2D877 00A28005 01000000 020B0080 10200000 069C0000
0038 00000002 00000000 0001248A 1E00FC02 C1C3F9D5 C3D7C640 00000000 00000000
0058 00000000 00000000

```

Figure 78. MDR Detail Edit Report, BSC/SS Permanent Line Error

```

DEVICE NUMBER: 06FF          REPORT: MISCELLANEOUS DATA SUMMARY
DATE RANGE: DAY 070 YEAR 97 TO DAY 071 YEAR 97          REPORT DATE: DAY 080 YEAR 97
TOTAL NUMBER OF RECORDS: 00001

- - - - - PERMANENT ERROR TYPES - - - - -
TERM NAME  RID  LIA  # I/O OPS  TEMP  PERM  HDWR  T  M OUT  DATA CK  R CV  ITV RQD  MISC  MODEM/
ERRORS  ERRORS                                     INTFC
NTVLN0A2  D877  00A2  00000000  00000  00001  %%  00000  0  0001  00000  00 000  00000  00000  00000

```

Figure 79. MDR Detail Summary Report, BSC/SS Permanent Line Error

```

DEVICE NUMBER: 06FF          REPORT: MISCELLANEOUS DATA EDIT
97                          SCP: VS 2 REL. 3          DATE: DAY 070 YEAR 97
DEVICE TYPE: 3705                                REPORT DATE: DAY 071 YEAR

                                MODEL : 3033
                                CPU ID: 021929          TIME: HH MM SS.TH
                                                15 58 21.66

RESOURCE ID: D8A2
RECORD TYPE: STATISTICAL DATA ON SDLC LINK ERRORS
LIA: 00A2
TERMINAL NAME: PUAC9L27
STATION TYPE: 02

TOTAL TRANSMISSION COUNT 032770
I FORMAT RECEIVE COUNT 001718
S FORMAT RECEIVE COUNT 028214
I FORMAT RECEIVE ERRORS 000000
I FORMAT FRAMES ACKNOWLEDGED 002963
I FORMAT TOTAL RETRANSMISSIONS 000000
TOTAL RETRY COUNT 000000

HEX DUMP OF RECORD
HEADER 91830800 158A00C8 0097070F 15582166 00021929 303304C8
0018 06FFD7E4 C1C3F9D3 F2F7D8A2 00278605 02000000 00000000 00000000 00000000
0038 00000B93 00000000 02000000 00000000 00000000 00008002 06B66E36 0B930000
0058 00001E00 FC03D3C1 C3F9D3F2 F740C1C3 F9D5C3D7 C6400000 00000000 0000

```

Figure 80. MDR Detail Report, SDLC Link Errors

DEVICE NUMBER: 06FF				REPORT: MISCELLANEOUS DATA SUMMARY									
DEVICE TYPE: 3705				DATE RANGE: DAY 048 YEAR 97 TO DAY 049 YEAR 97				REPORT DATE: DAY 071 YEAR 97					
TOTAL NUMBER OF RECORDS: 00001													
- - - - - PERMANENT ERROR TYPES - - - - -													
TERM NAME	RID	LIA	# I/O OPS	TEMP ERRORS	PERM ERRORS	HDWR	TM OUT	DATA CK	RCV	ITV	RQD	MISC	MODEM/INTFC
NTVLN0A2	D877	00A2	00000002	00000	00001	%%	00000	00000	00000	00000	00000	00001	00000
PUAC9L26	D890	0026	00000000	00000	00000	%%	00000	00000	00000	00000	00000	00000	00000
PUAC9L27	D8A2	0027	00002963	00000	00000	%%	00000	00000	00000	00000	00000	00000	00000

Figure 81. MDR Summary Report, SDLC Link Errors

Missing Interrupt Handler (MIH) Detail Reports

MIH records are created whenever an expected interrupt fails to occur in a preset time interval. They are produced for missing channel-end (primary status) and device-end (secondary status) interrupts on non-TP devices. The records use fields from the unit control block (UCB) to define the origin and status of the missing interrupt.

In VSE, only the Advanced Function system produces MIH reports.

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	Refer To
MIH (370) Detail Edit Report	Figure 82 on page 255
MIH (370) Detail Summary Report	Figure 83 on page 255
MIH (370XA) Detail Edit Report	Figure 84 on page 256
MIH (370XA) Detail Summary Report	Figure 85 on page 256
MIH (370XA) Detail Edit Report for zHPF	Figure 86 on page 257

--- RECORD ENTRY TYPE - MIH SOURCE - MIH MODEL - 9375 SERIAL NO. 234567													
V370 REL. 06													
DAY YEAR HH.MM.SS.TH JOB IDENTITY SYSTEM													
043 97 18 57 22 12 E2E8E2E3C5D44040													
UCB DEVICE TYPE				00002107									
PRIMARY CHANNEL UNIT ADDRESS				000C41									
ALTERNATE CHANNEL UNIT ADDRESS				000C41									
CHANNEL SET ID				00									
MISSING INTERRUPT				C0									
TIME INTERVAL				HH MM SS.TH 00 00 15.00									
VOLUME SERIAL NUMBER				VMRESA									
HEX DUMP OF RECORD HEADER				70660800 C0000000 0097043F 01081232 10234567 93750000									
0000 E2E8E2E3 0020 00000000				C5D44040 000C4000 0C40E5D4 D9C5E2C1 00002107 F0F0F0F0 F1F5F0F0									

Figure 82. MIH (370) Detail Edit Report

SUMMARY OF MIH RECORDS										CUA 000C40									
RECORD DATE RANGE										DAY YEAR 043 97				DAY YEAR 043 97					
MODEL - 9375										SERIAL NO - 234567									
TOTAL NUMBER OF RECORDS=0001																			

Figure 83. MIH (370) Detail Summary Report

Detail Edit and Summary Reports

```
DEVICE NUMBER: 02300      REPORT: MIH EDIT          DAY YEAR      JOB IDENTITY: *MASTER*
                  SCP:      VS 2 REL. 3              DATE: 260 04      5CD4C1E2E3C5D95C
DEVICE NED:      002105.000.IBM.075.000000012252.0615
DEVICE TYPE:     3390
                  CPU MODEL: 2084                    HH MM SS.TH
CHANNEL PATH ID: N/A      CPU ID: 0190CC              TIME: 05 34 30.13

MISSING INTERRUPT: 10 - START PENDING IN SUBCHANNEL  SUBCHANNEL ID NUMBER: 000100EF
                                                         VOLUME SERIAL:
                                                         D83RL7
TIME INTERVAL:      HH MM SS.TH                      UCB LEVEL BYTE:
                   00 00 15.00                      01

RECOVERY ACTIONS PERFORMED BYTE: AC 1

  HALT OR CLEAR SUBCHANNEL 1
  SIMULATED INTERRUPT      0
  REDRIVE DEVICE           1
  REQUEUE I/O REQUEST      0
  ISSUE MESSAGE            1
  LOG THE CONDITION        1
  BIT 6                    0
  BIT 7                    0

HEX DUMP OF SUBCHANNEL INFORMATION BLOCK
OFFSET 02106BC8 289F237A C00040C0 10C3FFC0
0010 40440000 00000000 00000001 00804400
0020 5BD52000 10000004 00000000 00000000
0030 00000000

HEX DUMP OF RECORD
HEADER 71831800 00000000 0004260F 05343013 000190CC 20848000
0018 5CD4C1E2 E3C5D95C 02106BC8 289F237A C00040C0 10C3FFC0 40440000 00000000
0038 00000001 00804400 5BD52000 10000004 00000000 00000000 00000000 F0F0F0F0
0058 F1F5F0F0 10BCBCAC 000110EF 289CC040 C0404400 00000000 00010800 00000100
0078 00002300 0800801B 2024C4F8 F3D9D3F7 0010C000 01230000 00000100 00001001
0098 00806600 00120100 00000146 00020001 00A2F0F0 F2F1F0F5 F1F2F3C9 C2D4F1F3
00B8 F7F6F5F4 F3F2F1F1 F9F8F3F1 C1C2C3C4 40E2E8E2 E3C5D440 40404040 40404040
00D8 40404040 4040D0D0 D0D0E0E0 E0E0F0F0 F0F0A0A0 A0A0F0F0 FFFF
```

Figure 84. MIH (370XA) Detail Edit Report

1

The hexadecimal value in the byte is shown in [Figure 84 on page 256](#); the bit settings are shown in [Figure 85 on page 256](#).

```
DEVICE NUMBER: 02300      REPORT: MIH SUMMARY          REPORT DATE: 289 04
                  CPU MODEL: 2084                    PERIOD FROM: 260 04
                  CPU ID: 0190CC                      TO: 260 04

MISSING INTERRUPT

MISSING CSCH          00000000
MISSING HSCH          00000000
IDLE DEVICE WITH WORK QUEUED 00000000
START PENDING IN SUBCHANNEL 00000001
I/O TIMEOUT CONDITION FOR
  ACTIVE I/O REQUEST  00000000
I/O TIMEOUT CONDITION FOR
  QUEUED I/O REQUEST  00000000
MOUNT PENDING         00000000
MISSING PRIMARY STATUS 00000000
MISSING SECONDARY STATUS 00000000
```

Figure 85. MIH (370XA) Detail Summary Report


```

DEVICE NUMBER: 02300      REPORT: MIH EDIT      DAY YEAR      JOB IDENTITY: *MASTER*
                        SCP: VS 2 REL. 3      DATE: 260 04      5CD4C1E2E3C5D95C
DEVICE TYPE: 3390
CPU MODEL: 2084      HH MM SS.TH
CHANNEL PATH ID: N/A      CPU ID: 0190CC      TIME: 05 34 30.13
MISSING INTERRUPT: 10 - START PENDING IN SUBCHANNEL      SUBCHANNEL ID NUMBER: 000110EF
VOLUME SERIAL: D83RL7
TIME INTERVAL:      HH MM SS.TH      UCB LEVEL BYTE: 01
00 00 15.00
RECOVERY ACTIONS PERFORMED BYTE: AC
HALT OR CLEAR SUBCHANNEL 1
SIMULATED INTERRUPT 0
REDRIVE DEVICE 1
REQUEUE I/O REQUEST 0
ISSUE MESSAGE 1
LOG THE CONDITION 1
BIT 6 0
BIT 7 0
HEX DUMP OF SUBCHANNEL INFORMATION BLOCK
OFFSET 02106BC8 289F237A C00040C0 10C3FFC0
0010 40440000 00000000 00000001 00804400
0020 5BD52000 10000004 00000000 00000000
0030 00000000
COMMAND CODE: 00 I/O DRIVER ID: 12
STATUS: DEVICE RESERVED BY ANOTHER SYSTEM
INTERROGATE INFORMATION:
FORMAT: F0 FLAGS: F0 CU STATE: A0 DEVICE STATE: A0 I/O STATE: A0
STATE DEPENDENT DATA: FFFF2794 2D4D2794 2D4D2794
DEVICE LEVEL ID: 2D4D2861
DEVICE DEPENDENT DATA: 2D4D2895 00000000 01000000 2D4D25C6
00000000 00000000 F1FDF0F0
INTERROGATE INFORMATION:
OFFSET C0000004 F1F1F1F1 F2F2F2F2 F3F3F3F3
0010 F4F4F4F4 F5F5F5F5 F6F6F6F6 F7F7F7F7
0020 F8F8F8F8 10203040 A0A0A0A0 B0B0B0B0
0030 C0C0C0C0 D0D0D0D0 E0E0E0E0 F0F0F0F0
0040 A0A0A0A0 F0F0FFFF 27942D4D 27942D4D
0050 27942D4D 28612D4D 28950000 00000100
0060 00002D4D 25C60000 00000000 0000F1FD
0070 F0F0F0F9 00000000 00000096 00000101
0080 000F0000 00000000 00000000 00000000
0090 00000000 00000000 00000000
HEX DUMP OF RECORD
HEADER 71831800 00000000 0004260F 05343013 000190CC 20848000
0018 5CD4C1E2 E3C5D95C 02106BC8 289F237A C00040C0 10C3FFC0 40440000 00000000
0038 00000001 00804400 5BD52000 10000004 00000000 00000000 00000000 F0F0F0F0
0058 F1F5F0F0 10BCBCAC 000110EF 289CC040 C0404400 00000000 00010800 00000100
0078 00002300 0800801B 2024C4F8 F3D9D3F7 0010C000 01230000 00000100 00001001
0098 00806600 00120100 00000146 00010001 00A2C000 0004F1F1 F1F1F2F2 F2F2F3F3
00B8 F3F3F4F4 F4F4F5F5 F5F5F6F6 F6F6F7F7 F7F7F8F8 F8F81020 3040A0A0 A0A0B0B0
00D8 B0B0C0C0 C0C0D0D0 D0D0E0E0 E0E0F0F0 F0F0A0A0 A0A0F0F0 FFFF

```

Figure 86. MIH (370XA) Detail Edit Report for zHPF

Outboard Record (OBR) Detail Edit Reports

OBR records document a variety of I/O errors and statistical data. They can take one of two forms (short or long), depending on why they are written. See [Table 14 on page 257](#) for a description of each form.

Table 14. OBR Record Form	
FORM	DESCRIPTION
Short	<p>The short form is:</p> <ul style="list-style-type: none"> Used to record statistical data for the devices (except tape drives) whose statistical data counters are in “memory” rather than in control-unit buffers. (Short OBRs are not created by the 33XX DASD family.) Written in response to the same operator-initiated and program-initiated actions that can trigger an MDR record. <p>Before EREP begins to retrieve records for a report, the statistical data is written to the ERDS in short OBR records or MDR records, depending on the devices involved. (For optical and tape devices, statistical data is in long OBR records.)</p>

Table 14. OBR Record Form (continued)

FORM	DESCRIPTION
Long	<p>The long form is:</p> <ul style="list-style-type: none"> • Used to record the permanent unit checks, (I/O) errors that the system's error recovery program could not correct. • Used to record some temporary unit checks and statistical data for devices with in-core counters. • Used to record the errors encountered by the dynamic pathing availability facility while changing the state of a path group.

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
OBR (Short) Detail Edit Report, Device Type 3277	Figure 87 on page 259
OBR (Short) Detail Edit Report, Device Type 3800	Figure 88 on page 259
OBR (Short) Detail Edit Report, Device Type 3791, VTAM	Figure 89 on page 259
OBR (Short) Unit Check	Figure 90 on page 260
OBR (Long) Detail Edit Report, Device Type AFP1	Figure 91 on page 261
OBR (Long) Summary Report, Device Type AFP1	Figure 92 on page 261
OBR (Long) Detail Edit Report, Device Type CTCA	Figure 93 on page 262
OBR (Long) Detail Edit Report, Device Type 3277	Figure 94 on page 263
OBR (Long) Detail Edit Report, Device Type 3380	Figure 96 on page 265
OBR (Long) Detail Edit Report, Device Type 3390	Figure 98 on page 266
OBR (Long) Detail Edit Report, Device Type 3480	Figure 99 on page 267
OBR (Long) Detail Edit Report, Device Type 3490	Figure 100 on page 268
OBR (Long) Detail Edit Report, Device Type 3590	Figure 101 on page 269
OBR (Long) Detail Edit Report, Device Type 3800	Figure 102 on page 270
OBR (Long) Detail Edit Report, Autochanger Device Type 3995	Figure 104 on page 271
OBR Record (Long) Detail Edit Report, Device Type 9347	Figure 105 on page 272
OBR (Long) Detail Edit Report, Device Type 3380, DPA	Figure 107 on page 273
OBR (Long) Detail Edit Report, Device Type 3590, DPA	Figure 108 on page 274
OBR (Long) Dynamic Pathing Validation Analysis Detail Edit Report	Figure 109 on page 274
OBR (Long) Dynamic Pathing Validation Analysis Summary Report	Figure 110 on page 275
OBR (Long) Dynamic Pathing Validation Analysis Detail Edit Report, Device Type 3390	Figure 111 on page 275
OBR (Long) Detail Edit Report for zHPF	Figure 113 on page 276
OBR (Long) Detail Edit Report for Extended Address Volume (EAV)	Figure 114 on page 277

DEVICE NUMBER:	000B60	REPORT:	OUTBOARD (SHORT)	DAY YEAR
		SCP:	VS 2 REL. 3	DATE: 049 97
DEVICE TYPE:	3277	MODEL:	3084	HH MM SS.TH
		CPU ID:	321128	TIME: 04 57 57.41
RECORD IS:	END OF DAY			
MODE IS:	370XA			
STATISTICAL DATA				
TEMPORARY READS	00	TEMPORARY WRITES	00	
INTRVNTN REQ'D	01	BUS OUT PAR CHK	00	
EQUIPMENT CHECK	00	NOT USED	00	
CNTRoller CHECK	00	NOT USED	00	
NOT USED	00	NOT USED	00	
NOT USED	00	DC, US	00	
IR, US	00	IR, EC, US	00	
EC, US	00	CHAN DATA CHECK	00	
NOT USED	00	NOT USED	00	
NOT USED	00	NOT USED	00	
HEX DUMP OF RECORD				
HEADER	308318A0	00000000	0097049F	04575741 26321128 30840000
	0018 12501009	0A000B60	00100000	00000000 0000

Figure 87. OBR (Short) Detail Edit Report, Device Type 3277

DEVICE NUMBER:	000B0F	REPORT:	OUTBOARD (SHORT)	DAY YEAR
		SCP:	VS 3 REL. 3	DATE: 049 97
DEVICE TYPE:	3800	MODEL:	3084	HH MM SS.TH
		CPU ID:	221128	TIME: 04 46 23.17
RECORD IS:	END OF DAY			
MODE IS:	370XA			
STATISTICAL DATA				
CNTR	01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16			
	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00			
CNTR	17 18 19 20			
	00 00 00 00			
HEX DUMP OF RECORD				
HEADER	308318A0	00000000	0097049F	04462317 26221128 30840000
	0018 1000080E	0A000B0F	00000100	00000000 0000

Figure 88. OBR (Short) Detail Edit Report, Device Type 3800

--RECORD ENTRY TYPE - UNIT CHECK		SOURCE	VTAM OUTBOARD	MODEL - 3084	SERIAL NO.	021220
VS 2 REL. 3						
		DAY YEAR	HH MM SS.TH		JOB IDENTITY	0000000000000000
DATE - 044 97			TIME 16 14 53 08			
DEVICE TYPE	3791	LOCAL				
DEVICE NUMBER	0902					
CHANNEL PATH ID	00					
SDR COUNTER						
1 NOT USED	000	9 DATA CHK, LENGTH CHK	000			
2 NOT USED	000	10 DATA CHK, DATA REJECT	000			
3 BUS OUT, P-CHK #2	000	11 EQUIP CHK, MACH CHK	000			
4 BUS OUT, P-CHK #1,2	000	12 NOT USED	000			
5 EQUIP CHK, P-CHK #1	000	13 NOT USED	000			
6 EQUIP CHK, P-CHK #2	000	14 NOT USED	000			
7 EQUIP CHK, P-ERR, P-CHK #1	000	15 NOT USED	000			
8 DATA CHK	000	16 CHANNEL DATA CHK	000			
TERMINAL NAME	JOB IDENTITY ZL902	TYPE OF RECORD	*OVERFLOW*			
SIO CNTR	65535	TEMPORARY ERR CNTR	00000			
HEX DUMP OF RECORD						
HEADER	36891840	10000000	0097044F	16145308	66021220	30840000
	0018 00000000	00000000	00000000	00000000	00000000	02000902 500040F1
	0038 0A000902	00000000	FFFF0000	00004000	E9D3F9F0	F2404040 00000000 00000000
	0058 00000000	00006000	40170095	C8D08D00	01730000	0000

Figure 89. OBR (Short) Detail Edit Report, Device Type 3791, VTAM

Detail Edit and Summary Reports

---RECORD ENTRY TYPE - UNIT CHECK				SOURCE - OUTBOARD				MODEL- 4381				SERIAL NO. 010024																							
V370 REL. 06																																			
				DAY YEAR				HH MM SS.TH				JOB IDENTITY SYSTEM																							
DATE- 048 97				TIME- 15 59 31 29				E2E8E2E3 C5D44040																											
CORRELATION NO 03																																			
DEVICE TYPE				3262-5																															
PRIMARY CHANNEL UNIT ADDRESS				0004E3																															
ALTERNATE CHANNEL UNIT ADDRESS				0004E3																															
				CC CA US CT				K CA US CS CT																											
FAILING CCW				01 09D017 60 00 0001				CSW 00 09D008 06 00 0000																											
UNIT STATUS				CHANNEL STATUS				STATISTICAL DATA				STATISTICAL DATA																							
ATTENTION 0				PGM-CTLD IRPT 0				TEMPY READS 000				TEMPY READS 001																							
STATUS MODIFIER 0				INCORRECT LENGTH 0				NOT USED 000				BUS OUT CHK 000																							
CONTROL UNIT END 0				PROGRAM CHECK 0				EQUIP CHK 000				BUFF PTY CHK 000																							
BUSY 0				PROTECTION CHECK 0				LOAD CHECK 000				NOT USED 000																							
CHANNEL END 0				CHAN DATA CHECK 0				CMND RETRY 000				PRINT CHECK 001																							
DEVICE END 1				CHAN CTL CHECK 0				NOT USED 000				LINE POS 000																							
UNIT CHECK 1				I/F CTL CHECK 0				NOT USED 000				CMND SUPPRESS 000																							
UNIT EXCEPTION 0				CHAINING CHECK 0				NOT USED 000				CHAN DATA CHK 000																							
SENSE BYTA DATA																																			
BYTE 0 08				BYTE 1 40				BYTE 2 00				BYTE 3 00				BYTE 4 00				BYTE 5 00															
CMND REJ 0				UNASSIGN 0				CAR F MOV 0				UNASSIGN 0				----- 1				UNASSIGN 0															
INTV REQ 0				PRINT CHK 1				CAR MO CK 0				UNASSIGN 0				HEX CODE 0				UNASSIGN 0															
BUSOUT CK 0				UNASSIGN 0				UNASSIGN 0				UNASSIGN 0				84 EQUALS 0				UNASSIGN 0															
EQUIP CHK 0				LINE POS 0				UNASSIGN 0				H COIL CK 0				A 3262 0				UNASSIGN 0															
DATA CHK 1				FORMS CHK 0				UNASSIGN 0				H FIRE CK 0				PRINTER 0				UNASSIGN 0															
BUFPAR CK 0				CMD SUPP 0				FORMS JAM 0				UNASSIGN 0				1				UNASSIGN 0															
LOAD CHK 0				CTRLR CK 0				UNASSIGN 0				SYNC CHK 0				0				UNASSIGN 0															
CHAN 9 0				UNASSIGN 0				BLT VELOC 0				RIBBON CK 0				----- 0				UNASSIGN 0															
THE VALUES OF BYTES 6 TO 17 INCLUSIVE ARE NOT REPORTED ON IN THE EDIT REPORT																																			
BYTE 18 0D				BYTE 19 00				BYTE 20 FF				BYTE 21 00				BYTE 22 00				BYTE 23 22															
----- 0				UNASSIGN 0				----- 1				UNASSIGN 0				UNASSIGN 0				----- 0															
STATUS 0				UNASSIGN 0				1				UNASSIGN 0				UNASSIGN 0				MODEL 0															
OR 0				UNASSIGN 0				00 = 3262 1				UNASSIGN 0				UNASSIGN 0				ID. 1															
COMMUNI- 0				UNASSIGN 0				MODEL 1 1				UNASSIGN 0				UNASSIGN 0				HEX 22 0															
CATION 1				UNASSIGN 0				1				UNASSIGN 0				UNASSIGN 0				FOR 0															
CODES 1				UNASSIGN 0				55 = 3262 1				UNASSIGN 0				UNASSIGN 0				3262 0															
0				UNASSIGN 0				MODEL 5 1				UNASSIGN 0				UNASSIGN 0				1															
----- 1				UNASSIGN 0				----- 1				UNASSIGN 0				UNASSIGN 0				----- 0															
HEX DUMP OF RECORD																																			
HEADER				30668800				00000000				0097048F				15593129				04010024				43810000											
0018				E2E8E2E3				C5D44040				0109D017				60000001				0009D008				06000000				01000E43				0000080D			
0038				0A0004E3				00000018				03000000				00000000				01000000				01000000				00000840				00008400			
0058				00000000				00000000				00000000				0D00FF00				00220000				00000000				00000000				00000000			
0078				00000000				00000000				00000000																							

Figure 90. OBR (Short) Unit Check

```

DEVICE NUMBER: 000493          REPORT: OUTBOARD (LONG)          DAY YEAR          JOB IDENTITY: H3XA21
                                SCP: VS 2 REL. 3                DATE: 042 97        C8F3F8E7C1E6F140
DEVICE TYPE:    AFP1
ERROR PATH:     04-0493        MODEL: 4381                HH MM SS.TH
                                CPU ID: 010142                TIME: 18 59 17.97
RECORD IS:      PERMANENT
MODE IS:        370XA

Failing CCW:     CC  CA  FL  CT
                01 D3D000 64 00 0007

CSW:            K  FLAGS  CA  US  SS  CT
                11 004417 10203008 02 00 0007

---UNIT STATUS--- SUB-CHANNEL STATUS -----SCSW FLAGS-----
                                FLAG 0          FLAG 1
ATTENTION        0 PGM-CTLD IRPT 0 CCW FORMAT 0 RESERVED 0 SUBCHANNEL ACTIV 0
STATUS MODIFIER  0 INCORRECT LENGTH 0 PRE-FETCH CCW 0 SSCH FUNCTION 1 DEVICE ACTIVE 0
CONTROL UNIT END 0 PROGRAM CHECK 0 INIT STATUS 0 HSCH FUNCTION 0 SUSPENDED 0
BUSY             0 PROTECTION CHECK 0 ADDR LIMIT 0 CSCH FUNCTION 0 ALERT STATUS 1
CHANNEL END      0 CHAN DATA CHECK 0 SUPP SUSPEND INT 0 RESUME PENDING 0 INTERMED STATUS 0
DEVICE END      0 CHAN CTL CHECK 0 ZERO COND CODE 0 START PENDING 1 PRIMARY STATUS 1
UNIT CHECK      1 I/F CTL CHECK 0 EXTENDED CONTROL 0 HALT PENDING 0 SECONDARY STATUS 1
UNIT EXCEPTION   0 CHAINING CHECK 0 PATH NOT OPER 0 CLEAR PENDING 0 STATUS PENDING 1

DEVICE DEPENDENT DATA
TYPE/MODEL      3835-01

STATISTICAL DATA

TMP CHAN DATA CK 00          PAPER JAMS 00
TMP CHAN CTL CHK 00          TEMPORARY ERROR 00
TMP INTF CTL CHK 00

SENSE BYTE DATA

BYTE 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23
     40 E2 02 01 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

HEX DUMP OF RECORD

HEADER 30831800 00001100 0097042F 18591797 00010142 42810000
0018 C8F3F8E7 C1E6F140 01D3D000 64000007 00000000 00000000 01040493 0000080F
0038 0A000493 00000018 00383501 00000000 00000000 00000000 000040E2 02010000
0058 00000000 00000000 00000000 00000000 00001100 44171020 30080200 00070000
0078 00008500

```

Figure 91. OBR (Long) Detail Edit Report, Device Type AFP1

```

PRIMARY CUA:    000493          REPORT: OUTBOARD SUMMARY          REPORT DATE: 071 97
                                MODEL: 4381                      PERIOD FROM: 042 97
DEVICE TYPE:    AFP1           CPU ID: 010142                    TO: 042 97

TOTAL NUMBER OF RECORDS 001 TOTAL OF OVERFLOW RECORDS 000

CCW COMMAND CODES ENCOUNTERED(MAXIMUM OF 24)

CMND TOTAL
01 001

TYPE/MODEL      3835-01          USAGE
                                START
                                LAST
                                0
                                0

STATISTICAL DATA SUMMARY

TMP CHAN DATA CK 000          PAPER JAMS 000
TMP CHAN CTL CHK 000          TEMPORARY ERROR 000
TMP INTF CTL CHK 000

SENSE DATA SUMMARY

SRC  PERM  TEMP
0000 0001 0000

```

Figure 92. OBR (Long) Summary Report, Device Type AFP1

OBR (Long) Detail Edit Report for CTCA (Channel to Channel Adapter)

Detail Edit and Summary Reports

DEVICE NUMBER:	000CEB	REPORT:	OUTBOARD (LONG)	DAY YEAR	JOB IDENTITY:
DEVICE TYPE:	CACA	SCP:	VS 2 REL. 3	DATE: 068 97	0000000000000000
ERROR PATH:	55-0CEB	MODEL:	3084	HH MM SS.TH	
RECORD IS:	PERMANENT	CPU ID:	121128	TIME: 04 41 57.73	
MODE IS:	370XA				
FAILING CCW:	CC CA FL CT 04 000000 20 00 0007				
SCSW:	K FLAGS CA US SS CT 61 004417 10A99108 02 00 0001				
---UNIT STATUS--- SUB-CHANNEL STATUS -----SCSW FLAGS-----					
		FLAG 0		FLAG 1	
ATTENTION	0	PGM-CTLD IRPT	0	CCW FORMAT	0
STATUS MODIFIER	0	INCORRECT LENGTH	0	PRE-FETCH CCW	0
CONTROL UNIT END	0	PROGRAM CHECK	0	INIT STATUS	0
BUSY	0	PROTECTION CHECK	0	ADDR LIMIT	0
CHANNEL END	0	CHAN DATA CHECK	0	SUPP SUSPEND INT	0
DEVICE END	0	CHAN CTL CHECK	0	ZERO COND CODE	0
UNIT CHECK	1	I/F CTL CHECK	0	EXTENDED CONTROL	0
UNIT EXCEPTION	0	CHAINING CHECK	0	PATH NOT OPER	0
STATISTICAL DATA					
CNTR 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16					
00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00					
CNTR 17 18 19 20					
00 00 00 00					
SENSE BYTE DATA					
BYTE 00					
40					
HEX DUMP OF RECORD					
HEADER 30831800 00000000 0097068F 04415773 66121128 30840000					
0018 00000000 00000000 43000000 20000001 00000000 00000000 00550CEB 10014100					
0038 0A000CEB 00000001 00000000 00000000 00004061 00441710 A9910802 00000100					
0058 00000000					

Figure 93. OBR (Long) Detail Edit Report, Device Type CTCA

Note: The device type field in the report’s header prints out as “CACA” instead of CTCA.

```

DEVICE NUMBER: 000B4A          REPORT: OUTBOARD (LONG)          DAY YEAR          JOB IDENTITY:
                        SCP: VS 2 REL. 3          DATE: 064 97          0000000000000000
DEVICE TYPE: 3277
                        MODEL: 3084          HH MM SS.TH
ERROR PATH: 05-0B4A          CPU ID: 121128          TIME: 07 36 14.73
RECORD IS: PERMANENT
MODE IS: 370XA

      CC  CA  FL  CT
Failing CCW: 05 258F5D 20 00 0009

      K  FLAGS  CA  US  SS  CT
SCSW: 60 000013 00000000 06 00 0000

---UNIT STATUS--- SUB-CHANNEL STATUS -----SCSW FLAGS-----
                        FLAG 0          FLAG 1
ATTENTION 0 PGM-CTLD IRPT 0 CCW FORMAT 0 RESERVED 0 SUBCHANNEL ACTIV 0
STATUS MODIFIER 0 INCORRECT LENGTH 0 PRE-FETCH CCW 0 SSCH FUNCTION 1 DEVICE ACTIVE 0
CONTROL UNIT END 0 PROGRAM CHECK 0 INIT STATUS 0 HSCH FUNCTION 0 SUSPENDED 0
BUSY 0 PROTECTION CHECK 0 ADDR LIMIT 0 CSCH FUNCTION 0 ALERT STATUS 1
CHANNEL END 0 CHAN DATA CHECK 0 SUPP SUSPEND INT 0 RESUME PENDING 0 INTERMED STATUS 0
DEVICE END 1 CHAN CTL CHECK 0 ZERO COND CODE 0 START PENDING 0 PRIMARY STATUS 0
UNIT CHECK 1 I/F CTL CHECK 0 EXTENDED CONTROL 0 HALT PENDING 0 SECONDARY STATUS 1
UNIT EXCEPTION 0 CHAINING CHECK 0 PATH NOT OPER 0 CLEAR PENDING 0 STATUS PENDING 1

DEVICE DEPENDENT DATA
TYPE OF RECORD: PERMANENT (X'00')
TERMINAL NAME: M01LB4A

      INITIAL FAILURE          FINAL RETRY
      -----
COMMAND CODE: X'05'          COMMAND CODE: X'05'
SENSE BYTE 0: 01000000          SENSE BYTE 0: 00001100

      FIRST FAILURE  CMND REJ 0  INTV RQD 1  BUS 0 CK 0  EQUIP CK 0  DATA CHK 0  UNIT SPC 0  CNTRL CK 0  OPER
CHK 0
      FINAL RETRY  CMND REJ 0  INTV RQD 0  BUS 0 CK 0  EQUIP CK 0  DATA CHK 1  UNIT SPC 1  CNTRL CK 0  OPER
CHK 0

STATS:
USED 00          READ DC 00  WRITE DC 00  INTV RQD 00  BUS 0 CK 00  EQUIP CK 00  NOT USED 00  CNTRL CK 00  NOT
DC 00          NOT USED 00  NOT USED 00  NOT USED 00  DC US 01  NOT USED 00  IR,EC,US 00  EC,US 00  CHANL

STATISTICAL DATA
CNTR 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16
      00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00 00

CNTR 17 18 19 20
      00 00 00 00

SENSE BYTE DATA
BYTE 00 01 02 03
      40 0C 0C 40

HEX DUMP OF RECORD
HEADER 36831800 00000000 0097064F 07361473 66121128 30840000
      0018 00000000 00000000 05258F5D 20000009 00000000 00000000 02050B4A 12501009
      0038 0A000B4A 00000004 00050000 05050000 D4F0F1D3 C2F4C140 00000000 00010000
      0058 0000400C 0C406000 00130000 00000600 00000000 0000

```

Figure 94. OBR (Long) Detail Edit Report, Device Type 3277 Part 1

Detail Edit and Summary Reports

```

DEVICE NUMBER: 000361      REPORT: OUTBOARD (LONG)      DAY YEAR      JOB IDENTITY:
                        SCP: VS 2 REL. 3      DATE: 068 97      0000000000000000
DEVICE TYPE: 3277
                        MODEL: 3084      HH MM SS.TH
ERROR PATH: 03-0361      CPU ID: 121128      TIME: 23 52 49.53
RECORD IS: PERMANENT
MODE IS: 370XA

      CC  CA  FL  CT
FAILING CCW: 4B 000000 40 00 0001

      K  FLAGS      CA  US  SS  CT
SCSW: 00 000013 00000000 06 00 0000

---UNIT STATUS---  SUB-CHANNEL STATUS  -----SCSW FLAGS-----
                        FLAG 0      FLAG 1
ATTENTION 0 PGM-CTLD IRPT 0 CCW FORMAT 0 RESERVED 0 SUBCHANNEL ACTIV 0
STATUS MODIFIER 0 INCORRECT LENGTH 0 PRE-FETCH CCW 0 SSCH FUNCTION 0 DEVICE ACTIVE 0
CONTROL UNIT END 0 PROGRAM CHECK 0 INIT STATUS 0 HSCH FUNCTION 0 SUSPENDED 0
BUSY 0 PROTECTION CHECK 0 ADDR LIMIT 0 CSCH FUNCTION 0 ALERT STATUS 1
CHANNEL END 0 CHAN DATA CHECK 0 SUPP SUSPEND INT 0 RESUME PENDING 0 INTERMED STATUS 0
DEVICE END 1 CHAN CTL CHECK 0 ZERO COND CODE 0 START PENDING 0 PRIMARY STATUS 0
UNIT CHECK 1 I/F CTL CHECK 0 EXTENDED CONTROL 0 HALT PENDING 0 SECONDARY STATUS 1
UNIT EXCEPTION 0 CHAINING CHECK 0 PATH NOT OPER 0 CLEAR PENDING 0 STATUS PENDING 1

STATISTICAL DATA

TEMPORARY READS 00 TEMPORARY WRITES 00
INTRVTN REQ'D 00 BUS OUT PAR CHK 00
EQUIPMENT CHECK 00 NOT USED 00
CNTRLR CHECK 00 NOT USED 00
NOT USED 00 NOT USED 00
IR, US 00 DC, US 00
EC, US 00 IR, EC, US 00
NOT USED 00 NOT USED 00
NOT USED 00 NOT USED 00

SENSE BYTE DATA

-----BYTE00-----01 -----BYTE01-----00 -----BYTE02-----00 -----BYTE03-----00 -----BYTE04-----00 -----BYTE05-----00
COMMAND REJECT 0 BIT 0 0 BIT 0 0 BIT 0 0 BIT 0 0 BIT 0 0 BIT 0 0
INTRVTN REQ'D 0 BIT 1 0 BIT 1 0 BIT 1 0 BIT 1 0 BIT 1 0 BIT 1 0
BUS OUT PAR CHK 0 BIT 2 0 BIT 2 0 BIT 2 0 BIT 2 0 BIT 2 0 BIT 2 0
EQUIPMENT CHECK 0 BIT 3 0 BIT 3 0 BIT 3 0 BIT 3 0 BIT 3 0 BIT 3 0
DATA CHECK 0 BIT 4 0 BIT 4 0 BIT 4 0 BIT 4 0 BIT 4 0 BIT 4 0
UNIT SPECIFY 0 BIT 5 0 BIT 5 0 BIT 5 0 BIT 5 0 BIT 5 0 BIT 5 0
CNTRLR CHECK 0 BIT 6 0 BIT 6 0 BIT 6 0 BIT 6 0 BIT 6 0 BIT 6 0
OPERATION CHECK 1 BIT 7 0 BIT 7 0 BIT 7 0 BIT 7 0 BIT 7 0 BIT 7 0

HEX DUMP OF RECORD

HEADER 30831800 00000000 0097068F 23524953 26121128 30840000
0018 00000000 00000000 04B00000 40000001 00000000 00000000 00030361 12501009
0038 0A000361 00000006 00000000 00000000 00000100 00000000 00000013 00000000
0058 06000000 00000000

```

Figure 95. OBR (Long) Detail Edit Report, Device Type 3277 Part 2


```

DEVICE NUMBER: 000E70          REPORT:  OUTBOARD (LONG)          DAY YEAR          JOB IDENTITY:
                        SCP:  VS 2 REL.  3          DATE: 071  97          0000000000000000
DEVICE TYPE:      3380
                        MODEL:   3090          HH MM SS.TH
ERROR PATH:      2D-0E70          CPU ID:  170028          TIME: 16 21 43.36
RECORD IS:       PERMANENT
MODE IS:         370XA

Failing CCW:      CC  CA  FL  CT
                  00 000000 00 00 0000

SCSW:            K  FLAGS  CA  US SS CT
                  04 824017 000122C8 00 02 0000

---UNIT STATUS---  SUB-CHANNEL STATUS  -----SCSW FLAGS-----
                                FLAG 0          FLAG 1
ATTENTION          0  PGM-CTLD IRPT  0  CCW FORMAT          1  RESERVED          0  SUBCHANNEL ACTIV 0
STATUS MODIFIER    0  INCORRECT LENGTH 0  PRE-FETCH CCW      0  SSCH FUNCTION      1  DEVICE ACTIVE    0
CONTROL UNIT END   0  PROGRAM CHECK    0  INIT STATUS       0  HSCH FUNCTION      0  SUSPENDED        0
BUSY               0  PROTECTION CHECK  0  ADDR LIMIT        0  CSCH FUNCTION      0  ALERT STATUS     1
CHANNEL END        0  CHAN DATA CHECK  0  SUPP SUSPEND INT  0  RESUME PENDING     0  INTERMED STATUS  0
DEVICE END         0  CHAN CTL CHECK    0  ZERO COND CODE    0  START PENDING      0  PRIMARY STATUS   1
UNIT CHECK         0  I/F CTL CHECK    1  EXTENDED CONTROL  1  HALT PENDING       0  SECONDARY STATUS 1
UNIT EXCEPTION     0  CHAINING CHECK    0  PATH NOT OPER     0  CLEAR PENDING      0  STATUS PENDING   1

DEVICE DEPENDENT DATA

DEVICE MODEL      3380
SD                SD      CTLR  DVC
PHYSICAL ID       00      XX   XX
VOLUME LABEL      SPOOLA      FINAL RETRY

SENSE BYTE DATA

BYTE 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
      00 00 00 00 00 00 00 00 00 00 00 00 01 00 00 00

BYTE 17 18 19 20 21 22 23
      00 00 00 00 00 00 00

HEX DUMP OF RECORD

HEADER  30831800  00000000  0097071F  16214336  00170028  30900000
0018  00000000  00000000  00000000  00000000  00000000  00000000  032D0E70  3030200E
0038  00000E70  00000018  E2D7D6D6  D3C10000  00000000  00000000  2D000000  00000000
0058  00000000  00000000  00000000  00000000  00000000  00000000  04824017  000122C8
0078  00020000  00000000

```

Figure 96. OBR (Long) Detail Edit Report, Device Type 3380 Part 1

```

DEVICE NUMBER: 000A82          REPORT:  OUTBOARD (LONG)          DAY YEAR          JOB IDENTITY: VARY
                        SCP:  VS 2 REL.  3          DATE: 042  97          E5C1D9E840404040
DEVICE TYPE:      3380
                        MODEL:   3084          HH MM SS.TH
ERROR PATH:      40-0000          CPU ID:  021128          TIME: 04 12 59.12
RECORD IS:       PERM PATH
MODE IS:         370XA

Failing CCW:      CC  CA  FL  CT
                  AF 00000C 03 03 A1D0

SCSW:            K  FLAGS  CA  US SS CT
                  00 030000 01050404 22 10 1842

---UNIT STATUS---  SUB-CHANNEL STATUS  -----SCSW FLAGS-----
                                FLAG 0          FLAG 1          FLAG 2
ATTENTION          0  PGM-CTLD IRPT  0  CCW FORMAT          0  RESERVED          0  SUBCHANNEL ACTIV 0
STATUS MODIFIER    0  INCORRECT LENGTH 0  PRE-FETCH CCW      0  SSCH FUNCTION      0  DEVICE ACTIVE    0
CONTROL UNIT END   1  PROGRAM CHECK    0  INIT STATUS       0  HSCH FUNCTION      0  SUSPENDED        0
BUSY               0  PROTECTION CHECK  1  ADDR LIMIT        0  CSCH FUNCTION      0  ALERT STATUS     0
CHANNEL END        0  CHAN DATA CHECK  0  SUPP SUSPEND INT  0  RESUME PENDING     0  INTERMED STATUS  0
DEVICE END         0  CHAN CTL CHECK    0  ZERO COND CODE    0  START PENDING      0  PRIMARY STATUS   0
UNIT CHECK         1  I/F CTL CHECK    0  EXTENDED CONTROL  1  HALT PENDING       0  SECONDARY STATUS 0
UNIT EXCEPTION     0  CHAINING CHECK    0  PATH NOT OPER     1  CLEAR PENDING      0  STATUS PENDING   0

SPID: 000002112830849718CEF0  FUNCTION CONTROL BYTE: 80
SNID: 000000000000000000000000  PATH STATE BYTE: 00

HEX DUMP OF RECORD

HEADER  3A831810  40000000  0097042F  04125912  26021128  30840000
0018  E5C1D9E8  40404040  AF00000C  0303A1D0  00000000  00000000  04400000  3030200E
0038  00000A82  00000000  80000002  11283084  9718CEF0  00000000

```

Figure 97. OBR (Long) Detail Edit Report, Device Type 3380 Part 2

Detail Edit and Summary Reports

```

PRIMARY CUA:    0239          REPORT:  OUTBOARD (LONG)          DAY YEAR          JOB IDENTITY:
PACAH210
                                SCP:    V370 REL.  6          DATE: 042  97

D7C1C3C1C8F2F1F0
DEVICE TYPE:    3390
                                MODEL:   3084          HH MM SS.TH
ERROR PATH:     0239          CPU ID:   020060          TIME: 02 31 48.38

RECORD IS:      TEMPORARY

MODE IS:        370

FAILING CCW:    CC  CA  FL  CT
                07 DFA1E8 40 00 0006

CSW:            K  CA  US CS  CT
                01 DFA1C8 02 00 0006

---UNIT STATUS--- CHANNEL STATUS
ATTENTION      0 PGM-CTLD IRPT  0
STATUS MODIFIER 0 INCORRECT LENGTH 0
CONTROL UNIT END 0 PROGRAM CHECK  0
BUSY           0 PROTECTION CHECK 0
CHANNEL END     0 CHAN DATA CHECK 0
DEVICE END      0 CHAN CTL CHECK  0
UNIT CHECK      1 I/F CTL CHECK  0
UNIT EXCEPTION  0 CHAINING CHECK  0

DEVICE DEPENDENT DATA

STORAGE CONTROL UNIT:  TYPE: 2107      SEQUENCE NUMBER:  N/A      PATH: 0

                                DEVICE:  TYPE: 2107      SEQUENCE NUMBER: AH210  DEVICE ID: 19  STRING: 1 SUBCHANNEL
ID: 00123456

                                SSID: 1144      VOLUME: PACV01

SENSE BYTE DATA

BYTE 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
      10 00 06 00 39 32 C1 43 00 03 00 00 01 05 04 04

BYTE 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
      22 10 18 42 11 44 0C 01 00 00 0F 01 0C 00 00 00

HEX DUMP OF RECORD

HEADER  30660840  00000000  0097042F  02314838  00020060  30840000
        0018  D7C1C3C1  C8F2F1F0  07DFA1E8  40000006  01DFA1C8  02000006  03000239  80062032
        0038  00000239  00010020  D7C1C3E5  F0F10000  00000001  D8000000  00000000  00000000
        0058  10000600  3932C143  00030000  01050404  22101842  11440C01  00000F01  0C000000

```

Figure 98. OBR (Long) Detail Edit Report, Device Type 3390

```

PRIMARY CUA: 018B          REPORT: OUTBOARD (LONG)      DAY YEAR      JOB IDENTITY: RELIAB2
                        SCP:  VS 2 REL. 3      DATE: 048 97      D9C5D3C9C1C2F240
DEVICE TYPE: 3480
                        MODEL: 4341              HH MM SS.TH
ERROR PATH: 018B          CPU ID: 015760          TIME: 11 03 20.32
RECORD IS: PERMANENT
MODE IS: 370
          CC  CA  FL  CT
Failing CCW: 02 3EDD50 04 00 775B
              K  CA  US  CS  CT
CSW: 50 01A4D8 02 00 0001
---UNIT STATUS--- CHANNEL STATUS
ATTENTION 0 PGM-CTLD IRPT 0
STATUS MODIFIER 0 INCORRECT LENGTH 0
CONTROL UNIT END 0 PROGRAM CHECK 0
BUSY 0 PROTECTION CHECK 0
CHANNEL END 0 CHAN DATA CHECK 0
DEVICE END 0 CHAN CTL CHECK 0
UNIT CHECK 1 I/F CTL CHECK 0
UNIT EXCEPTION 0 CHAINING CHECK 0
E
|
DEVICE DEPENDENT DATA
E
CU ERR #1 8202 08      DEV ERR #1 0000 00
CU ERR #2 0000        DEV ERR #2 0000
CU ERR LAST 0000      VOLUME LABEL SSAG03
CU ERR HDW 0000       BLOCK LENGTH 00000
BLOCK ID 000004
E
|
SENSE BYTE DATA
BYTE 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
      42 40 78 3B 00 00 04 20 00 08 82 02 00 00 00 00
BYTE 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
      00 00 00 00 00 00 00 00 F6 04 E7 80 00 00 00 00
E
|
HEX DUMP OF RECORD
»
HEADER 30830800 00001100 0097048F 11032032 03015760 43410000
        0018 D9C5D3C9 C1C2F240 023EDD50 0400775B 5001A4D8 02000001 02 00018B 78008080
        0038 0000018B 00000020 E2E2C1C7 F0F30000 00001171 00000000 42 40783B 00000420
        0058 00088202 00000000 00000000 00000000 F604E780

```

Figure 99. OBR (Long) Detail Edit Report, Device Type 3480

Detail Edit and Summary Reports

```

DEVICE NUMBER: 0004B2          REPORT: OUTBOARD (LONG)          DAY YEAR          JOB IDENTITY:
                        SCP: VS 2 REL. 3          DATE: 053 97          E3F2E2E4D7C5D9F1
DEVICE TYPE: 3490
                        MODEL: 4381          HH MM SS.TH
ERROR PATH: 04-04B2          CPU ID: 017260          TIME: 17 00 49.72
RECORD IS: PERMANENT
MODE IS: 370XA

      CC  CA  FL  CT
FAILING CCW: 4B 000000 40 00 0001

      K  FLAGS  CA  US  SS  CT
SCSW: 00 000013 00000000 06 00 0000

---UNIT STATUS--- SUB-CHANNEL STATUS -----SCSW FLAGS-----
                        FLAG 0          FLAG 1
ATTENTION 0 PGM-CTLD IRPT 0 CCW FORMAT 0 RESERVED 0 SUBCHANNEL ACTIV 0
STATUS MODIFIER 0 INCORRECT LENGTH 0 PRE-FETCH CCW 0 SSCH FUNCTION 1 DEVICE ACTIVE 0
CONTROL UNIT END 0 PROGRAM CHECK 0 INIT STATUS 0 HSCH FUNCTION 0 SUSPENDED 0
BUSY 0 PROTECTION CHECK 0 ADDR LIMIT 0 CSCH FUNCTION 0 ALERT STATUS 1
CHANNEL END 0 CHAN DATA CHECK 0 SUPP SUSPEND INT 0 RESUME PENDING 0 INTERMED STATUS 0
DEVICE END 1 CHAN CTL CHECK 0 ZERO COND CODE 0 START PENDING 0 PRIMARY STATUS 1
UNIT CHECK 1 I/F CTL CHECK 0 EXTENDED CONTROL 0 HALT PENDING 0 SECONDARY STATUS 1
UNIT EXCEPTION 0 CHAINING CHECK 0 PATH NOT OPER 0 CLEAR PENDING 0 STATUS PENDING 1

DEVICE DEPENDENT DATA

CU ERR #2 70CE 00          DEV ERR #1 0000 00
CU ERR #2 0000          DEV ERR #2 0000
CU ERR LAST 0000          VOLUME LABEL
CU ERR HDW 0000          BLOCK LENGTH 08704

SENSE BYTE DATA

BYTE 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
      00 49 20 2E 00 00 00 20 00 00 70 CE 00 00 00 00

BYTE 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
      00 00 00 F8 00 00 00 00 F6 8F 6D A0 02 39 22 00

HEX DUMP OF RECORD

HEADER 30831800 00001100 0097053F 17004972 0C017260 43810000
      0018 E3F2E2E4 D7C5D9F1 37000000 20000050 00000000 00000000 020404B2 78048081
      0038 000004B2 00000020 00000000 00000000 00000100 00000000 00000013 00000000
      0058 000070CE 00000000 000000F8 00000000 F68F6DA0 02392200 50004017 00F39140
      0078 06000050 00000000 A520

```

Figure 100. OBR (Long) Detail Edit Report, Device Type 3490

```

DEVICE NUMBER: 0006C6          REPORT: OUTBOARD (LONG)          DAY YEAR          JOB IDENTITY: TRINHNG1
                        SCP: VS 2 REL. 3          DATE: 141 06          E3D9C9D5C8D5C7F1
DEVICE NED: 002105.000.IBM.075.000000012252.0615
DEVICE TYPE: 3590
ERROR PATH: 50-06C6          MODEL: 2066          HH MM SS.TH
                        CPU ID: 0A644A          TIME: 12 34 56.78
RECORD IS: PERMANENT
MODE IS: 370XA

      CC FL RS CD DATA CNT
FAILING DCW: 01 A4 F8 00 00FFA108          RESIDUAL COUNT: 11111111

      K  FLAGS      TA  US SS FX ES
SCSW: 80 C04017 00FBBD48 06 00 F8 00

---UNIT STATUS--- SUB-CHANNEL STATUS -----SCSW FLAGS-----
                        FLAG 0          FLAG 1          FLAG 2
ATTENTION 0 PGM-CTLD IRPT 0 IRB FORMAT 6 RESERVED 0 SUBCHANNEL ACTIV 0
STATUS MODIFIER 0 INCORRECT LENGTH 0 --- SSCH FUNCTION 1 DEVICE ACTIVE 0
CONTROL UNIT END 0 PROGRAM CHECK 0 --- HSCH FUNCTION 0 RESERVED 0
BUSY 0 PROTECTION CHECK 0 FORMAT CONTROL 0 CSCH FUNCTION 0 ALERT STATUS 1
CHANNEL END 0 CHAN DATA CHECK 0 INTERROGATE COMP 0 RESERVED 0 INTERMED STATUS 0
DEVICE END 1 CHAN CTL CHECK 0 RESERVED 0 START PENDING 0 PRIMARY STATUS 1
UNIT CHECK 1 I/F CTL CHECK 0 EXTENDED CONTROL 0 HALT PENDING 0 SECONDARY STATUS 1
UNIT EXCEPTION 0 RESERVED 0 PATH NOT OPER 0 CLEAR PENDING 0 STATUS PENDING 1

SENSE BYTE DATA

BYTE 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
      0A 44 10 D0 50 40 50 00 01 FF 00 00 00 00 00 00

BYTE 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
      03 0C 00 35 29 33 54 90 4B 04 E8 01 60 A4 13 11

HEX DUMP OF RECORD

HEADER 30831800 00001100 0006141F 12345678 000A644A 20660000
0018 E3D9C9D5 C8D5C7F1 01A4F800 00FFA108 80000000 00000000 025006C6 78048083
0038 000006C6 00000020 F0F3F2F0 F6F40000 0160A400 00038000 0A4410D0 50405050
0058 0001FF00 00000000 030C0035 29335490 4B04E801 60A41311 80C04017 00FBBD48
0078 0600F800 00000000 06C0FFFF 11111111 F0F0F2F1 F0F5F1F1 F1F3F3F3 F4F5F1F2
0098 F3F4F5F6 F7F1F9F8 F3F1F4F3 F2F1F2F2 F2F2F2F2 F2F2F2F2

```

Figure 101. OBR (Long) Detail Edit Report, Device Type 3590

```
DEVICE NUMBER:    000B0F          REPORT:   OUTBOARD (LONG)      DAY YEAR           JOB IDENTITY:
                  SCP:     VS 2 REL.  3              DATE: 065 97                0000000000000000
DEVICE TYPE:       3800                      MODEL:    3084             HH MM SS.TH
ERROR PATH:        20-0B0F                   CPU ID:   121128            TIME: 03 11 19.35
RECORD IS:         PERMANENT
MODE IS:           370XA

               CC  CA  FL  CT
FAILING CCW:      4B 000000 40 00 0001

               K  FLAGS      CA  US  SS  CT
SCSW:             00 000013 00000000 06 00 0000


---UNIT STATUS---- SUB-CANNEL STATUS -----SCSW FLAGS-----
                        FLAG 0                     FLAG 1
ATTENTION            0 PGM-CTLD IRPT      0 CCW FORMAT          0 RESERVED            0 SUBCHANNEL ACTIV 0
STATUS MODIFIER      0 INCORRECT LENGTH  0 PRE-FETCH CCW        0 SSCH FUNCTION       1 DEVICE ACTIVE    0
CONTROL UNIT END     0 PROGRAM CHECK      0 INIT STATUS         0 HSCH FUNCTION       0 SUSPENDED        0
BUSY                 0 PROTECTION CHECK    0 ADDR LIMIT          0 CSCH FUNCTION       0 ALERT STATUS     0
CHANNEL END          0 CHAN DATA CHECK    0 SUPP SUSPEND INT    0 RESUME PENDING     0 INTERMED STATUS  0
DEVICE END           0 CHAN CTL CHECK      0 ZERO COND CODE      0 START PENDING      0 PRIMARY STATUS   1
UNIT CHECK           1 I/F CTL CHECK        0 EXTENDED CONTROL    0 HALT PENDING       0 SECONDARY STATUS 1
UNIT EXCEPTION       0 CHAINING CHECK      0 PATH NOT OPER       0 CLEAR PENDING      0 STATUS PENDING   1


DEVICE DEPENDENT DATA

STATISTICAL DATA

NOT USED           00 NOT USED           00
TMP CHAN DATA CK  00 TMP CHAN CTL CHK  00
TMP INTF CTL CHK   00 CFS MISFOLD(32)  00
BUR/TRIM JAM(40)   00 NO BURST CHK(41)  00
BUR/STKR JAM(42)   00 NOT USED          00
NOT USED           00 NOT USED          00
NOT USED           00 NOT USED          00
NOT USED           00 NOT USED          00
NOT USED           00 NOT USED          00

SENSE BYTE DATA

-----BYTE00-----40 -----BYTE01-----40 -----BYTE02-----00 -----BYTE03-----6C -----BYTE04-----8E -----BYTE05-----
COMMAND REJECT      0 NOT READY          0 FORM HOLD INTRLK  0 PRINTER READY    0 -----1-----
INTRVNTN REQ'D     0 OPERATION CHECK    1 TRANSFER CHECK    0 PAGE BUFFR EMPTY 1 -----0-----
BUS OUT PAR CHK     0 TONER COLL FULL  0 FUSER CHECK       0 BACK DATA CHECK 1 DIAGNOSTIC        0
EQUIPMENT CHECK     0 TONER READY      0 CPS CHECK          0 PAPR THREAD STCK 0 STATUS           0
DATA CHECK          0 DEV REPLACE REQ  0 PROCESS CHECK     0 SYS RESTRT REQ   1 CODICES          1
BIT 6 NOT USED      0 END OF FORMS     0 BURST/TRIM CHECK  0 PHOTO CON ADV EN 1 -----1-----
LOAD CHECK          0 OUTPUT FULL      0 BIT 6 NOT USED    0 BIT 6 NOT USED    0 -----1-----
                                BIT 7 NOT USED  0 LINE OVERRUN      0 BIT 7 NOT USED    0 -----0-----
```

-----BYTE06----	00	-----BYTE07----	F9	-----BYTE08----	00	-----BYTE09----	02	-----BYTE10----	00	-----BYTE11----	0C
-----	1	-----	0	-----	0	-----	0	-----	0	-----	0
	0		0		0		0		0		0
DIAGNOSTIC	0	DIAGNOSTIC	0	DIAGNOSTIC	0	DIAGNOSTIC	0	DIAGNOSTIC	0	DIAGNOSTIC	0
ERROR DEPEND	0	ERROR DEPEND	0	ERROR DEPEND	0	ERROR DEPEND	0	ERROR DEPEND	0	ERRPR DEPEND	0
DATA	1	DENT DATA	0	DENT DATA	0	DENT DATA	0	DENT DATA	0	DENT DATA	1
	1		0		0		0		0		1
BYTE 2 OF 7	1	BYTE 3 OF 7	0	BYTE 4 OF 7	0	BYTE 5 OF 7	1	BYTE 6 OF 7	0	BYTE 7 OF 7	0
-----	0	-----	0	-----	0	-----	0	-----	0	-----	0
-----BYTE12----	0B	-----BYTE13----	0B	-----BYTE14----	0F	-----BYTE15----	4C	-----BYTE16----	01	-----BYTE17----	58
-----	1	-----	0	-----	0	-----	0	-----	0	-----	0
	0		0		0		0		0		0
MODULO 256	0	MODULO 256	0		0		0		0		0
XFER 2 PPI	0	FUSER 8-16	0	FUSER PAGE	0	FUSER PAGE	0	PAPER COUNT	0	PAPER COUNT	0
COUNT	1	PPI COUNT	0	COUNT	0	COUNT	0		0		1
	1		0		0		0		0		1
-----	0	-----	0	BYTE 1 OF 2	0	BYTE 2 OF 2	1	BYTE 1 OF 2	0	BYTE 2 OF 2	0
	0		0		0		0		0		0
-----BYTE18----	06	-----BYTE19----	CF	-----BYTE20----	00	-----BYTE21----	1F	-----BYTE22----	FE	-----BYTE23----	DF
-----	0	-----	1	-----	0	-----	0	-----	1	-----	1
	0		1		0		0	PHOTO CONDUCT	1	PHOTO CONDUCT	1
	0		0		0		0	GAP LOC OR	1	GAP LOC OR	1
SERIAL	0	SERIAL	0	PAGE BACKUP	0	PAGE BACKUP	0	LOAD CHECK	1	LOAD CHECK	1
NUMBER	0	NUMBER	1	COUNT	0	COUNT	0	OFFSET	1	OFFSET	1
	1		1		0		0		1		1
BYTE 1 OF 2	1	BYTE 2 OF 2	1	BYTE 1 OF 2	0	BYTE 2 OF 2	1	BYTE 1 OF 2	1	BYTE 2 OF 2	1
-----	0	-----	1	-----	0	-----	0	-----	0	-----	1
HEX DUMP OF RECORD											
HEADER	30831800	00000000	0097065F	03111935	26121128	30840000					
0018	00000000	00000000	0981341D	60000070	00000000	00000000	00200B0F	1000080E			
0038	0A000B0F	00000018	00000000	00000000	00000404	006C8300	00000013	000C0B0B			
0058	0F4C0158	06CF001F	FEDF1100	4007102C	40A80200	00700000	0000				

```

1
DEVICE NUMBER: 000280          REPORT: OUTBOARD (LONG)      DAY YEAR      JOB IDENTITY: OAM
SCP: VS 2 REL. 3              DATE: 117 97              D6C1D440404040
DEVICE TYPE: 3995              MODEL: 9021              HH MM SS.TH
ERROR PATH: INVALID           CPU ID: 110947          TIME: 10 47 27.57
RECORD IS: PERMANENT
MODE IS: 370XA

Failing CCW:  CC  CA  FL  CT
              00 000000 00 00 0000
              K  FLAGS  CA  US  SS  CT
SCSW:         00 000000 00000000 00 00 0000
---UNIT STATUS--- SUB-CHANNEL STATUS -----SCSW FLAGS-----
              FLAG 0              FLAG 1              FLAG 2
ATTENTION    0  PGM-CTLD IRPT  0  CCW FORMAT      0  RESERVED      0  SUBCHANNEL ACTIV 0
STATUS MODIFIER 0  INCORRECT LENGTH 0  PRE-FETCH CCW  0  SSCH FUNCTION  0  DEVICE ACTIVE  0
CONTROL UNIT END 0  PROGRAM CHECK  0  INIT STATUS   0  HSCH FUNCTION  0  SUSPENDED      0
BUSY         0  PROTECTION CHECK  0  ADDR LIMIT    0  CSCH FUNCTION  0  ALERT STATUS   0
CHANNEL END   0  CHAN DATA CHECK  0  SUPP SUSPEND INT 0  RESUME PENDING 0  INTERMED STATUS 0
DEVICE END    0  CHAN CTL CHECK  0  ZERO COND CODE 0  START PENDING  0  PRIMARY STATUS  0
UNIT CHECK    0  I/F CTL CHECK  0  EXTENDED CONTROL 0  HALT PENDING   0  SECONDARY STATUS 0
UNIT EXCEPTION 0  CHAINING CHECK  0  PATH NOT OPER  0  CLEAR PENDING  0  STATUS PENDING  0

2
DEVICE DEPENDENT DATA

LIBRARY NAME: LIB2          SCSI ADDITIONAL SENSE CODE: 15  1ST DEST ELEMENT BIT MAP(2ND MOVE
CMD):80
SERIAL NUMBER: 00031014    SCSI ADDITIONAL SENSE CODE QUALIFIER:01  1ST DEST ELEMENT NUMBER (2ND MOVE
CMD):3D00
FAILING COMMAND: 02        AUTOCHANGER MOVE ERROR CODE: 00  1ST DEST ELEMENT BIT MAP(1ST MOVE
CMD):00
TASK REQUEST BLOCK RETURN CODE:00111  AUTOCHANGER HARDWARE ERROR CODE: 20  1ST DEST ELEMENT NUMBER (1ST MOVE
CMD):0000
FAULT SYMPTOM CODE: 02FF   SOURCE ELEMENT BIT MAP: 91  SECOND DEST ELEMENT BIT
MAP: 00
SCSI SENSE KEY: 04         SOURCE ELEMENT NUMBER: 0300  SECOND DEST ELEMENT
NUMBER: 0000

3
SENSE BYTE DATA
BYTE 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
      00 6F 02 FF 04 15 01 00 20 91 03 00 80 3D 00 00
BYTE 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
      00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

4
HEX DUMP OF RECORD
HEADER 30831800 80000000 0097117F 10472757 A3110947 90210000
0018 D6C1D440 40404040 00000000 00000000 00000000 00000000 23000280 08002182
0038 00000280 00000020 D3C9C2F2 40404040 F0F0F0F3 F1F0F1F4 02000000 D6F0F0F6
0058 F7F70000 00000000 00000000 02000100 AA010300 0000A000 00000000 00000000
0078 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0098 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00B8 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00D8 00000000 00000000 00000000 00000000 00000000 00000000 006F02FF 04150100
00F8 20910300 803D0000 00000000 00000000 00000000 00000000 00000000 00000000
0118 00000000 00000000 00000000 00000000 00F30578 00000000 00000000 00000000
0138 00000000 00000004 AAAAAAAA 55555555 00000000 00000000 00000000 00000000
0158 006F02FF 04150100 20910300 80D00000 00000000 00000000 00000000 00000000

```

Figure 104. OBR (Long) Detail Edit Report, Autochanger Device Type 3995

- 1** This is an OBR header, that is, general information describing the record.
- 2** DEVICE DEPENDENT DATA is information from the OBR specific to the optical device.
- 3** SENSE BYTE DATA is bytes from the sense byte section of the OBR record.
- 4** HEX DUMP OF RECORD is the hex dump of the entire OBR record.

Detail Edit and Summary Reports

```

DEVICE NUMBER: 0C70          REPORT: OUTBOARD (LONG)      DAY YEAR      JOB IDENTITY:
                        SCP: VS 2 REL. 3      DATE: 054 97      D4C1C9D5E3404040
DEVICE TYPE: 9347
                        MODEL: 9375          HH MM SS.TH
ERROR PATH: 0C70          CPU ID: 234567      TIME: 10 14 52.90

RECORD IS: PERMANENT

MODE IS: 370XA

      CC  CA  FL  CT
FAILING CCW: 01 3838E3 20 80 0055

      K  CA  US SS CT
CSW: 00 6A7348 0E 00 0055

---UNIT STATUS--- CHANNEL STATUS

ATTENTION      0  PGM-CTLD IRPT      0
STATUS MODIFIER 0  INCORRECT LENGTH 0
CONTROL UNIT END 0  PROGRAM CHECK    0
BUSY           0  PROTECTION CHECK  0
CHANNEL END     1  CHAN DATA CHECK  0
DEVICE END      1  CHAN CTL CHECK    0
UNIT CHECK      1  I/F CTL CHECK     0
UNIT EXCEPTION  0  CHAINING CHECK    0


DEVICE DEPENDENT DATA

SYMPTOM CODE 2003
VOLUME SERIAL

SENSE BYTE DATA

-----BYTE00-----08 -----BYTE01-----44 -----BYTE02-----00 -----BYTE03-----0F -----BYTE04-----10 -----BYTE05-----10
COMMAND REJECT 0 NOISE 0 ----- 0 ----- 0 NOT USED 0 NOT USED 0
INTRVNTN REQ'D 0 DEVICE STATUS A 1 ----- 0 ----- 0 NOT USED 0 NOT USED 0
NOT USED 0 DEVICE STATUS B 0 ----- 0 ----- 0 TAPE INDICATE 0 NOT USED 0
EQUIPMENT CHECK 0 NOT USED 0 TRACK IN 0 RECOVERY 0 PERMANENT ERROR 1 PE-ID CHECK 1
DATA CHECK 0 AT LOAD POINT 0 ERR (0-7) 0 PROCEDURE 1 HOST DETECT ERR 0 NOT USED 0
OVERRUN 0 WRITE STATUS 1 ----- 0 ----- 1 LOOP WRITE-READ 0 NOT USED 0
NOT USED 0 FILE PROTECT 0 ----- 0 ----- 1 NOT USED 0 NOT USED 0
NOT USED 0 NOT CAPABLE 0 ----- 0 ----- 1 NOT USED 0 NOT USED 0

-----BYTE06-----00 -----BYTE07-----10 -----BYTE08-----38 -----BYTE09-----30 -----BYTE10-----00 -----BYTE11-----00
NOT USED 0 FORMAT CODE 8 0 BUFFER FULL LOW 0 BOT 0 DFCI SEQ CHECK 0 DOOR OPENED 0
NOT USED 0 FORMAT CODE 4 0 BUFFER FULL HIGH 0 EOT 0 DFCI PARITY CHK 0 REEL MISSING 0
NOT USED 0 FORMAT CODE 2 0 DRIVE ONLINE 1 TAPE-IN PATH SNR 1 SYNCH INS/OUTS 0 REEL INVERTED 0
NOT USED 0 FORMAT CODE 1 1 DRIVE READY 1 WRITE ENABLED 1 XFER FAILURE 0 NO BOT 0
NOT USED 0 DATA SECUR ERASE 0 POS. TO MOVE FWD 1 PE 1600 ID BURST 0 NOT USED 0 LOAD FAILURE 0
NOT USED 0 NOT USED 0 NOT USED 0 PE 3200 ID BURST 0 NOT USED 0 REEL NOT CNTERED 0
NOT USED 0 NOT USED 0 NOT USED 0 NOT USED 0 NOT USED 0 NOT USED 0 NOT USED 0
NOT USED 0 NOT USED 0 NOT USED 0 NOT USED 0 NOT USED 0 NOT USED 0 P.O.S.T. 0

```

Figure 105. OBR Record (Long) Detail Edit Report, Device Type 9347 Part 1

-----BYTE12-----00	-----BYTE13-----20	-----BYTE14-----00	-----BYTE15-----00	-----BYTE16-----80	-----BYTE17-----00
TENSION ARM 0	WRITE CHECK 0	READ SKEW 0	TIE PARITY 0	1600 CPI/25IPS 1	NOT USED 0
TAPE SPEED 0	WRITE IBG NOISE 0	READ UNCORRECT P 0	NOT USED 0	1600 CPI/100IPS 0	NOT USED 0
3700 FT OF TAPE 0	WRITE ID CHECK 1	READ MCHNL DROP 0	NOT USED 0	3200 CPI/50IPS 0	IBG 32 0
TENSION ARM VOL 0	WRT POSTAMBLE CK 0	READ ID PAGE 0	NOT USED 0	NOT USED 0	IBG 16 0
TACHOMETER 0	ERASE GAP SIZE 0	NOT USED 0	NOT USED 0	NOT USED 0	IBG 8 0
SUPPLY HUB LOCK 0	PIC ERROR 0	NOT USED 0	NOT USED 0	NOT USED 0	IBG 4 0
TAKE-UP HUB SLIP 0	NOT USED 0	NOT USED 0	NOT USED 0	NOT USED 0	IBG 2 0
SUPPLY HUB SLIP 0	NOT USED 0	NOT USED 0	NOT USED 0	NOT USED 0	IBG 1 0
-----BYTE18-----04	-----BYTE19-----00	-----BYTE20-----00	-----BYTE21-----00	-----BYTE22-----00	-----BYTE23-----00
BLK LENGTH 32768 0	BLK LENGTH 128 0	1ST LVL IND BIT1 0	2ND LVL IND BIT1 0	3RD LVL IND BIT1 0	4TH LVL IND BIT1 0
BLK LENGTH 16384 0	BLK LENGTH 65 0	1ST LVL IND BIT2 0	2ND LVL IND BIT2 0	3RD LVL IND BIT2 0	4TH LVL IND BIT2 0
BLK LENGTH 8192 0	BLK LENGTH 32 0	1ST LVL IND BIT3 0	2ND LVL IND BIT3 0	3RD LVL IND BIT3 0	4TH LVL IND BIT3 0
BLK LENGTH 4096 0	BLK LENGTH 16 0	1ST LVL IND BIT4 0	2ND LVL IND BIT4 0	3RD LVL IND BIT4 0	4TH LVL IND BIT4 0
BLK LENGTH 2048 0	BLK LENGTH 8 0	1ST LVL IND BIT5 0	2ND LVL IND BIT5 0	3RD LVL IND BIT5 0	4TH LVL IND BIT5 0
BLK LENGTH 1024 1	BLK LENGTH 4 0	NOT USED 0	NOT USED 0	NOT USED 0	NOT USED 0
BLK LENGTH 512 0	BLK LENGTH 2 0	NOT USED 0	NOT USED 0	NOT USED 0	NOT USED 0
BLK LENGTH 256 0	BLK LENGTH 1 0	NOT USED 0	NOT USED 0	NOT USED 0	NOT USED 0
-----BYTE24-----00	-----BYTE25-----00	-----BYTE26-----00	-----BYTE27-----00	-----BYTE28-----00	-----BYTE29-----00
5TH LVL IND BIT1 0	6TH LVL IND BIT1 0	NOT USED 0	----- 0	----- 0	NOT USED 0
5TH LVL IND BIT2 0	6TH LVL IND BIT2 0	NOT USED 0	0	0	NOT USED 0
5TH LVL IND BIT3 0	6TH LVL IND BIT3 0	NOT USED 0	0	0	NOT USED 0
5TH LVL IND BIT4 0	6TH LVL IND BIT4 0	NOT USED 0	0	0	NOT USED 0
5TH LVL IND BIT5 0	6TH LVL IND BIT5 0	NOT USED 0	CONDITION 0	DIAGNOSTIC 0	NOT USED 0
NOT USED 0	NOT USED 0	NOT USED 0	FLAG 0	LED 0	NOT USED 0
NOT USED 0	NOT USED 0	NOT USED 0	0	0	NOT USED 0
NOT USED 0	NOT USED 0	NOT USED 0	----- 0	----- 0	NOT USED 0
-----BYTE30-----20	-----BYTE31-----03				
----- 0	----- 0				
0	0				
FAULT 1	FAULT 0				
SYMPTOM 0	SYMPTOM 0				
CODE 0	CODE 0				
(MSB) 0	(LSB) 0				
0	1				
----- 0	----- 1				
HEX DUMP OF RECORD					
HEADER 30550800	00000000	0097054F	10145290	10234567	93750000
0018 D4C1C9D5	E3404040	013838E3	20800055	006A7348	0E000055
0038 00000C70	00000020	40404040	40400000	0844000F	10100010
0058 80000400	00000000	00000000	00002003	00000000	00000000
0078 00000000	00000000	00000000			

Figure 106. OBR Record (Long) Detail Edit Report, Device Type 9347 Part 2

DEVICE NUMBER: 000A82	REPORT: OUTBOARD (LONG)	DAY YEAR	JOB IDENTITY: VARY
DEVICE TYPE: 3380	SCP: VS 2 REL. 3	DATE: 046 97	E5C1D9E840404040
ERROR PATH: 56-0000	MODEL: 3084	HH MM SS.TH	
RECORD IS: PERM PATH	CPU ID: 321128	TIME: 04 11 55.73	
MODE IS: 370XA			
FAILING CCW: CC CA FL CT			
AF 0303A058 00 000C			
SCSW: K FLAGS CA US SS CT			
03 814407 01a16058 00 00 000C			
---UNIT STATUS---	SUB-CHANNEL STATUS	-----SCSW FLAGS-----	
		FLAG 0 FLAG 1 FLAG 2	
ATTENTION 0	PGM-CTLD IRPT 0	CCW FORMAT 1	RESERVED 0
STATUS MODIFIER 0	INCORRECT LENGTH 0	PRE-FETCH CCW 0	SSCH FUNCTION 1
CONTROL UNIT END 0	PROGRAM CHECK 0	INIT STATUS 0	HSCH FUNCTION 0
BUSY 0	PROTECTION CHECK 0	ADDR LIMIT 0	CSCH FUNCTION 0
CHANNEL END 0	CHAN DATA CHECK 0	SUPP SUSPEND INT 0	RESUME PENDING 0
DEVICE END 0	CHAN CTL CHECK 0	ZERO COND CODE 0	START PENDING 1
UNIT CHECK 0	I/F CTL CHECK 0	EXTENDED CONTROL 0	HALT PENDING 0
UNIT EXCEPTION 0	CHAINING CHECK 0	PATH NOT OPER 1	CLEAR PENDING 0
			SUBCHANNEL ACTIV 0
			DEVICE ACTIVE 0
			SUSPENDED 0
			ALERT STATUS 0
			INTERMED STATUS 0
			PRIMARY STATUS 1
			SECONDARY STATUS 1
			STATUS PENDING 1
SPID: 000002112830849718CEF0	FUNCTION CONTROL BYTE: 80		
SNID: 0000000000000000000000	PATH STATE BYTE: 00		
HEX DUMP OF RECORD			
HEADER 3A891810	40000000	0097046F	04115573
0018 E5C1D9E8	40404040	AF00000C	0303A058
0038 00000A82	00000000	80000002	11283084
0058 00000000	00000000	03814407	01A16058
0078 00000000	00000000	00000000	

Figure 107. OBR (Long) Detail Edit Report, Device Type 3380, DPA

Detail Edit and Summary Reports

```
DEVICE NUMBER: 0006C6          REPORT: OUTBOARD (LONG)          DAY YEAR          JOB IDENTITY: TRINHNG3
                        SCP: VS 2 REL. 3          DATE: 141 06          E3D9C9D5C8D5C7F3
DEVICE NED: 002105.000.IBM.075.000000012252.0615
DEVICE TYPE: 3590
ERROR PATH: 50-06C6          MODEL: 2066          HH MM SS.TH
                        CPU ID: 0A644A          TIME: 12 34 56.78
RECORD IS: PERMANENT
MODE IS: 370XA
Failing DCW: CC FL RS CD DATA CNT          RESIDUAL COUNT: 11111111
                01 A4 F8 00 00FFA108
SCSW: K FLAGS TA US SS FX ES
      80 C04017 00FBBD48 06 00 F8 00
---UNIT STATUS--- SUB-CHANNEL STATUS -----SCSW FLAGS-----
                        FLAG 0          FLAG 1          FLAG 2
ATTENTION 0 PGM-CTLD IRPT 0 IRB FORMAT 6 RESERVED 0 SUBCHANNEL ACTIV 0
STATUS MODIFIER 0 INCORRECT LENGTH 0 --- SSCH FUNCTION 1 DEVICE ACTIVE 0
CONTROL UNIT END 0 PROGRAM CHECK 0 --- HSCH FUNCTION 0 RESERVED 0
BUSY 0 PROTECTION CHECK 0 FORMAT CONTROL 0 CSCH FUNCTION 0 ALERT STATUS 1
CHANNEL END 0 CHAN DATA CHECK 0 INTERROGATE COMP 0 RESERVED 0 INTERMED STATUS 0
DEVICE END 1 CHAN CTL CHECK 0 RESERVED 0 START PENDING 0 PRIMARY STATUS 1
UNIT CHECK 1 I/F CTL CHECK 0 EXTENDED CONTROL 0 HALT PENDING 0 SECONDARY STATUS 1
UNIT EXCEPTION 0 RESERVED 0 PATH NOT OPER 0 CLEAR PENDING 0 STATUS PENDING 1

SPID: F3F2F0F6F400000160A400          FUNCTION CONTROL BYTE: F0
SNID: 0380000A4410D050405050          PATH STATE BYTE: 00

SENSE BYTE DATA
BYTE 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
      0A 44 10 D0 50 40 50 50 00 01 FF 00 00 00 00 00
BYTE 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
      03 0C 00 35 29 33 54 90 4B 04 E8 01 60 A4 13 11

HEX DUMP OF RECORD
HEADER 3A831800 00001100 0006141F 12345678 000A644A 20660000
0018 E3D9C9D5 C8D5C7F3 01A4F800 00FFA108 80000000 00000000 025006C6 78048083
0038 000006C6 00000020 F0F3F2F0 F6F40000 0160A400 00038000 0A4410D0 50405050
0058 0001FF00 00000000 030C0035 29335490 4B04E801 60A41311 80C04017 00FBBD48
0078 0600F800 00000000 06C0FFFF 11111111 F0F0F2F1 F0F5F3F3 F3F3F3F3 F4F5F1F2
0098 F3F4F5F6 F7F1F9F8 F3F1F4F3 F2F1F2F2 F2F2F2F2 F2F2F2F2
```

Figure 108. OBR (Long) Detail Edit Report, Device Type 3590, DPA

```
RECORD TYPE - 3C
MODEL-3084          SERIAL NO- 021103
--- RECORD ENTRY SOURCE - OBR
VS 2 REL. 03
DAY YEAR          HH MM SS.TH
DATE- 044 97          TIME- 17 40 12 99
JOB IDENTITY- DYN PATH
Failing CCW - 00 00 00 00 00 00 00 00
CSW 00 00 00 00 00 00 00 00
DEVICE TYPE CODE- 3030200E
PRIMARY CUA 0002C2 SECONDARY CUA 000000
HEX DUMP OF RECORD
HEADER 3C831840 00000000 0097044F 17401299 26021103 30840000
0018 C4E8D540 D7C1E3C8 00000000 00000000 00000000 00000000 1D000000 3030200E
0038 000002C2 00000000 01000000 E2D5C9C4 00FBC168 01A1C110 10000004 58000002
0058 80800080 00000000 00000000 22800640 00000000 00000000 00000000 00000000
0078 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0098 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00B8 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00D8 00000000 50040000 00000000 00000000 00000000 00000000 00000000 00000000
00F8 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0118 00000000 00000000 00000000 01000015 00000000
```

Figure 109. OBR (Long) Dynamic Pathing Validation Analysis Detail Edit Report

SUMMARY OF 3C RECORDS

RECORD DATE RANGE DAY YEAR DAY YEAR
044 97 044 97

MODEL - 3084 SERIAL NO - 021103

TOTAL NUMBER OF RECORDS=0001

CLASSES ENCOUNTERED(MAXIMUM OF 10)

RECORD CLASS -3C 0001

Figure 110. OBR (Long) Dynamic Pathing Validation Analysis Summary Report

DPS VALIDATION REPORT

DEVICE NUMBER: 0018C SCP: VS 2 REL. 3 DATE: 213 07 RECORD DESCRIPTION: IOSVARY
C9D6E2E5E5C1D9E8

DEVICE TYPE: 3390 CPU MODEL: 2094 HH MM SS.TH
DEVICE NED: 002105.000.IBM.75.000000012252.0615 CPU SERIAL: 0F9950 TIME: 14 30 32.75

```

-----
DPH CALLS FOR:          SNID  00          DEVICE  00          PATH  00          DPSV:  00
-----
-----LOGICAL STATUS OF DEVICE-----
RESVD/ASSGND  0  RESERVE PEND  0  MULTI PTH ACT  1  RESVD/ASSGND VAL  0  UCB IN PERM ERR  0
RESVD/REL PEND  0  DP ACTIVE    1  ASSIGNABLE DEV  0  UCB NOT CONNECT  0  DEVICE BOXED    0
-----
-----CHANNEL PATH MASKS-----
LPU MASK      80  PHYS AVAIL PG  F0  NO SPID SINCE SR  00  PG RESERVED MASK  00  RESV OTHER PG  00
NO. VALID ICP  04  SNID SUCCESS MK  F0  VAL ID NOT GROUP  00  PG NOT RESERVED  F0  MODE PATH MASK  F0
LPM           F0  SNID FAILURE MK  00  VAL ID IN GROUP  F0
-----
ACT FOR DEV  00  ACT FOR PATH  00  DEV MSG CODE  00
-----
-----DATA FOR CHANNEL PATH 22-----
PIM           80  SNID SUCCESS    1  REMOVE FROM LPM  0  ALTER PS ACT 2  0  RC ON ACTION 1  00
LOG AVAIL MASK  1  SNID FAILED    0  ALTER PS ACT 1  0  EST/RES REQ ACT1  0  RC ON ACTION 2  00
PHY AVAIL MASK  1  DCC3 CONDITION  0  EST/RES REQ ACT2  0
UNIT CHECK      0  LONG RECOVERY  0
SNID DATA      PATH STATE      C8  PGID  880003069A2084C0F8A451
-----
-----DATA FOR CHANNEL PATH 21-----
PIM           40  SNID SUCCESS    1  REMOVE FROM LPM  0  ALTER PS ACT 2  0  RC ON ACTION 1  00
LOG AVAIL MASK  1  SNID FAILED    0  ALTER PS ACT 1  0  EST/RES REQ ACT1  0  RC ON ACTION 2  00
PHY AVAIL MASK  1  DCC3 CONDITION  0  EST/RES REQ ACT2  0
UNIT CHECK      0  LONG RECOVERY  0
SNID DATA      PATH STATE      C8  PGID  880003069A2084C0F8A451
-----
-----DATA FOR CHANNEL PATH 2B-----
PIM           20  SNID SUCCESS    1  REMOVE FROM LPM  0  ALTER PS ACT 2  0  RC ON ACTION 1  00
LOG AVAIL MASK  1  SNID FAILED    0  ALTER PS ACT 1  0  EST/RES REQ ACT1  0  RC ON ACTION 2  00
PHY AVAIL MASK  1  DCC3 CONDITION  0  EST/RES REQ ACT2  0
UNIT CHECK      0  LONG RECOVERY  0
SNID DATA      PATH STATE      C8  PGID  880003069A2084C0F8A451
-----
-----DATA FOR CHANNEL PATH 2A-----
PIM           10  SNID SUCCESS    1  REMOVE FROM LPM  0  ALTER PS ACT 2  0  RC ON ACTION 1  00
LOG AVAIL MASK  1  SNID FAILED    0  ALTER PS ACT 1  0  EST/RES REQ ACT1  0  RC ON ACTION 2  00
PHY AVAIL MASK  1  DCC3 CONDITION  0  EST/RES REQ ACT2  0
UNIT CHECK      0  LONG RECOVERY  0
SNID DATA      PATH STATE      C8  PGID  880003069A2084C0F8A451
-----

```

Figure 111. OBR (Long) DPS Validation Detail Edit Report, Device Type 3390 Part 1

```

HEX DUMP OF RECORD
HEADER C2831840 00000000 0007213F 14303275 FF0F9950 20940000
0018 C9D6E2E5 E5C1D9E8 0000018C 80182024 00000000 00000000 01000100 E2D5C9C4
0038 021D48F8 02387660 00000000 1A208004 F0F0F000 0000F000 F000F000 22800680
0058 00000000 C8880003 069A2084 C0F8A451 00000000 21400680 00000000 C8880003
0078 069A2084 C0F8A451 00000000 2B200680 00000000 C8880003 069A2084 C0F8A451
0098 00000000 2A100680 00000000 C8880003 069A2084 C0F8A451 00000000 00000000
00B8 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00D8 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00F8 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0118 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0138 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0158 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0178 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0198 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
01B8 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
01D8 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
01F8 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0218 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0238 00000000 00000000 DC010100 F0F0F2F1 F0F5F0F0 F0C9C2D4 F7F5F0F0 F0F0F0F0
0258 F0F1F2F2 F5F20615

```

Figure 112. OBR (Long) DPS Validation Detail Edit Report, Device Type 3390 Part 2

Detail Edit and Summary Reports

```

DEVICE NUMBER: 0006C9          REPORT: OUTBOARD (LONG)      DAY YEAR      JOB IDENTITY:BOX DEV
                        SCP: VS 2 REL. 3      DATE: 142 06      C2D6E740C4C5E540
DEVICE TYPE: 3390
                        MODEL: 2066          HH MM SS.TH
ERROR PATH: 50-06C9          CPU ID: 0D644A      TIME: 02 21 17.75
RECORD IS: TEMPORARY
MODE IS: 370XA

Failing CCW:      CC FL RS CD DATA CNT      RESIDUAL COUNT: 0000
                  AF 00 00 0C 03BE46D8

SCSW:            K  FLAGS  TA  US SS FX ES
                  00 800000 00000000 00 00 00 00

---UNIT STATUS--- SUB-CHANNEL STATUS -----SCSW FLAGS-----
                        FLAG 0      FLAG 1
ATTENTION      0  PGM-CTLD IRPT  0  IRB FORMAT      4  RESERVED      0  SUBCHANNEL ACTIV 0
STATUS MODIFIER 0  INCORRECT LENGTH 0  ---      SSCH FUNCTION  0  DEVICE ACTIVE  0
CONTROL UNIT END 0  PROGRAM CHECK  0  ---      HSCH FUNCTION  0  RESERVED      0
BUSY           0  PROTECTION CHECK 0  FORMAT ESCAPE  0  CSCH FUNCTION  0  ALERT STATUS  0
CHANNEL END     0  CHAN DATA CHECK 0  RESERVED      0  RESERVED      0  INTERMED STATUS 0
DEVICE END      0  CHAN CTL CHECK  0  RESERVED      0  START PENDING  0  PRIMARY STATUS  0
UNIT CHECK      0  I/F CTL CHECK  0  EXTENDED CONTROL 0  HALT PENDING  0  SECONDARY STATUS 0
UNIT EXCEPTION  0  RESERVED      0  PATH NOT OPER  0  CLEAR PENDING  0  STATUS PENDING  0

      SPID: 00000D644A2066BED5C7F8      FUNCTION CONTROL BYTE: 20
      SNID: 000000000000000000000000      PATH STATE BYTE: 00

SENSE BYTE DATA
BYTE 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
      00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
BYTE 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
      00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

HEX DUMP OF RECORD
HEADER 3A831840 00000000 0006142F 02211775 000D644A 20660000
0018 C2D6E740 C4C5E540 AF00000C 03BE46D8 00000000 00000000 045006C9 78042032
0038 000006C9 00000020 2000000D 644A2066 BED5C7F8 00000000 00000000 00000000
0058 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0078 00000000 00000000 00000000 00000000 00000000 00000000 00000000

```

Figure 113. OBR (Long) Detail Edit Report for zHPF

```

DEVICE NUMBER: 005708      REPORT: OUTBOARD (LONG)      DAY YEAR      JOB IDENTITY: EOS EXIT
                        SCP: VS 2 REL. 3      DATE: 273 05      C5D6E240C5E7C9E3
DEVICE TYPE: 3390
MODEL: 2084      HH MM SS.TH
ERROR PATH: 14-5708      CPU ID: 132906      TIME: 13 38 42.32
RECORD IS: TEMPORARY
MODE IS: 370XA

      CC  CA  FL  CT
FAILING CCW: 1E E76072 60 00 0000

      K  FLAGS      CA  US  SS  CT
SCSW: 00 404017 00E68400 0E 00 0000

---UNIT STATUS--- SUB-CHANNEL STATUS -----SCSW FLAGS-----
                        FLAG 0      FLAG 1
ATTENTION      0  PGM-CTLD IRPT  0  CCW FORMAT      0  RESERVED      0  SUBCHANNEL ACTIV 0
STATUS MODIFIER 0  INCORRECT LENGTH 0  PRE-FETCH CCW  1  SSCH FUNCTION  1  DEVICE ACTIVE   0
CONTROL UNIT END 0  PROGRAM CHECK  0  INIT STATUS    0  HSCH FUNCTION  0  SUSPENDED       0
BUSY           0  PROTECTION CHECK 0  ADDR LIMIT     0  CSCH FUNCTION  0  ALERT STATUS    1
CHANNEL END     1  CHAN DATA CHECK 0  SUPP SUSPEND INT 0  RESUME PENDING 0  INTERMED STATUS 0
DEVICE END      1  CHAN CTL CHECK  0  ZERO COND CODE 0  START PENDING  0  PRIMARY STATUS  1
UNIT CHECK      1  I/F CTL CHECK  0  EXTENDED CONTROL 0  HALT PENDING   0  SECONDARY STATUS 1
UNIT EXCEPTION  0  CHAINING CHECK  0  PATH NOT OPER  0  CLEAR PENDING  0  STATUS PENDING  1

DEVICE DEPENDENT DATA
      STORAGE CONTROL UNIT: TYPE: 2107      SEQUENCE NUMBER: 00000      PATH: 0
      DEVICE: TYPE: 2107+      SEQUENCE NUMBER: N/A      DEVICE ID: 00      STRING: 0
      SSID: N/A      VOLUME: 339S02      CYLINDER: 00101A0      HEAD: E

SENSE BYTE DATA
BYTE 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15
      10 00 00 00 00 3C 20 00 00 00 00 00 00 00 00 00
BYTE 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
      00 00 00 00 00 00 00 00 04 81 00 10 DE F1 AB C2

HEX DUMP OF RECORD
HEADER 30831840 00000000 0005273F 13384232 FF132906 20840000
0018 C5D6E240 C5E7C9E3 1EE76072 60000000 00000000 03145708 801F2032
0038 00005708 00000020 F3F3F9E2 F0F30000 00000000 00000000 00000000
0058 10000000 003C2000 00000000 00000000 00000000 04810010 00101A0E
0078 00404017 00E68400 0E000000 0080000D F0F261F2 F461F0F5

```

Figure 114. OBR (Long) Detail Edit Report for Extended Address Volume (EAV)

Software (SFT) Detail Edit Reports

This report contains software records that are produced as part of the system error recovery process. It may include the following:

- Software-specific information such as:
 - The error ID
 - The system diagnostic work area (SDWA) control block and its extensions for the failing task or request block.
- Software records written at the request of the machine check handler (MCH) to provide program-damage assessment data in case of a machine check.
- A short form of the software record is produced to indicate the number of records lost because the error-recording (ERDS) buffer is full.
- Under VS1, VTAM prepares software records to document program failures.

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
Software (SVC 13) Detail Edit Report	“Software (SVC 13) Detail Edit Report” on page 278
Software (SVC 13) Summary Report	“Software (SVC 13) Summary Report” on page 280

Detail Edit and Summary Reports

REPORT	REFER TO
Software (Machine Check) Edit Report	“Software (Machine Check) Edit Report” on page 280
Software (Program Interrupt) Edit Report	“Software (Program Interrupt) Edit Report” on page 283
Software (ABEND) Detail Edit Report	“Software (ABEND) Detail Edit Report” on page 286
Software (ABEND) Summary Report	“Software (ABEND) Summary Report” on page 287
Software (MCH Called RTM) Detail Edit Report	“Software (MCH Called RTM) Detail Edit Report” on page 287
Software (MCH Called RTM) Summary Report	“Software (MCH Called RTM) Summary Report” on page 289
Software (Lost Record) Detail Edit Report	“Software (Lost Record) Detail Edit Report” on page 289
Software (Lost Record) Summary Report	“Software (Lost Record) Summary Report” on page 289

Software (SVC 13) Detail Edit Report

```

TYPE:  SOFTWARE RECORD      REPORT:  SOFTWARE EDIT REPORT      DAY YEAR
      (SVC 13)              REPORT DATE: 071.97
SCP:   VS 2 REL 3           ERROR DATE: 060.97
                                HH: MM:SS.TH
                                TIME: 03:13:51.39

```

JOBNAME: JES2
ERRORID: SEQ=00020 CPU=0000 ASID=0007 TIME=03:13:51.2

SEARCH ARGUMENT ABSTRACT

RIDS/IGC0008A AB/20351 REGS/0611C RIDS/IGCT1081#R

SYMPTOM	DESCRIPTION
-----	-----
RIDS/IGC008A	CSECT NAME: IGC0008A
AB/S0351	SYSTEM ABEND CODE: 0351
REGS/0611C	REGISTER/PSW DIFFERENCE FOR R06: 11C
RIDS/IGCT1081#R	RECOVERY ROUTINE CSECT NAME: IGCT1081

SERVICEABILITY INFORMATION NOT PROVIDED BY THE RECOVERY ROUTINE

```

PROGRAM ID
LOAD MODULE NAME
RECOVERY ROUTINE LABEL
DATE ASSEMBLED
MODULE LEVEL
SUBFUNCTION

```

TIME OF ERROR INFORMATION

PSW: 070C1000 0004DDE2 INSTRUCTION LENGTH: 02 INTERRUPT CODE: 000D

```
REGISTERS 0-7
GR: 80000000 80106000 A00E6170 00042320 00646840 0064C880 7004DCC6 00623518
REGISTERS 8-15
GR: 00642A88 FF9B2698 0000000E 0063A000 00646840 00000106 0064C8F1 0000000E
```

```
HOME ASID: 0007    PRIMARY ASID: 0007    SECONDARY ASID: 0007
PKM: 4000          AX: 0002
```

RTM WAS ENTERED BECAUSE A TASK REQUESTED ABEND VIA SVC 13.
THE ERROR OCCURRED WHILE AN ENABLED RB WAS IN CONTROL.

STATUS FROM ESTAE RB OR AT FRR ENTRY

PSW: 075C1000 00CF4C10 INSTRUCTION LENGTH: 02 INTERRUPT CODE: 0008

REGISTERS FROM RB LEVEL OF ESTAE EXIT OR REGISTERS AT TIME OF ERROR FOR FRR

REGISTERS 0-7
GR: FF9C321C 00631DA8 00000008 60CF4938 00627EF0 00000000 0064C9F8 00631DE4
REGISTERS 8-15
GR: 00631DE0 00631DA8 00631DA8 00000000 00000001 00631F58 A0CF40D4 00000000

RECOVERY ENVIRONMENT

RECOVERY ROUTINE TYPE: UNKNOWN
AN SVC DUMP WAS SCHEDULED BY A PREVIOUS RECOVERY ROUTINE.
THE RB ASSOCIATED WITH THIS EXIT WAS NOT IN CONTROL AT THE TIME OF ERROR.
I/O OPERATIONS WERE HALTED.

RECOVERY ROUTINE ACTION

THE RECOVERY ROUTINE REQUESTED THAT TERMINATION PROCESSING CONTINUE.
NO LOCKS WERE REQUESTED TO BE FREED.

HEXADECIMAL DUMP

HEADER					
+000	40830820	000000B8	0097060F	03135139	C.....8.I.
+010	23020447	30810000			.....A..
JOBNAME					
+000	D1C5E2F2	40404040			JES2
SDWA BASE					
+000	0064C998	80351000	FF04000D	5004DDE2	..IQ..... ..S
+010	FF140051	60146AA6	80000000	80106000	....-. W.....-.
+020	A00E6170	00042320	00646840	0064C880	./..... ..H.
+030	7004DCC6	00623518	00642A88	FF9B2698	...F-. W...H.}.Q
+040	0000000E	0063A000	0064D968	00000106	..... ..R.....
+050	0064C8F1	0000000E	0064C880	00000000	..H1.....H.....
+060	00000000	00000000	070C1000	0004DD32	.....S
+070	0002000D	00000000	075C1000	00CF4C10*.....<.
+080	00020008	00000000	FF9CE21C	00631DA8	..... S....Y
+090	00000008	60CF4938	00627EF0	00000000	....-.....=0....
+0A0	0064C9F8	00631DE4	00631DE0	00631DA8	..I8...U...\.Y
+0B0	00631DA8	00000000	00000001	00631F58	...Y.....
+0C0	A0CF49D4	00000000	E6000418	00000000	..M....W.....
+0D0	00000000	00000000	00000000	00000000	.....
+0E0	00000000	00000000	10040841	00004000	.....
+0F0	00000000	00625C28	00000000	00800000*
+100	00000000	00000000	00000000	00000000	.....
+110	00000000	00000000	00000000	00000000	.....
+120	0007C998	00000000	00000000	C9C7C3F0	.....IGC0
+130	F0F0F8C1	C9C7C3E3	F1F0F8F1	00625BD8	008AIGCT1081..\$Q

VARIABLE RECORDING AREA (SDWAVRA)

+000 106000 .-.

SDWA FIRST RECORDABLE EXTENSION (SDWARC1)

+000	00000000	00000000	00000000	00000000	.....
+010	00000000	00000000	00000000	00000000	.....
+020	00000000	00000000	00000000	00000000	.....
+030	00000000	00000000	00000000	00000000	.....

ERRORID

+000 00140000 00070001 C658F.

DUMP CHARACTERISTICS

AREA				DUMP RANGES			
DUMP FLAGS							
FROM		TO					
SNAP DUMP REQUEST	0	DISPLAY NUCLEUS	0	DISPLAY SAVE AREAS	0	RANGE 1	
00000000 00000000							
PARM LIST SUPPLIED	0	DISPLAY SQA	0	DISPLAY SAVE AREA HEADER	0	RANGE 2	
00000000 00000000							
STORAGE LIST SUPPLIED	0	DISPLAY LSQA	0	DISPLAY REGISTERS	0	RANGE 3	
00000000 00000000							

Detail Edit and Summary Reports

00000000 00000000		DISPLAY SWA 0			DISPLAY TASK LPA MODULES 0			RANGE 4	
		DISPLAY GTF TRACE TABLE 0			DISPLAY TASK JPA MODULES 0				
		DISPLAY CONTROL BLOCKS 0			DISPLAY PSW 0				
		DISPLAY QCB/QELS 0			DISPLAY USER SUBPOOLS 0				
HEX DUMP OF RECORD									
40404040		000000B8	0097060F	03135139	23020447	30810000	D1C5E2F2		
00000C00		0000D08	800F8000	00000000	00000000	00000000	00000000	00000001	
80659260		0020 00029202	40125B24	00124F40	00125C7E	0065CFF8	FD000000	0067A950	
00000000		0040 00000000	0068C008	00000000	00124F40	00029200	400367AE	00000000	
00029202		0060 00000000	00000000	070C0000	00125C72	00020000	00000000	070C0000	
00125C7E		0080 00020000	00000000	00000001	00000C00	00029202	40125B24	00124F40	
00124F40		00A0 0065CFF8	FD000000	0067A950	80659260	00000000	0068C008	00000000	
00000000		00C0 00029200	400367AE	00000000	00000000	00000000	00000000	00000000	
00800000		00E0 0000000F	00000000	04040001	00000042	00000000	0098047C	00000000	
00000000		0100 00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00980428		0120 00130099	00000000	00000000	00000000	00000000	00000000	00000000	
00000000		0140 00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00000000		0160 00000000	00000000	00000000	FFFF0001	009805C0	00800013	00000013	
00000000		0180 00000000	00000000	00000000	00031A34	00FF0000	00000000	00000000	
00000000		01A0 00000000	00000000	00000000	00000000	00000000	00000000	00000000	
00000000		01C0 00000000	00000000	00000000	00000000	00000000	00990042	00130003	1A34

Software (SVC 13) Summary Report

DAY YEAR		DAY YEAR		MODEL - 3081		SERIAL NO.		220344			
SOFTWARE DATE RANGE -	047 97	TO	057 97								
SUMMARY OF SOFTWARE ENVIRONMENT RECORDS											
TOTAL NUMBER OF RECORDS		0001									
ROUTINE NAME	CSECT NAME	NUMBER ENTRIES	ROUTINE NAME	CSECT NAME	NUMBER ENTRIES	ROUTINE NAME	CSECT NAME	NUMBER ENTRIES	ROUTINE NAME	CSECT NAME	NUMBER ENTRIES
001											

Software (Machine Check) Edit Report

TYPE: SOFTWARE RECORD (MACHINE CHECK)	REPORT: SOFTWARE EDIT REPORT	DAY YEAR
SCP: VS 2 REL 3	REPORT DATE: 071.97	ERROR DATE: 041.97
	HH: MM:SS.TH	TIME: 13:55:05.12
JOBNAME: *MASTER*		
ERRORID: SEQ=00013 CPU=0041 ASID=0001 TIME=13:55:04.8		
SEARCH ARGUMENT ABSTRACT		
PIDS/#####SC1C5 RIDS/IEAVEDS0#L RIDS/IEAVEDS0 AB/S00F3 RIDS/IEAVEDSR#R		

SYMPTOM	DESCRIPTION
-----	-----
PIDS/####SC1C5	PROGRAM ID: ####SC1C5
RIDS/IEAVEDS0#L	LOAD MODULE NAME: IEAVEDS0
RIDS/IEAVEDS0	CSECT NAME: IEAVEDS0
AB/S00F3	SYSTEM ABEND CODE: 00F3NAME: IGCT1081
RIDS/IEAVEDSR#R	RECOVERY ROUTINE CSECT NAME: IEAVEDSR

OTHER SERVICEABILITY INFORMATION

RECOVERY ROUTINE LABEL:	IEAVEDSR
DATE ASSEMBLED:	01/29/95
MODULE LEVEL:	JBB2133
SUBFUNCTION:	IEAVEDS0

TIME OF ERROR INFORMATION

GENERAL PURPOSE REGISTERS AT TIME OF MACHINE CHECK ARE UNPREDICTABLE.

PSW: 040C0000 8105E932 INSTRUCTION LENGTH: 00 INTERRUPT CODE: 0000
 FAILING INSTRUCTION TEXT: D2038240 95FED203 03A40380

REGISTERS 0-7

GR: 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000

REGISTERS 8-15

GR: 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000

HOME ASID: 0001	PRIMARY ASID: 0000	SECONDARY ASID: 0000
PKM: 0000	AX: 0000	

RTM WAS ENTERED BECAUSE OF A MACHINE CHECK INTERRUPT.
 THE ERROR OCCURRED WHILE A LOCKED OR DISABLED ROUTINE WAS IN CONTROL.
 NO LOCKS WERE HELD.
 SUPER BITS SET: PSADISP - DISPATCHER

RECOVERY ENVIRONMENT

RECOVERY ROUTINE TYPE: FUNCTIONAL RECOVERY ROUTINE (FRR)
 PSE AT ENTRY TO FRR: 040C0000 810B09D0S
 FRR PARAMETER AREA ON ENTRY TO FRR:
 +00 00000000 00000000 00000000 00000000 00000000 00000000

RECOVERY ROUTINE ACTION

THE RECOVERY ROUTINE RETRIED TO ADDRESS 010AC332.
 AN SVC DUMP WAS NOT REQUESTED.
 NO LOCKS WERE REQUESTED TO BE FREED.

THE REGISTER VALUES TO BE USED FOR RETRY:

REGISTERS 0-7

GR: 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000

REGISTERS 8-15

GR: 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000

HEXADECIMAL DUMP

HEADER

+000	48831820	00000000	0097041F	13550512	C.....I.....
+010	00170044	30900000			.....

JOBNAME

+000	5CD4C1E2	30900000			*MASTER*
------	----------	----------	--	--	----------

SDWA BASE

+000	00F80608	900F3000	00000000	00000000	.8.....
+010	00000000	00000000	00000000	00000000	.....
+020	00000000	00000000	00000000	00000000	.....
+030	00000000	00000000	00000000	00000000	.....
+040	00000000	00000000	00000000	00000000	.....
+050	00000000	00000000	00000000	00000000	.....
+060	00000000	00000000	040C0000	8105E932	.....A.Z.
+070	00000000	01BB111E	040C0000	810B09D0	.....A..
+080	00000000	01BB111E	00000000	00000000	.....
+090	00000000	00000000	00000000	00000000	.....
+0A0	00000000	00000000	00000000	00000000	.....
+0B0	00000000	00000000	00000000	00000000	.....
+0C0	00000000	00000000	00000000	00000000	.....
+0D0	00000000	20440000	00000000	00000000	.....
+0E0	98EB91D7	B8A6FE01	80020001	00000041	Q.JP8W.....
+0F0	010AC332	00F80AA4	00000000	04880000	..C..8.U....H..

Detail Edit and Summary Reports

+100	00000000	00000000	00000000	00000000	.....
+110	00000000	00000000	00000000	00000000	.....
+120	0001000D	C9C5C1E5	C5C4E2F0	C9C5C1E5	...8EAVEDS0IEAV
+130	C5C4E2F0	C9C5C1E5	C5C4E2D9	00F80A50	EDS0IEAVEDSR.8.
+140	00000000	00000000	00000000	00000000	.....
+150	00000000	00000000	00000000	00000000	.....
+160	00000000	00000000	00000000	FFFF0003	.....
+170	00F80C70	00000000	00000000	00000000	.8.....
+180	00000000	00000000	00000000	0007A538	.....V.
+190	00FF0003				....

VARIABLE RECORDING AREA (SDWAVRA)

+000	KEY: 11	LENGTH: 06	
+002	C9C8C1D7	E2C1	IHAPSA
+008	KEY: 15	LENGTH: 02	
+00A	0224		..
+00C	KEY: 12	LENGTH: 04	
+00E	00FB3080		....

+012	KEY: 15	LENGTH: 02	
+014	021C		..
+016	KEY: 12	LENGTH: 04	
+018	00000000		....
+01C	KEY: 15	LENGTH: 02	
+01E	02EC		.
+020	KEY: 12	LENGTH: 04	
+022	00000000		....
+026	KEY: 15	LENGTH: 02	
+028	049C		.
+02A	KEY: 12	LENGTH: 04	
+02C	00000008		....
+030	KEY: 11	LENGTH: 07	
+32C	C9C8C1C1	E2C3C2	IHAASCB
+039	KEY: 15	LENGTH: 02	
+03B	0080		..
+03D	KEY: 12	LENGTH: 04	
+03F	00000000		....
+043	KEY: 15	LENGTH: 02	
+045	00E8		.Y
+047	KEY: 12	LENGTH: 04	
+049	00000000		....
+04D	KEY: 15	LENGTH: 02	
+04F	00EC		.
+051	KEY: 12	LENGTH: 04	
+053	00000000		....
+057	KEY: 15	LENGTH: 02	
+059	00B4		.4
+05B	KEY: 12	LENGTH: 04	
+05D	00000000		....
+061	KEY: 15	LENGTH: 02	
+063	013C		..
+065	KEY: 12	LENGTH: 04	
+067	00000000		....
+06B	KEY: 15	LENGTH: 02	
+06D	0148		..
+06F	KEY: 12	LENGTH: 04	
+071	00000000		....

+075	KEY: 11	LENGTH: 07	
+077	C9C8C1D3	C3C3C1	IHALCCA

```

+07E  KEY: 15      LENGTH: 02
+080  036C                                     .%

+082  KEY: 12      LENGTH: 04
+084  00000000                                     ....

+088  KEY: 15      LENGTH: 02
+08A  021C                                     ..

+08C  KEY: 12      LENGTH: 02
+08E  0000                                     ..

+090  KEY: 15      LENGTH: 02
+092  053C                                     ..

+094  KEY: 12      LENGTH: 0C
+096  00000000  00000000  00000000  ....

+0A2  KEY: 11      LENGTH: 06
+0A4  C9C8C1E2  E5E3  IHASVT

+0AA  KEY: 15      LENGTH: 02
+0AC  001C                                     ..

+0AE  KEY: 12      LENGTH: 04
+0B0  00000000  ....

+0B4  KEY: 00      LENGTH: 00

+0B6  KEY: 00      LENGTH: 00

+0B8  KEY: 10      LENGTH: 18
+0BA  E2C3D9C1  00FFB1E8  00F804E0  80000000  SCRA..1Y.8.\....
+0CA  00F80848  04000000  8.....

SDWA FIRST RECORDABLE EXTENSION (SDWARC1)
+000  E2C3F1C3  F5C9C5C1  E5C5C4E2  F0000000  SC1C5IEAVEDS0...
+010  00000000  00000000  00000000  F0F161F2  .....01/2
+020  F961F9F5  40D1C2C2  F2F1F3F3  00000000  9/95 JBB2133...
+030  C9C5C1E5  C5C4E2D9  00000000  00000000  IEAVEDSR.....
+040  00000000  04000000  00000000  810B09D0  .....A..
+050  00000000  00000000  00000000  00000000  .....
+060  00000000  00000000  00000000  00000000  .....
+070  00000000  00000000  00000000  D2038240  .....K.B
+080  95FED203  03A40380  00FB3080  03F7307F  N.K..U.....7\"
+090  900F3000  00000000  .....

SDWA FIRST RECORDABLE EXTENSION (SDWARC1)
+000  E2C3F1C3  F5C9C5C1  E5C5C4E2  F0000000  SC1C5IEAVEDS0...

SDWA SECOND RECORDABLE EXTENSION (SDWARC2)
+000  00000000  00000000  40000F11  00030000  .....

SDWA THIRD RECORDABLE EXTENSION (SDWARC2)
+000  00000000  00000000  00000000  00000000  .....
+010  00000000  00000000  00000000  00000000  .....

ERRORID
+000  000D0041  00010007  A538  .....V.

```

Software (Program Interrupt) Edit Report

```

TYPE:  SOFTWARE RECORD      REPORT:  SOFTWARE EDIT REPORT      DAY YEAR
      (PROGRAM INTERRUPT)      REPORT DATE: 071.97
SCP:   VS 2 REL 3              ERROR DATE: 047.97
                                MODEL:   3081
                                SERIAL:  020447
                                HH:MM:SS.TH
                                TIME: 01:05:08.53

```

```

JOBNAME: *MASTER*
ERRORID: SEQ=01249 CPU=0040 ASID=0001 TIME=01:05107.5

```

SEARCH ARGUMENT ABSTRACT

PIDS/####SC1CX RIDS/NUCLEUS#L AB/S00C5 REGS/097C6 RIDS/IRARMERR#R

Detail Edit and Summary Reports

SYMPTOM	DESCRIPTION
-----	-----
PIDS/####SC1CX	PROGRAM ID: ####SC1CX
RIDS/NUCLEUS#L	LOAD MODULE NAME: NUCLEUS
AB/S00C5	CSECT NAME: 00C5
REGS/097C6	SYSTEM ABEND CODE: 00C5
RIDS/IRARMERR#R	RECOVERY ROUTINE CSECT NAME: IRARMERR

OTHER SERVICEABILITY INFORMATION

RECOVERY ROUTINE LABEL: IRARMRR2
SUBFUNCTION: SRM

SERVICEABILITY INFORMATION NOT PROVIDED BY THE RECOVERY ROUTINE

CSECT NAME
DATE ASSEMBLED
MODULE LEVEL

TIME OF ERROR INFORMATION

PSW: 440C3000 0009A088 INSTRUCTION LENGTH: 04 INTERRUPT CODE: 0005

REGISTERS 0-7

GR: 00000780 000176D0 0001D030 000E8E00 000FFE10 00027A48 00017010 8004E858

REGISTERS 8-15

GR: 00028010 000998C2 00000000 01701000 000BC116 00057F28 400BC2F0 00000000

HOME ASID: 0001 PRIMARY ASID: 0001 SECONDARY ASID: 0001
PKM: 0000 AX: 0001

RTM WAS ENTERED BECAUSE OF A PROGRAM CHECK INTERRUPT.
THE ERROR OCCURRED WHILE A LOCKED OR DISABLED ROUTINE WAS IN CONTROL.
NO LOCKS WERE HELD.

STATUS FROM ESTAE RB OR AT FRR ENTRY

PSW: 440C0000 000B65CC INSTRUCTION LENGTH: 04 INTERRUPT CODE: 0005

RECOVERY ENVIRONMENT

RECOVERY ROUTINE TYPE: UNKNOWN

RECOVERY ROUTINE ACTION

THE RECOVERY ROUTINE RETRIED TO ADDRESS 000BC11A.
LOCKS WHICH RTM HAS REQUESTED TO FREE: SRM

THE REGISTER VALUES TO BE USED FOR RETRY:

REGISTERS 0-7

GR: 00000000 000561E0 000558E0 00FF9FA8 000B65CC 00027A48 0005596C 800B4F44

REGISTERS 8-15

GR: 00000000 000562E0 01000000 01000000 500B4EB0 00057F28 500B51EA 00000000

HEXADECIMAL DUMP

HEADER

+000	42830820	00000028	0097047F	01050853	.C.....I."....
+010	23020447	30810000			.....A..

JOBNAME

+000	5CD4C1E2	30810000			*MASTER*
------	----------	----------	--	--	----------

SDWA BASE

+000	00FF9FA8	900C5000	00000000	00000000	...Y.....
+010	00000000	00000000	00000780	000A76D0	.....
+020	0001D030	000E8E00	000FFE10	00027A48:
+030	00017010	8004E858	00028010	000998C2	.....Y.....QB
+040	00000000	17010000	000BC116	00057F28	.....A..."
+050	400BC2F0	00000000	00000000	00000000	.B0.....
+060	00000000	00000000	440C3000	0009A088	.....H
+070	00040005	80000003	440C0000	000B65CC	.....
+080	00040005	80000003	00000000	000561E0/\
+090	000558E0	00FF9FA8	000B65CC	00027A48	...\.Y.....:
+0A0	0005596C	800B4F44	00000000	000562E0	...%.Ü.....\
+0B0	01000000	01000000	500B4EB0	00057F28	.....+0..."
+0C0	500B51EA	00000000	00000000	00000000	.....
+0D0	00000000	00000000	00000000	00000000	.....
+0E0	00000000	00000000	40020001	00000040	.....
+0F0	000BC11A	00FFA404	00000000	04880004	..A...U.....H..

```

+100 00000000 00000000 00000000 00000000 .....
+110 00000000 00000000 00000000 00000000 .....
+120 000104E1 D5E4C3D3 C5E4E240 00000000 ....NUCLEUS ....
+130 00000000 C9D9C1D9 D4C5D9D9 00FFA380 ....IRARMERR..T0
+140 00000000 00000000 00000000 00000000 .....
+150 00000000 00000000 00000000 00000000 .....
+160 00000000 00000000 00000000 FFFF0001 .....
+170 00FFA548 00000001 00010001 00000000 ..V.....
+180 00000000 00000000 00000000 000098A3 .....QT
+190 00FFE06C .....%

```

VARIABLE RECORDING AREA (SDWAVRA)

```

+000 KEY: 39 LENGTH: 28
+002 C9D9C1D9 D4C3D5E2 40D6C6C6 E2C5E340 IRARMCNS OFFSET
+012 E3D640C3 E4D9D940 D9E3D5C5 40D7E3D9 TO CURR RTNE PTR
+022 40C9E240 F9F0F040 IS 900

+02A KEY: 10 LENGTH: 18
+02C 00010005 00000000 83080000 003125FF .....C.....
+03C 00FF6790 000561E0 ...../\

```

```

+044 KEY: 40 LENGTH: 02
+046 00C5 .E
+048 KEY: 3A LENGTH: 02
+04A 0001 ..

+04C KEY: 22 LENGTH: 04
+04E D9D9D7C1 RRPA

+052 KEY: 23 LENGTH: 18
+054 00010005 00000000 83080000 00000000 .....c.....
+064 00000000 000561E0 ...../\

```

SDWA FIRST RECORDABLE EXTENSION (SDWARC1)

```

+000 E2C3F1C3 E7E2D9D4 40404040 40404040 SC1CXSRM
+010 40404040 40404040 40404040 00000000 ....
+020 00000000 00000000 00000000 00000000 .....
+030 C9D9C1D9 D4D9D9F2 00000000 00000000 IRARMRR2.....

```

ERRORID

```

+000 04E10040 00010000 98A3 ... ..QT

```

SDWA SECOND RECORDABLE EXTENSION (SDWARC2)

```

+000 00000000 00000000 40000F11 00030000 .....

```

SDWA THIRD RECORDABLE EXTENSION (SDWARC2)

```

+000 00000000 00000000 00000000 00000000 .....
+010 00000000 00000000 00000000 00000000 .....

```

ERRORID

```

+000 000D0041 00010007 A538 .....V.

```

DUMP CHARACTERISTICS

DUMP RANGES

AREA DUMP FLAGS FROM TO	SDATA OPTIONS	PDATA OPTIONS	DUMP RANGES
SNAP DUMP REQUEST 0	DISPLAY NUCLEUS	0 DISPLAY SAVE AREAS	0 RANGE 1
00000000 00000000			
PARM LIST SUPPLIED 0	DISPLAY SQA	0 DISPLAY SAVE AREA HEADER	0 RANGE 2
00000000 00000000			
STORAGE LIST SUPPLIED 0	DISPLAY LSQA	0 DISPLAY REGISTERS	0 RANGE 3
00000000 00000000			
	DISPLAY SWA	0 DISPLAY TASK LPA MODULES	0 RANGE 4
00000000 00000000			
	DISPLAY GTF TRACE TABLE	0 DISPLAY TASK JPA MODULES	0
	DISPLAY CONTROL BLOCKS	0 DISPLAY PSW	0
	DISPLAY QCB/QELS	0 DISPLAY USER SUBPOOLS	0

```

HEX DUMP OF RECORD
HEADER 42830820 00000028 0097047F 01050853 23020447 30810000 5CD4C1E2
30810000

```

```

0000 00000D08 800F8000 00000000 00000000 00000000 00000000 00000001
00000C00
0020 00029202 40125B24 00124F40 00125C7E 0065CFF8 FD000000 0067A950
80659260
0040 00000000 0068C008 00000000 00124F40 00029200 400367AE 00000000
00000000
0060 00000000 00000000 070C0000 00125C72 00020000 00000000 070C0000
00029202

```

Detail Edit and Summary Reports

0080	00020000	00000000	00000001	00000C00	00029202	40125B24	00124F40	
00125C7E	00A0	0065CFF8	FD000000	0067A950	80659260	00000000	0068C008	00000000
00124F40	00C0	00029200	400367AE	00000000	00000000	00000000	00000000	00000000
00000000	00E0	0000000F	00000000	04040001	00000042	00000000	0098047C	00000000
00800000	0100	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00000000	0120	00130099	00000000	00000000	00000000	00000000	00000000	00000000
00980428	0140	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00000000	0160	00000000	00000000	00000000	FFFF0001	009805C0	00800013	00000013
00000000	0180	00000000	00000000	00000000	00031A34	00FF0000	00000000	00000000
00000000	01A0	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00000000	01C0	00000000	00000000	00000000	00000000	00990042	00130003	1A34

Software (ABEND) Detail Edit Report

RECORD TYPE - 42

MODEL-3081 SERIAL NO- 020344

RECORD CONVERTED TO THE STANDARD FORMAT

--- RECORD ENTRY SOURCE - ABND

VS 2 REL. 3

DAY YEAR	HH MM SS.TH
DATE- 057 97	TIME- 04 09 02 72

HEX DUMP OF RECORD HEADER 42891827	28900000	0097057F	04090272	23020344	30810000		
0018	D5D6D5C5	60C6D9D9	00000D48	900C4000	00000000	00000000	00000000
00000000	0038	0002C290	00000D11	0000ACB8	0002D290	0002E290	00F7F3E6
0002C9CC	0058	00F7F930	00F6B820	0006F090	0001F240	00FF7AF0	009436A8
4780F0A4	0078	00000000	00000000	00000000	040C3000	0080F0A4	00020011
0080F0A4	0098	040C0000	0002FC54	00020011	0080F0A4	2EA80047	00FFB770
00FFBB40	00B8	400301F0	0002C290	00000D48	000037D8	0002D290	0002E290
00000C00	00D8	00000D40	00FF7AF0	9002EF4A	00071B28	00000000	00000000
00000000	00F8	00000000	00000000	00000000	00000000	40030801	00000040
00FFB904	0118	00000000	048800C0	00000000	000039D0	0001F0C8	00000000
00000000	0138	00000000	00000000	000101D1	C9C5C3C9	D6E2C1D4	C9C5C3C9
C9C5C3C6	0158	D9D94040	00FFB8B0	00000000	00000000	00000000	00000000
00000000	0178	00000000	00000000	00000000	00000000	FFFF0001	00FFBA48
80000001	0198	00010001	00000000	00000000	00000000	000247A8	00FF0038
C0000000	01B8	FFFFFFFF	403CFF80	00FF0F6C	00000040	00FF3AA4	0000FF82
70010500	01D8	00F3C4F1	12501009	00011C2C	40E4E9F6	F1F1F8F0	E2C3F1C3
00000000	01F8	00000000	00000000	00000000	00000000	00000000	00000000
00000000	0218	00000000	00000000	00000000	00000000	01D10040	00010002

Software (ABEND) Summary Report

SUMMARY OF 40 RECORDS

RECORD DATE RANGE	DAY YEAR	DAY YEAR
	057 97	057 97

MODEL - 3081 SERIAL NO - 020344

TOTAL NUMBER OF RECORDS=0002

CLASSES ENCOUNTERED(MAXIMUM OF 10)

RECORD CLASS -42 0002

Software (MCH Called RTM) Detail Edit Report

---	RECORD ENTRY SOURCE - SOFTWARE ---	TYPE	MCH CALLED RTM	DATE DAY YR 047 97	TIME HH MM SS.TH 10 39 39 87	CPU SERIAL 270044	CPU ID 3090
-----	------------------------------------	------	----------------	--------------------------	------------------------------------	-------------------------	-------------------

VS 2 REL. 3

ERRORID=SEQ00030 CPU0041 ASID0001 TIME10.39.38.9

JOBNAME	*MASTER*		
ABENDING PROGRAM NAME	N/A	BC MODE PSW AT TIME OF ERROR	BC MODE PSW OF
LAST RB			
NAME OF MODULE INVOLVED	IEAVEDSO		
NAME OF CSECT INVOLVED	IEAVEDSO	00000000 00000000	00000000
00000000			
FUNCTIONAL RECOVERY ROUTINE	IEAVEDSR		

REGS AT TIME OF ERROR

REGS 0-7	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
REGS 8-15	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000

EC PSW AT TIME OF ABEND	00000000 00000000	EC PSW FROM ESTAE RB(0 FOR ESTAI)
040C0000 0005B5E0		
ADDITIONAL INFO:		ADDITIONAL INFO:
INST LENGTH CODE	00	INST LENGTH CODE
INTERRUPT CODE	0000	INTERRUPT CODE
VIRT ADDR OF TRANS EXCEP	00154FE0	VIRT ADDR OF TRANS EXCEP
		00154FE0

REGS OF RB LEVEL OF ESTAE EXIT OR ZERO FOR ESTAI

REGS 0-7	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
REGS 8-15	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000

MCH FLAG BYTE		MCK INPUT INFO		FRAME ERROR INDICATORS		STORAGE
ERROR INDICATORS						
STORAGE ADDRS ARE VALID	0	STORAGE KEY FAILURE	0	STORAGE ERROR ALREADY SET	0	FRAME
OFFLINE(OR SCHED)	0					
MCK RECORD NOT RECORDED	0	REGISTERS UNPREDICTABLE	1	CHANGE INDICATOR ON	0	
INTERCEPT	0					
TIME STAMP IS VALID	1	PSW UNPREDICTABLE	1			STORAGE ERROR
PERMANENT	0					
STORAGE IS RECONFIGURED	0	STORAGE DATA CHECK	0			PERMANENT RES.
STORAGE	0					
RECONFIGURE STATUS AVAIL	0	ACR REQUEST	1			FRAME IN
SQA	0					
RECONFIGURE NOT ATTEMPTED	0	INSTRUCTION FAILURE	0			FRAME IN
LSQA	0					
		SOFT ERROR	0			FRAME IS PAGE
FIXED	0					
		TIMER ERROR	0			FRAME IS
V=R	0					

TIME STAMP OF ASSOCIATED MACHINE CHECK RECORD

BEGINNING VIRT ADDR OF STORAGE CHECK	00000000	DATE	TIME
ENDING VIRT ADDR OF STORAGE CHECK	00000000	DAY YR	HH MM SS.TH
REAL STORAGE FAILING ADDRESS	00000000	057 97	10 39 39 00

MACHINE CHECK	1	TYPE 1 SVC IN CONTROL	0	PREV ESTA OR FRR FAILED	0	EXIT TO
CLEANUP ONLY	0					
PROGRAM CHECK	0	ENABLED RB IN CONTROL	0	(E)STAI PREV IN CONTROL	0	RB OF ESTA NOT
IN CONTROL 0						
RESTART KEY DEPRESSED	0	DISABLED RTN IN CONTROL	1	IRB PRECEDED RB	0	ESTA EXIT FOR

Detail Edit and Summary Reports

PREV ABEND 0						
TASK ISSUED SVC 13	0	SYSTEM IN SRB MODE	0	THIS RTN PERCOLATED TO	0	STEP ABEND
REQUESTED 0						
SYSTEM FORCED SVC 13	0			LOWER LEVEL EXIT INFO	0	TASK ANCESTOR
ABENDED 0						
SVC BY LOCKED OR SRB RTN	0					REGS AND PSW
UNAVAILABLE 0						
TRANSLATION FAILURE	0					MCK INFO
UNAVAILABLE 0						
PAGE I/O ERROR	0					
CURRENT I/O STATUS						
MEMORY ASID	0000	I/O IS RESTORABLE	0			
RECOVERY RETURN CODE	04	I/O IS NOT RESTORABLE	0			
		NO I/O OUTSTANDING	0			
		NO I/O PROCESSING	0			

ADDITIONAL PROCESSING		GLOBAL LOCKS TO BE FREED		LOCKWORDS		
RECORDING REQUESTED	1	DISPATCHER LOCK	0			
VALID SPIN	0	SRM LOCK	0			
UPDATED REGS FOR RETRY	1	IOSCAT LOCK	0	IOSCAT LOCKWORD	00000000	
FREE RTCA BEFORE RETRY	0	IOSUCB LOCK	0	IOSUCB LOCKWORD	00000000	
		IOSLCH LOCK	0	IOSLCH LOCKWORD	00000000	
		IOSYNCH LOCK	0	IOSYNCH LOCKWORD	00000000	
		NCB LOCK	0	NCB LOCKWORD	00000000	
		DNCB LOCK	0	DNCB LOCKWORD	00000000	
		ACBDEBS LOCK	0	ACBDEBS LOCKWORD	00000000	
		ASMPAT LOCK	0	ASMPAT LOCKWORD	00000000	
		SALLOCC LOCK	0	ASID CURRENT	0001	
		CMS LOCK	0			
		LOCAL LOCK	0			
DUMP CHARACTERISTICS						DUMP RANGES
AREA						
DUMP FLAGS		SDATA OPTIONS		PDATA OPTIONS		
FROM TO						
SNAP DUMP REQUEST	0	DISPLAY NUCLEUS	0	DISPLAY SAVE AREAS	0	RANGE 1
00000000 00000000						
PARM LIST SUPPLIED	0	DISPLAY SQA	0	DISPLAY SAVE AREA HEADER	0	RANGE 2
00000000 00000000						
STORAGE LIST SUPPLIED	0	DISPLAY LSQA	0	DISPLAY REGISTERS	0	RANGE 3
00000000 00000000						
		DISPLAY SWA	0	DISPLAY TASK LPA MODULES	0	RANGE 4
00000000 00000000						
		DISPLAY GTF TRACE TABLE	0	DISPLAY TASK JPA MODULES	0	
		DISPLAY CONTROL BLOCKS	0	DISPLAY PSW	0	
		DISPLAY QCB/QELS	0	DISPLAY USER SUBPOOLS	0	
HEX DUMP OF RECORD						
HEADER 48891820	00000000	0097047F	10393987	00270044	30900000	5CD4C1E2
E3C5D95C						
	0000 00FF6648	900F3000	00000000	00000000	00000000	00000000
00000000						
	0020 00000000	00000000	00000000	00000000	00000000	00000000
00000000						
	0040 00000000	00000000	00000000	00000000	00000000	00000000
00000000						
	0060 00000000	00000000	00000000	00000000	00000000	00000000
0005B5E0						
	0080 00000000	00154FE0	00000000	00000000	00000000	00000000
00000000						
	00A0 00000000	00000000	00000000	00000000	00000000	00000000
00000000						
	00C0 00000000	00000000	00000000	00000000	00000000	00000000
00000000					20680001	00000000
	00E0 9885057F	10393900	80020001	00000041	00096212	00FF6AE4
04880000						
	0100 00000000	00000000	00000000	00000000	00000000	00000000
00000000						
	0120 0001001E	C9C5C1E5	C5C4E2F0	C9C5C1E5	C5C4E2F0	C9C5C1E5
00FF6A90						
	0140 00000000	00000000	00000000	00000000	00000000	00000000
00000000						
	0160 00000000	00000000	00000000	FFFF0001	00FF6C28	00000000
00000000						
	0180 00000000	00000000	00000000	0005DB2D	00FFA0D2	1106C9C8
15020224						
	01A0 12040002	40B81502	021C1204	00000000	150202EC	12040000
049C1204						
	01C0 00000008	1107C9C8	C1C1E2C3	C2150200	80120400	00000015
04000000						0200E812

00000015	01E0	00150200	EC120400	00000015	0200B412	04000000	00150201	3C120400
	0200	02014812	04000000	001107C9	C8C1D3C3	C3C11502	036C1204	00000000
1502021C	0220	12028000	1502053C	120C0000	00000000	00000000	00001106	C9C8C1E2
E5E31502	0240	001C1204	00000000	00000000	1018E2C3	D9C1000E	9BB000FF	65408000
000000FF	0260	68880400	0000E2C3	F1C3F5C9	C5C1E5C5	C4E2F000	00000000	00000000
00000000	0280	0000F1F1	61F2F761	F8F440D1	C2C2F1F3	F5F60000	0000C9C5	C1E5C5C4
E2D90000	02A0	00000000	0000001E	00410001	0005DB2D			

Software (MCH Called RTM) Summary Report

SOFTWARE	DATE	RANGE	-	DAY	YEAR	DAY	YEAR	MODEL	-	3090	SERIAL NO.	270044		
				047	97	TO	047							
SUMMARY OF SOFTWARE ENVIRONMENT RECORDS														
TOTAL NUMBER OF RECORDS				0001										
ROUTINE	CSECT	NUMBER		ROUTINE	CSECT	NUMBER		ROUTINE	CSECT	NUMBER		ROUTINE	CSECT	NUMBER
NAME	NAME	ENTRIES		NAME	NAME	ENTRIES		NAME	NAME	ENTRIES		NAME	NAME	ENTRIES
IEAVDS0		IEAVDS0		001										

Software (Lost Record) Detail Edit Report

										DATE	TIME				CPU	CPU		
										DAY YR	HH	MM	SS	TH	SERIAL	ID		
---	RECORD	ENTRY	SOURCE	-	SOFTWARE	---	TYPE	LOST	REC	SUMMARY	070	97	09	38	28	74	015085	4341
VS 2 REL. 03																		
NO ERRORID ASSOCIATED WITH THIS RECORD																		
MISSING RECORD COUNT 006																		
HEX DUMP OF RECORD																		
HEADER		4F830880		00000000		0097070F		09382874		02015085		43410000						
0000 06																		

										DATE	TIME				CPU	CPU		
										DAY YR	HH	MM	SS	TH	SERIAL	ID		
---	RECORD	ENTRY	SOURCE	-	SOFTWARE	---	TYPE	LOST	REC	SUMMARY	071	97	10	57	34	69	015058	4341
VS 2 REL. 03																		
NO ERRORID ASSOCIATED WITH THIS RECORD																		
MISSING RECORD COUNT 038																		
HEX DUMP OF RECORD																		
HEADER		4F830880		00000000		0097071F		10573469		02015085		43410000						
0000 26																		

Software (Lost Record) Summary Report

SOFTWARE	DATE	RANGE	-	DAY	YEAR	DAY	YEAR	MODEL -	4341	SERIAL NO.	015058
				070	97	TO	071	97			
SUMMARY OF SOFTWARE ENVIRONMENT RECORDS											
TOTAL NUMBER OF RECORDS				0006							

ROUTINE NAME	CSECT NAME	NUMBER ENTRIES	ROUTINE NAME	CSECT NAME	NUMBER ENTRIES	ROUTINE NAME	CSECT NAME	NUMBER ENTRIES	ROUTINE NAME	CSECT NAME	NUMBER ENTRIES
-----------------	---------------	-------------------	-----------------	---------------	-------------------	-----------------	---------------	-------------------	-----------------	---------------	-------------------

Subchannel Logout Handler (SLH) Detail Edit Reports

The SLH records format subchannel detected errors that do not terminate system operation.

The SLH record and the CRW record combine to replace the CCH record written for S/370™ channel checks.

The record contains subchannel dependent error information from the extended status word (ESW) showing the type and location of the error.

Figures containing examples of these reports are on the pages shown in the following table:

REPORT	REFER TO
SLH Detail Edit Report, Device Type 3390	“Subchannel Logout Handler (SLH) Detail Edit Report, 3390” on page 290
SLH Detail Edit Report, Device Type FCTC	“Subchannel Logout Handler (SLH) Detail Edit Report, FCTC” on page 292
SLH Detail Summary Report	“Subchannel Logout Handler Summary Report” on page 294
SLH Detail Edit Report for zHPF	“Subchannel Logout Handler (SLH) Detail Edit Report for zHPF” on page 294
SLH Detail Summary Report for zHPF	“Subchannel Logout Handler Summary Report for zHPF” on page 296

Subchannel Logout Handler (SLH) Detail Edit Report, 3390

```

DEVICE NUMBER: 01000    REPORT: SLH EDIT    DAY YEAR    JOB IDENTITY: CHNDRV
SCP: MVS/XA    V2 R1    DATE: 260 04    C3C8D5C4D9E54040
DEVICE TYPE: 3390
CPU MODEL: 2084XA
CHANNEL PATH ID: 12    LOGICAL CPU ID: 170044    TIME: 06 54 28.40
PHYSICAL CHAN ID: 0290    PHYSICAL CPU ADDRESS: 07 1

FAILING CCW    CC CA FL CT    VOLUME SERIAL    1D01D0
31 C3605A 40 00 0005    SUBCHANNEL ID NUMBER    00010018
SCSW    K FLAGS CA US SS CT    ERROR TYPE    OTHER 2

---UNIT STATUS--- SUB-CHANNEL STATUS -----SCSW FLAGS-----
FLAG 0 3 FLAG 1 FLAG 2
ATTENTION 0 PGM-CTLD IRPT 0 CCW FORMAT 0 RESERVED 0 SUBCHANNEL ACTIV 0
STATUS MODIFIER 0 INCORRECT LENGTH 0 PRE-FETCH CCW 0 SSCH FUNCTION 1 DEVICE ACTIVE 0
CONTROL UNIT END 0 PROGRAM CHECK 0 INIT STATUS 0 HSCH FUNCTION 0 SUSPENDED 0
BUSY 0 PROTECTION CHECK 0 ADDR LIMIT 0 CSCH FUNCTION 0 ALERT STATUS 1
CHANNEL END 0 CHAN DATA CHECK 0 SUPP SUSPEND INT 0 RESUME PENDING 0 INTERMED STATUS 0
DEVICE END 0 CHAN CTL CHECK 1 ZERO COND CODE 0 START PENDING 0 PRIMARY STATUS 1
UNIT CHECK 0 I/F CTL CHECK 0 EXTENDED CONTROL 1 HALT PENDING 0 SECONDARY STATUS 1
UNIT EXCEPTION 0 CHAINING CHECK 0 PATH NOT OPER 0 CLEAR PENDING 0 STATUS PENDING 1

----SOFTWARE RECOVERY STATUS-----
HARD FAIL 0
DEGRADE FAIL 0
SOFT FAIL 0
PASSED 0

CHANNEL ERROR ANALYSIS
IRB STORED BY INTERRUPT

```

TERMINATION BY -- SELECTIVE RESET -- CODE 2

SEQ CODE 2 - COMMAND ACCEPTED BY DEVICE BUT NO DATA TRANSFERRED
VALIDITY OF RECORDED DATA

COUNT	INVALID
TERMINATION CODE	VALID
SEQUENCE CODE	VALID
DEVICE STATUS	INVALID
CCW ADDRESS	VALID
DEVICE NUMBER	VALID
SENSE DATA	NOT STORED

MODEL-DEPENDENT DATA

HARDWARE CHECKS----- (BYTE 0) MICROPROGRAM ERROR ID- (BYTE 1) LOG ID----- (BYTE 2) PRESENT STATUS BYTE--- (BYTE 3)

00	25	**
01		
REFER TO INCIDENT LOG	1	
IO INTERFACE TIME OUT	0	
MICROPROGRAM DETECT ERR	0	
INVAL IO INTERF TAG SEQ	0	
IO ALERT (DISCONN IN)	0	
MULT IO INTERF IN TAGS	0	
IO INTERF BUS IN PAR ERR	0	
INJECTED ERROR	0	
SERV OR DAT TAG DUR SHORT	0	
SERVICE/DATA ACTIVE	0	
OPERATIONAL IN FELL EARLY	0	

CHANNEL TAG CONTROL 1- (BYTE 4) CHANNEL TAG CONTROL 2- (BYTE 5) I/O BUS IN----- (BYTE 6) UNIT ADDRESS----- (BYTE 7)

00	A0	D0	C1
OPERATIONAL OUT	1	OPERATIONAL IN	1
ADDRESS OUT	0	STATUS IN	1
SELECT OUT	1	SELECT IN	0
* BUS OUT TAG	0	ADDRESS IN	0
* SERVICE OUT	0	REQUEST IN	0
* DATA OUT	0	SERVICE OR DATA IN	0
SUPPRESS OUT	0	FIRST DATA	0
COMMAND OUT	0	COMMAND SENT	1

USTATS/CONFIG----- (BYTE 8) CUCW STATUS----- (BYTE 9) CONFIGURATION BYTE 0- (BYTE 10) CONFIGURATION BYTE 1- (BYTE 11)

70	06	88	00
RESERVED	0		ENABLE SIM IO 0
UNIT 0			ENABLE TIMEOUT CHECK 1 TYPE 1 CONTROL
UNIT 1			ENABLE DEV TRACE 1 TYPE 2 CONTROL
RESERVED	0		INTERLOCK PROTOCOL 00 0
PATHING 0			INTERLOCK PROTOCOL 01 0 DYNAMIC
RESERVED	0		STREAMING PROTOCOL 1
CONFIGURED 1			RESERVED 0 IOCP
RESERVED	0		BYTE MULTIPLEX 0
RESERVED	0		RESERVED 0
RESERVED	0		RESERVED 0

PHYSICAL PATH----- (BYTE 12) ZERO----- (BYTE 13) ZERO----- (BYTE 14) ZERO----- (BYTE 15)

34	12	82	00
CHANNEL LOGOUT DATA			
0000	00000000	00000002	00000000
0020	00000000	00000000	00000000
0040	00000000	00693713	00006942
0060	01006573	50050764	00C890CC
0080	22000022	00000000	02000000
00A0	00800100	30303231	30373030
00C0	00000000	00000000	00000000
00E0	00000000	00000000	00000000

CONTROL UNIT LOGOUT DATA

0000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0020	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0040	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0060	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0080	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00A0	00000000	00000000	00000000	00000000	00000000	00000000	00000000

Detail Edit and Summary Reports

```
00C0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00E0 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
HEX DUMP OF RECORD

HEADER 23831800 00030000 0004260F 10483163 000190CC 20848000
0018 C3C8C4C4 F3F14040 04200020 00FFF420 801F2024 00000000 00000000 04C24017
0038 00861A38 00020000 00406480 20000000 40000000 00000000 00000000 00000000
0058 00000000 00000000 00000000 00000000 00000000 00000001 00A000A8 02096808
0078 1003D4D4 F1F0F0F2 01000000 01010091 00018EAE 00000000 00000000 00000000
0098 800002A0 00000001 000000B8 02000100 00000000 00000000 00000000 00000000
00B8 00000000 00000002 00000000 00000000 00000002 00000000 00000000 00000000
00D8 00000000 00000000 00000000 00000000 0C000000 9000AB00 80000000 00000000
00F8 00000000 00693713 00006942 10000800 88A0745E 10000800 88A0745E 50050764
0118 01006573 50050764 00C890CC 001A0047 00000000 00000000 0800009B 00000000
0138 22000022 00000000 02000000 18100020 50050769 00C414E7 00000000 00000000
0158 00800100 30303231 30373030 3049424D 30303030 30303030 30303030 30300211
0178 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0198 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
01B8 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
01D8 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
01F8 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0218 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0238 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0258 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0278 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0298 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
```

1

The SLH record is logged in 370XA mode only. It is identified by CPU complex, not individual CPU ID number. Only the last 5 digits are significant. In PR/SM environments, the logical and physical CPU IDs are identified.

2

The error type may be storage, key, or other. If the error type is storage or key, a line containing the absolute address of the error is printed.

3

CCW format is 0 in 24-bit addressing mode, 1 in 31-bit addressing mode.

Subchannel Logout Handler (SLH) Detail Edit Report, FCTC

```
DEVICE NUMBER: 00E26 REPORT: SLH EDIT DAY YEAR JOB IDENTITY: XCFAR
SC: VS 2 REL. 3 DATE: 260 04 E7C3C6C1D9404040
DEVICE NED: 002105.000.IBM.075.000000012252.0615
DEVICE TYPE: FCTC
CPU MODEL: 2084XA HH MM SS.TH
CHANNEL PATH ID: A4 LOGICAL CPU ID: 1084XA TIME: 22 38 05.43
PHYSICAL CHAN ID: 0210 PHYSICAL CPU ADDRESS: 3A

Failing CCW          CC  CA  FL  CT          VOLUME SERIAL          N/A
E3 680000 00 00 0000          SUBCHANNEL ID NUMBER      00010B50
SCSW                K  FLAGS  CA  US  SS  CT          ERROR TYPE                OTHER
0C 024017 5B791860 00 02 0000

---UNIT STATUS--- SUB-CHANNEL STATUS -----SCSW FLAGS-----
FLAG 0 3 FLAG 1 FLAG 2
ATTENTION 0 PGM-CTLD IRPT 0 CCW FORMAT 0 RESERVED 0 SUBCHANNEL ACTIV 0
STATUS MODIFIER 0 INCORRECT LENGTH 0 PRE-FETCH CCW 0 SSCH FUNCTION 1 DEVICE ACTIVE 0
CONTROL UNIT END 0 PROGRAM CHECK 0 INIT STATUS 0 HSCH FUNCTION 0 SUSPENDED 0
BUSY 0 PROTECTION CHECK 0 ADDR LIMIT 0 CSCH FUNCTION 0 ALERT STATUS 1
CHANNEL END 0 CHAN DATA CHECK 0 SUPP SUSPEND INT 0 RESUME PENDING 0 INTERMED STATUS 0
DEVICE END 0 CHAN CTL CHECK 0 ZERO COND CODE 0 START PENDING 0 PRIMARY STATUS 1
UNIT CHECK 0 I/F CTL CHECK 1 EXTENDED CONTROL 1 HALT PENDING 0 SECONDARY STATUS 1
UNIT EXCEPTION 0 CHAINING CHECK 0 PATH NOT OPER 0 CLEAR PENDING 0 STATUS PENDING 1

----SOFTWARE RECOVERY STATUS-----
HARD FAIL 0
DEGRADE FAIL 0
SOFT FAIL 1
PASSED 0

CHANNEL ERROR ANALYSIS
IRB STORED BY INTERRUPT
TERMINATION BY -- SELECTIVE RESET -- CODE 2
SEQ CODE *** INVALID ***
```

VALIDITY OF RECORDED DATA

COUNT	INVALID
TERMINATION CODE	VALID
SEQUENCE CODE	INVALID
DEVICE STATUS	INVALID
CCW ADDRESS	VALID
DEVICE NUMBER	VALID
SENSE DATA	NOT STORED

EXTENDED SUBCHANNEL LOGOUT DATA

CHANNEL LOGOUT DATA

N-PORT LINK ERROR STATUS BLOCK

LINK FAILURE COUNT:	00000000	LOSS OF SYNCHRONIZATION COUNT:	34
00000000			
LOSS OF SIGNAL COUNT:	00049A8E	PRIMITIVE SEG PROTOCOL ERROR:	34
0000001F			
INVALID TRANSMISSION WORD:	0C000000	INVALID CRC COUNT:	34
9000AB00			

FABRIC ENTRY PORT LINK ERROR STATUS

LINK FAILURE COUNT:	00000000	LOSS OF SYNCHRONIZATION COUNT:	34
0C200000			
LOSS OF SIGNAL COUNT:	00049A8E	PRIMITIVE SEG PROTOCOL ERROR:	34
00617B13			
INVALID TRANSMISSION WORD:	0C000000	INVALID CRC COUNT:	34
10000800			
ERROR CODE: 88 - Reserved: No Meaning			

MODEL DEPENDENT DATA:

0000	88A08EFB	10000800	88A08EFB	50050764	01000758	50050764	00C1AA0A	00000001
0020	00000000	00000000	08000037	00004000	22000022	00000000	02000000	18100020
0040	50050764	01400758	50050764	00C1AA0A	102001A5	30303230	38344433	3249424D
0060	30323030	30303030	30314141	3041C0A5	00000000	00000000	00000000	00000000
0080	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00A0	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00C0	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000

CONTROL UNIT LOGOUT DATA

N-PORT LINK ERROR STATUS BLOCK

LINK FAILURE COUNT:	00000000	LOSS OF SYNCHRONIZATION COUNT:	34
00000000			
LOSS OF SIGNAL COUNT:	00000000	PRIMITIVE SEG PROTOCOL ERROR:	34
00000000			
INVALID TRANSMISSION WORD:	00000000	INVALID CRC COUNT:	34
00000000			

FABRIC ENTRY PORT LINK ERROR STATUS

LINK FAILURE COUNT:	00000000	LOSS OF SYNCHRONIZATION COUNT:	34
00000000			
LOSS OF SIGNAL COUNT:	00000000	PRIMITIVE SEG PROTOCOL ERROR:	34
00000000			
INVALID TRANSMISSION WORD:	00000000	INVALID CRC COUNT:	34
00000000			
ERROR CODE: 00 - Error code transfer not supported			

MODEL DEPENDENT DATA:

0000	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0020	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0040	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0060	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0080	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00A0	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
00C0	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000

HEX DUMP OF RECORD

HEADER	23831800	00030000	0006104F	22380543	0012AA0A	20848000		
0018	E7C3C6C1	D9404040	E3680000	00000000	00004120	00000000	40806780	0C024017
0038	5B791860	00020000	00806480	20000000	80000000	00000000	00000000	00000000
0058	00000000	00000000	00000000	00000000	00000000	00000012	003A00A1	021907A8
0078	0E260000	00000000	01000000	010200A4	00010B50	00000000	00000000	00000000
0098	80000210	00000001	000000D8	02000100	00000201	00050101	01020202	04050102
00B8	F0F0F2F1	F0F5F1F1	F1F2F2F2	F4F5F1F2	F3F4F5F6	F7F1F9F8	F3F1F4F3	F2F10000
00D8	00000000	00000000	00049A8E	0000001F	0C000000	9000AB00	08000000	0C200000
00F8	00400000	00617B13	0000617A	10000800	88A08EFB	10000800	88A08EFB	50050764
0118	01000758	50050764	00C1AA0A	00000001	00000000	00000000	08000037	00004000
0138	22000022	00000000	02000000	18100020	50050764	01400758	50050764	00C1AA0A
0158	102001A5	30303230	38344433	3249424D	30323030	30303030	30314141	3041C0A5
0178	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0198	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
01B8	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
01D8	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
01F8	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0218	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0238	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0258	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0278	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000
0298	00000000	00000000	00000000	00000000	00000000	00000000	00000000	00000000

Subchannel Logout Handler Summary Report

```

CHANNEL PATH ID:    12          REPORT:  SLH SUMMARY          REPORT DATE:  073  97
NUMBER OF RECORDS:  0001        CPU MODEL:  3090XA          PERIOD FROM:  043  97
                                CPU ID   :  170044          TO:         043  97

ERROR TYPE: STORAGE  0000
                KEY   0000
                OTHER  0001

  ----UNIT STATUS----          --SUB-CHANNEL STATUS--

ATTENTION          0000        PGM-CTLD IRPT      0000
STATUS MODIFIER    0000        INCORRECT LENGTH  0000
CONTROL UNIT END   0000        PROGRAM CHECK    0000
BUSY               0000        PROTECTION CHECK 0000
CHANNEL END        0000        CHAN DATA CHECK 0000
DEVICE END         0000        CHAN CTN CHECK  0001
UNIT CHECK         0000        I/F CTL CHECK   0000
UNIT EXCEPTION     0000        CHAINING CHECK  0000

-----SOFTWARE RECOVERY STATUS-----

HARD FAIL          0000
DEGRADE FAIL       0000
SOFT FAIL          0000
PASSED             0000

```

Subchannel Logout Handler (SLH) Detail Edit Report for zHPF

```

DEVICE NUMBER:    00E26        REPORT:  SLH EDIT          DAY YEAR      JOB IDENTITY: XCFAS
SCP:             MVS/XA        V2 R3   DATE:  104  06

E7C3C6C1E2404040
DEVICE TYPE:      FCTC

                                CPU MODEL:   2084XA          HH MM SS.TH
CHANNEL PATH ID:  A4   LOGICAL CPU ID: 12AA0A          TIME:  22 38 05.43

PHYSICAL CHAN ID: 0210  PHYSICAL CPU ADDRESS: 3A

FAILING CCW       N/A

                                VOLUME SERIAL
                                SUBCHANNEL ID NUMBER      N/A
SCSW              K  FLAGS   TA    US SS FX ES          ERROR TYPE      00010B50
                  0C 424017 5B791860 00 02 00 00      OTHER

  ---UNIT STATUS---  SUB-CHANNEL STATUS  -----SCSW FLAGS-----
                                FLAG 0                                FLAG 1                                FLAG 2
ATTENTION          0  PGM-CTLD IRPT    0  IRB FORMAT          2  RESERVED          0  SUBCHANNEL ACTIV 0
STATUS MODIFIER    0  INCORRECT LENGTH 0  ---                1  SSCH FUNCTION    1  DEVICE ACTIVE   0
CONTROL UNIT END   0  PROGRAM CHECK    0  ---                0  HSCH FUNCTION    0  SUSPENDED      0
BUSY               0  PROTECTION CHECK 0  FORMAT CONTROL    0  CSCH FUNCTION    0  ALERT STATUS    1
CHANNEL END        0  CHAN DATA CHECK 0  INTERROGATE COMP  0  RESUME PENDING  0  INTERMED STATUS 0
DEVICE END         0  CHAN CTL CHECK   0  RESERVED          0  START PENDING   0  PRIMARY STATUS  1
UNIT CHECK         0  I/F CTL CHECK    1  EXTENDED CONTROL  1  HALT PENDING    0  SECONDARY STATUS 1
UNIT EXCEPTION     0  CHAINING CHECK    0  PATH NOT OPER     0  CLEAR PENDING    0  STATUS PENDING  1

-----SOFTWARE RECOVERY STATUS-----

HARD FAIL          0
DEGRADE FAIL       0
SOFT FAIL          1
PASSED             0

CHANNEL ERROR ANALYSIS

  IRB STORED BY INTERRUPT

  TERMINATION BY -- SELECTIVE RESET -- CODE  2

  SEQ CODE 2      *** INVALID ***
  VALIDITY OF RECORDED DATA

  COUNT          INVALID
  TERMINATION CODE  VALID

```

```

SEQUENCE CODE      INVALID
DEVICE STATUS      INVALID
TCW ADDRESS        VALID
DEVICE NUMBER      VALID
SENSE DATA        NOT STORED

```

EXTENDED SUBCHANNEL LOGOUT DATA

CHANNEL LOGOUT DATA

N-PORT LINK ERROR STATUS BLOCK

```

LINK FAILURE COUNT:      00000001  LOSS OF SYNCHRONIZATION COUNT: 00000002
LOSS OF SIGNAL COUNT:    00000000  PRIMITIVE SEG PROTOCOL ERROR:  00000000
INVALID TRANSMISSION WORD: 00000000  INVALID CRC COUNT:             00000000

```

FABRIC ENTRY PORT LINK ERROR STATUS

```

LINK FAILURE COUNT:      00000002  LOSS OF SYNCHRONIZATION COUNT: 00000000
LOSS OF SIGNAL COUNT:    00000000  PRIMITIVE SEG PROTOCOL ERROR:  00000000
INVALID TRANSMISSION WORD: 00049A8E  INVALID CRC COUNT:             0000001F
ERROR CODE: 0C - Receive ABTS

```

MODEL DEPENDENT DATA:

```

0000 0C000000 9000AB00 08000000 0C200000 00400000 00617B13 000 0617A 10000800
0020 88A08EFB 10000800 88A08EFB 50050764 01000758 50050764 00C 1AA0A 00000001
0040 00000000 00000000 08000037 00004000 22000022 00000000 020 00000 18100020
0060 50050764 01400758 50050764 00C1AA0A 102001A5 30303230 383 44433 3249424D
0080 30323030 30303030 30314141 3041C0A5 00000000 00000000 000 00000 00000000
00A0 00000000 00000000 00000000 00000000 00000000 00000000 000 00000 00000000
00C0 00000000 00000000 00000000 00000000 00000000 00000000 000 00000 00000000

```

CONTROL UNIT LOGOUT DATA

N-PORT LINK ERROR STATUS BLOCK

```

LINK FAILURE COUNT:      00000000  LOSS OF SYNCHRONIZATION COUNT: 00000000
LOSS OF SIGNAL COUNT:    00000000  PRIMITIVE SEG PROTOCOL ERROR:  00000000
INVALID TRANSMISSION WORD: 00000000  INVALID CRC COUNT:             00000000

```

FABRIC ENTRY PORT LINK ERROR STATUS

```

LINK FAILURE COUNT:      00000000  LOSS OF SYNCHRONIZATION COUNT: 00000000
LOSS OF SIGNAL COUNT:    00000000  PRIMITIVE SEG PROTOCOL ERROR:  00000000
INVALID TRANSMISSION WORD: 00000000  INVALID CRC COUNT:             00000000
ERROR CODE: 00 - Error code transfer not supported

```

MODEL DEPENDENT DATA:

```

0000 00000000 00000000 00000000 00000000 00000000 00000000 000 00000 00000000
0020 00000000 00000000 00000000 00000000 00000000 00000000 000 00000 00000000
0040 00000000 00000000 00000000 00000000 00000000 00000000 000 00000 00000000
0060 00000000 00000000 00000000 00000000 00000000 00000000 000 00000 00000000
0080 00000000 00000000 00000000 00000000 00000000 00000000 000 00000 00000000
00A0 00000000 00000000 00000000 00000000 00000000 00000000 000 00000 00000000
00C0 00000000 00000000 00000000 00000000 00000000 00000000 000 00000 00000000

```

HEX DUMP OF RECORD

```

HEADER 23831800 00030000 0006104F 22380543 0012AA0A 20848000
0018 E7C3C6C1 E2404040 E3680000 00000000 00004120 00000000 40806780 0CC24017
0038 5B791860 00020000 00806480 20000000 80000000 00000000 00000000 00000000
0058 00000000 00000000 00000000 00000000 00000000 00000012 003A00A1 021907A8
0078 0E260000 00000000 01000000 010100A4 00010B50 00000000 00000000 00000000
0098 80000210 00000001 000000B8 02000100 00000000 00000000 00000000 00000000
00B8 00000001 00000002 00000000 00000000 00000000 00000000 00000002 00000000
00D8 00000000 00000000 00049A8E 0000001F 0C000000 9000AB00 08000000 0C200000
00F8 00400000 00617B13 0000617A 10000800 88A08EFB 10000800 88A08EFB 50050764
0118 01000758 50050764 00C1AA0A 00000001 00000000 00000000 08000037 00004000

0138 22000022 00000000 02000000 18100020 50050764 01400758 50050764 00C1AA0A
0158 102001A5 30303230 38344433 3249424D 30323030 30303030 30314141 3041C0A5
0178 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0198 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
01B8 00000001 00000002 00000000 00000000 00000000 00000000 00000012 00000000
01D8 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
01F8 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0218 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0238 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0258 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0278 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0298 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000

```

Subchannel Logout Handler Summary Report for zHPF

CHANNEL PATH ID:	A4	REPORT:	SLH SUMMARY	REPORT DATE:	111	06
NUMBER OF RECORDS:	0001	CPU MODEL:	2084XA	PERIOD FROM:	104	06
		CPU ID :	12AA0A	TO:	104	06
ERROR TYPE:	STORAGE	0000				
	KEY	0000				
	OTHER	0001				
----UNIT STATUS----			--SUB-CHANNEL STATUS--			
ATTENTION	0000	PGM-CTLD IRPT	0000			
STATUS MODIFIER	0000	INCORRECT LENGTH	0000			
CONTROL UNIT END	0000	PROGRAM CHECK	0000			
BUSY	0000	PROTECTION CHECK	0000			
CHANNEL END	0000	CHAN DATA CHECK	0000			
DEVICE END	0000	CHAN CTN CHECK	0000			
UNIT CHECK	0000	I/F CTL CHECK	0001			
UNIT EXCEPTION	0000	CHAINING CHECK	0000			
-----SOFTWARE RECOVERY STATUS-----						
HARD FAIL		0000				
DEGRADE FAIL		0000				
SOFT FAIL		0001				
PASSED		0000				

Unknown Detail Edit Reports

These reports are used to provide a detail print of records whose formatting is unsupported or that come from devices whose type is unknown.

Figure 115 on page 296 through Figure 118 on page 297 contain examples of the unknown detail edit reports.

RECORD TYPE - E1									
MODEL-3084		SERIAL NO- 221128							
--- RECORD ENTRY SOURCE - NONE									
VS 2	REL . 3								
	DAY YEAR			HH	MM	SS	TH		
DATE-	048 97		TIME-	04	54	51	81		
HEX DUMP OF RECORD									
HEADER	E18A1800	00000000	0097048F	04545181	66221128	30840000			
	0018	C9D7D340	E2E8E2E3	C5D440C6	D6D940E2	C5D9E5C9	C3C5E24B	4B4BC4D9	C9E5C5D9
	0038	40F8C6F1							

Figure 115. Unknown or Unsupported Record Detail Edit Report, Record Type E1

SUMMARY OF E0 RECORDS			
1			
RECORD DATE RANGE	DAY YEAR	DAY YEAR	
	048 97	048 97	
MODEL - 3084		SERIAL NO - 221128	
TOTAL NUMBER OF RECORDS=0001			
CLASSES ENCOUNTERED(MAXIMUM OF 10)			
RECORD CLASS -E1		0001	

Figure 116. Unknown or Unsupported Record Detail Summary Report, Record Type E1

1

A three character description of the record type or the hex representation of the first byte in the record.

RECORD TYPE - 40

MODEL-3090 SERIAL NO- 142815

--- RECORD ENTRY SOURCE - ABND

VS 2 REL. 03

DATE-	DAY YEAR	TIME-	HH MM SS.TH
041 97		09 36 26 80	

HEX DUMP OF RECORD HEADER	40831820	00000000	0097041F	09362680	16142815	30900000		
0018	D5D6D5C5	60C6D9D9	00000C60	84202000	00000000	00000000	00000000	00000000
0038	84000000	84202000	00000000	00000C00	00004780	00E4C500	0003AC6C	00FB7700
0058	00FF0229	80000000	00FEE870	009FED38	00000C58	00000000	00FEACB8	00000000
0078	00000000	00000000	00000000	00000000	070C1000	80FF06DE	0002000D	7D9E0000
0098	070C0000	80FF111E	0002000D	7D9E0000	84000000	84202000	00000000	00000C00
00B8	00004780	00E4C500	0003AC6C	00FB7700	00FF0229	80000000	00FEE870	009FED38
00D8	00000C58	00000000	00FEACB8	00000000	00000000	00000000	00000000	00000000
00F8	00000000	00000000	00000000	00000000	04030001	00000041	00FF117A	00FB273C
0118	00000000	04880000	00000000	00000000	00000000	00000000	00000000	00000000
0138	00000000	00000000	003E00C7	C9C5C1D5	E4C3F0F1	C9C5C1E5	C5D7E2E3	C9C5C1E5
0158	C5D7E2E3	00FB26E8	00000000	00000000	00000000	00000000	00000000	00000000
0178	00000000	00000000	00000000	00000000	00000000	FFFF0005	00FB2A20	8000003E

Figure 117. Unknown or Unsupported Record Detail Edit Report, Record Type 40

SUMMARY OF 40 RECORDS

RECORD DATE RANGE	DAY YEAR	DAY YEAR
	041 97	041 97

MODEL - 3090 SERIAL NO - 142815

TOTAL NUMBER OF RECORDS=0001

CLASSES ENCOUNTERED(MAXIMUM OF 10)

RECORD CLASS -40 0001

Figure 118. Unknown or Unsupported Record Detail Summary Report, Record Type 40

Part 3. Product-Dependent Information

This part of the *EREP Reference* contains information about how EREP works with specific hardware and software products.

The following subjects are covered in this part of the *EREP Reference*:

Topic
Chapter 14, “Supported Devices,” on page 301
Chapter 15, “Card Readers and Punches,” on page 311
Chapter 16, “Consoles and Displays,” on page 313
Chapter 17, “Direct-Access Storage Devices (DASD),” on page 315
Chapter 18, “Diskette Unit,” on page 325
Chapter 19, “Magnetic Tape Devices,” on page 327
Chapter 20, “OCR/MICR Devices,” on page 333
Chapter 21, “Optical Devices,” on page 335
Chapter 22, “Printers,” on page 337
Chapter 23, “Processors (CPUs),” on page 341
Chapter 24, “Punched Tape Devices,” on page 345
Chapter 25, “Teleprocessing (TP) Devices,” on page 347
Chapter 26, “Other Devices,” on page 349

Chapter 14. Supported Devices

This topic contains a list of the devices EREP supports.

Device Type **Subsection**

AFP1

Printers

BA00

Other Devices

BCTC

Other Devices

CACA

Other Devices

CTCA

Other Devices

IDSK

Other Devices

NMVT

TP Devices

OSA

Other Devices

OSAD

Other Devices

SCTC

Other Devices

SWCH

Other Devices

0115

Processors

0125

Processors

0135

Processors

0138

Processors

0145

Processors

0148

Processors

0155

Processors

0158

Processors

0165

Processors

0168

Processors

0671
DASD

1012
Punched Tape Devices

1015
Consoles and Displays

1017
Punched Tape Devices

1018
Punched Tape Devices

1030
TP Devices

1050
TP Devices

1052
Consoles and Displays

1053
Printers

1060
TP Devices

1130
TP Devices

115A
TP Devices

1255
OCR/MICR

1270
OCR/MICR

1275
OCR/MICR

1285
OCR/MICR

1287
OCR/MICR

1288
OCR/MICR

1403
Printers

1419
OCR/MICR

1442
Card Readers and Punches

1443
Printers

2003
Processors

2020
Consoles and Displays

2150
Consoles and Displays

2245
Printers

2250
Consoles and Displays

2260
Consoles and Displays

2265
Consoles and Displays

2280
Other Devices

2282
Other Devices

2301
DASD

2303
DASD

2305
DASD

2311
DASD

2314
DASD

2321
DASD

2400
Magnetic Tape Devices

2495
Other Devices

2501
Card Readers and Punches

2520
Card Readers and Punches

2540
Card Readers and Punches

2560
Card Readers and Punches

2596
Card Readers and Punches

2671
Punched Tape Devices

2701
TP Devices

2702
TP Devices

2703
TP Devices

2715
TP Devices

2740
TP Devices

2741
TP Devices

2760
TP Devices

2770
TP Devices

2780
TP Devices

2790
TP Devices

2930
Other Devices

2947
TP Devices

2955
Other Devices

2956
Other Devices

2970
TP Devices

2972
TP Devices

3031
Processors

3032
Processors

3033
Processors

3036
Consoles and Displays

3052
Processors

3062
Processors

3066
Consoles and Displays

3138
Consoles and Displays

3148
Consoles and Displays

3158
Consoles and Displays

3168
Consoles and Displays

3203
Printers

3210
Consoles and Displays

3211
Printers

3213
Consoles and Displays

3215
Consoles and Displays

3262
Printers

3277
Consoles and Displays

3278
Consoles and Displays

3279
3279 terminals are processed as 3277 records

3284
Printers

3286
Printers

3287
Printers

3288
Printers

3289
Printers

3310
DASD

3330
DASD

3340
DASD

3344
DASD

3350
DASD

3370
DASD

3375
DASD

3380
DASD

3390
DASD

3400
Magnetic Tape Devices

3410
Magnetic Tape Devices

3420
Magnetic Tape Devices

3422
Magnetic Tape Devices

3430
Magnetic Tape Devices

3480
Magnetic Tape Devices

3490
Magnetic Tape Devices

3490E
Magnetic Tape Devices

3494
Magnetic Tape Devices

3495
Magnetic Tape Devices

3504
Card Readers and Punches

3505
Card Readers and Punches

3525
Card Readers and Punches

3540
Diskette Units

3590
Magnetic Tape Devices

3591
Magnetic Tape Devices

3670
TP Devices

3700
TP Devices

3704
TP Devices

3705
TP Devices

3720
TP Devices

3725
TP Devices

3735
TP Devices

3745
TP Devices

3791
TP Devices

3800
Printers

3820
Printers

3825
Printers

3827
Printers

3835
Printers

3838
Other Devices

3848
Other Devices

3850
DASD

3851
DASD

3886
OCR/MICR

3890
OCR/MICR

3895
OCR/MICR

3900
Printers

3945
TP Devices

3968
TP Devices

3995
Optical Devices

4245
Printers

4248
Printers

4321
Processors

4331
Processors

4341
Processors

4361
Processors

4381
Processors

5080
Consoles and Displays, Printers

5203
Printers

5424
Card Readers and Punches

5425
Card Readers and Punches

6262
Printers

7340
Magnetic Tape Devices

7443
Other Devices

7770
Other Devices

7772
Other Devices

83B3
TP Devices

8809
Magnetic Tape Devices

9021
Processors

9034
Other Devices

9037
Other Devices

9081
Processors

9083
Processors

9121
Processors

9190
Processors

9221
Processors

9246
Optical Devices

9247
Optical Devices

9313
DASD

9332
DASD

9335
DASD

9336
DASD

9345
DASD

9347
Magnetic Tape Devices

9348
Magnetic Tape Devices

9371
TP Devices

9373
Processors

9375
Processors

9377
Processors

9392

DASD

9395

DASD

9696 (IDSK)

Other Devices

Chapter 15. Card Readers and Punches

This topic provides device specific information about how to use EREP controls to produce EREP reports for the devices listed below.

EREP Reports

Useful reports for these devices:

SYSUM
EVENT
TRENDS
PRINT=PT or PS with DEV=nnnn and TYPE=OH

Take care when requesting reports other than these as the results from other reports can be misleading.

Some devices may produce different record types. In that case, request that record type when requesting detail edit and summary (PRINT) reports.

Supported Devices

These devices are valid for DEV=

1442

card reader/punch

2501

card reader

2520

card reader/punch

2540

card reader/punch

2560

multifunction card machine

2596

card reader/punch

3504

card reader

3505

card reader

3525

card punch

5424

multifunction card machine

5425

multifunction card machine

Chapter 16. Consoles and Displays

This topic provides device specific information about how to use EREP controls to produce EREP reports for the devices listed below.

EREP Reports

Useful reports for these devices:

SYSUM
EVENT
TRENDS
PRINT=PT or PS with DEV=nnnn and TYPE=OTH

Take care when requesting reports other than these as the results from other reports can be misleading.

Some devices may produce different record types. In that case, request that record type when requesting detail edit and summary (PRINT) reports.

EREP Controls

No special considerations.

Supported Devices

These devices are valid for DEV=

1015
display unit
1052
console
2020
console
2150
console
2250
display unit
2260
display station
2265
display station
3036
console
3066
console
3138
console
3148
console
3158
console

Consoles and Displays

3168

console

3210

console printer/keyboard

3213

console printer

3215

console printer/keyboard

3277

display station (terminal)

3278

display station (terminal)

5080

graphics systems workstation

Note: Although the 3279 display terminal is not valid for the DEV parameter, EREP does process its records as 3277 records.

Chapter 17. Direct-Access Storage Devices (DASD)

This topic provides device specific information about how to use EREP controls to produce EREP reports for the DASD listed under following headings:

HEADING
“3390 DASD” on page 316
“9392 DASD” on page 317
“9395 DASD” on page 317
“9345 DASD” on page 318
“3380 DASD” on page 319
“3370 DASD” on page 320
“33XX DASD” on page 320

Supported Devices

These devices are valid for DEV=

0671

direct access storage

2301

drum storage

2303

drum storage

2305

fixed head storage

2311

disk storage

2314

disk storage

2321

data cell drive

23XX

families of direct-access storage devices

3310

disk storage

3330

disk storage

3340

disk storage facility

3344

disk storage

3350

disk storage

3370

direct access storage

3990 DASD

3375

direct access storage

3380

direct access storage

3390

direct access storage

33XX

families of direct-access storage devices

3850

mass storage system

3851

mass storage facility

9313

direct access storage

9332

direct access storage

9335

direct access storage

9336

direct access storage

9345

direct access storage

3390 DASD

This section covers special considerations for EREP reports that contain information about 3390 DASD.

3390 Model Identifiers

The subsystem exception report series and the device-dependent section of the detail edit (PRINT) report identify 3390 models as follows:

IDENTIFIER	3390 MODELS
3390-01	Models A14, A18, B14, B18, and B1C
3390-02	Models A24, A28, B24, B28, and B2C
3390-03	Models A34, A38, B34, B38, and B3C

Subsystem Exception Report

When service actions are required information is placed in the DASD subsystem exception series.

Important: The 3990 storage control and the 3390 family of devices use the service information messages (SIM) part of the DASD subsystem exception series as the primary indication that service is required. OBR records are logged but not placed in the system exception report part of the DASD subsystem exception series unless the 3990 cannot generate a SIM for the error condition.

OBR and MDR Codes

The *MDR codes* for the 3390 are shown in the following table:

MDR CODE	DESCRIPTION
X'24'	3390 Models A34, A38, B34, B38, and B3C

MDR CODE	DESCRIPTION
X'26'	3390 Models A14, A18, B14, B18, and B1C
X'27'	3390 Models A24, A28, B24, B28, and B2C
Note: See “MDR Codes” on page 111.	

The **OBR codes** for the 3390 are shown in the following table:

OBR CODE	DESCRIPTION
X'2024'	3390 Model 03
X'2026'	3390 Models A14, A18, B14, B18, and B1C
X'2027'	3390 Models A24, A28, B24, B28, and B2C
Note: See “OBR Codes” on page 109.	

9392 DASD

This section covers special considerations for EREP reports that contain information about 9392 DASD.

These devices are defined to the operating system as the type of DASD that is being emulated (for example, 3390-3). Addresses with these devices are selected with the same parameter as the emulated device (for example, DEV=(3390) or DEV=(33xx)).

9392 Model Identifiers

The subsystem exception report series and the device-dependent section of the detail edit (PRINT) report identify 9392 models as follows:

IDENTIFIER	9392 MODELS
9392	Model B13

Subsystem Exception Report

When service actions are required, information is placed in the DASD subsystem exception series.

Important: The 3990 storage control and the 9392 family of devices use the service information messages (SIM) part of the DASD subsystem exception series as the primary indication that service is required. OBR records are logged but not placed in the system exception report part of the DASD subsystem exception series unless the 3990 cannot generate a SIM for the error condition.

OBR and MDR Codes

Byte 4 of the MDR contains the *MDR code* of the device the 9392 is emulating (for example, X'24' for a 3390-03). The *MDR code* of the 9392 is in the ECKD™ sense data later in the record. See “MDR Codes” on page 111.

Byte 54 and 55 of the OBR contain the *OBR code* of the device the 9392 is emulating (for example, X'2024' for a 3390-03). The *OBR code* of the 9392 is in the ECKD sense data later in the record. See “OBR Codes” on page 109.

9395 DASD

This section covers special considerations for EREP reports that contain information about 9395 DASD.

These subsystems are defined to the operating system as the type of control unit/DASD that is being emulated (for example, 3990/3390). Addresses with these devices are selected with the same parameter as the emulated device (for example, DEV=(3390) or DEV=(33xx)).

9395 Model Identifiers

The subsystem exception report series and the device-dependent section of the detail edit (PRINT) report identify 9395 models as follows:

IDENTIFIER	9395 MODELS
9395	Model B13

Subsystem Exception Report

When service actions are required, information is placed in the DASD subsystem exception series.

Important: The 9394 storage control and the 9395 family of devices use the service information messages (SIM) part of the DASD subsystem exception series as the primary indication that service is required. OBR records are logged but not placed in the system exception report part of the DASD subsystem exception series unless the 9394 cannot generate a SIM for the error condition.

MDR information is placed in the DASD string summary part 2 with its physical device type 9394/9395.

OBR and MDR Codes

Byte 4 of the MDR contains the *MDR code* of the device the 9395 is emulating (for example, X'24' for a 3390-03). The *MDR code* of the 9395 is in the ECKD sense data later in the record. See [“MDR Codes” on page 111](#).

Byte 54 and 55 of the OBR contain the *OBR code* of the device the 9395 is emulating (for example, X'2024' for a 3390-03). The *OBR code* of the 9395 is in the ECKD sense data later in the record. See [“OBR Codes” on page 109](#).

9345 DASD

This section covers special considerations for EREP reports that contain information about 9345 DASD.

9345 Model Identifiers

The subsystem exception report series and the device-dependent section of the detail edit (PRINT) report identify 9345 models as follows:

IDENTIFIER	9345 MODELS
9341	Models A02
9343	Models C02, C04, and D04
9343 Cache	Models CC2, CC4, and DC4
9345	Models B12 and B22

Subsystem Exception Report

The service information message (SIM) part of the DASD subsystem exception series reflects the activity of devices needed for diagnostic work.

Important: The 9343 and 9341 storage control and the 9345 family of devices use the service information message (SIM) part of the DASD subsystem exception series as the primary indication that service is required. Only SIMs (A3s) or LINK incident records (A2s) indicate maintenance actions.

OBR records are logged but not placed in the system exception report.

EREP Controls

9345 is one of the units defined in DEV=ESIO. See [“ESIO I/O Connected to an ESCON Link”](#) on page 351 for more information.

3380 DASD

This section covers special considerations for EREP reports that contain information about 3380 DASD.

3380 Model Identifiers

The subsystem exception report series and the device-dependent section of the detail edit (PRINT) report identify 3380 models as follows:

IDENTIFIER	3380 MODELS
3380-CJ	CJ2 (device addresses 02 and 03)
3380-DE	AD4, AE4, BD4, BE4
3380-JK	AJ4, AK4, BJ4, BK4, CJ2 (device addresses except 02 and 03)

Subsystem Exception Report

In the DASD subsystem exception reports that show FAILURE AFFECT or PROBABLE FAILING UNIT fields, the 3380 family of devices has an additional category called MULTIPLE. This category describes errors that may affect more than one device but are not controller failures.

The following reports use the MULTIPLE category:

- System error summary part 2
- Subsystem exception report
- Symptom code summary
- String summary

MDR and OBR Codes

The *MDR codes* for the 3380 are shown in the following table:

MDR CODE	DESCRIPTION
X'14'	3380 Models AA4, A04, B04, AD4, and BD4.
X'1B'	3380 Models AE4 and BE4.
X'1C'	3380 Models AD4 and BD4 with full command support provided by the system.
X'21'	3380 Models AJ4, BJ4 and CJ2 in single density mode.
X'23'	3380 Models AK4, BK4 and CJ2 with TCO (triple capacity option).
Note: See “MDR Codes” on page 111.	

The **OBR codes** for the 3380 are shown in the following table:

OBR CODE	DESCRIPTION
X'200E'	3380 Models AA4, A04, B04, AD4, and BD4.
X'201E'	3380 Models AD4 and BD4 with full command support provided by the system.

OBR CODE	DESCRIPTION
X'202E'	3380 Models AE4 and BE4.
X'2021'	3380 Models AJ4, BJ4 and CJ2 in single density mode.
X'2023'	3380 Models AK4, BK4 and CJ2 with TCO (triple capacity option).
Note: See “OBR Codes” on page 109.	

3370 DASD

A data reduction report is produced for the 3370 only. To separate the report for the 3370 and for dedicated DASD from the rest of the detail (PRINT) output for I/O devices, run the following step *before* running any detail (PRINT) reports for other I/O devices:

```
PRINT=SD
DEV=(3370)
TYPE=OT
```

33XX DASD

This section covers special considerations for EREP reports that contain information about 33XX DASD.

33XX Identifiers

Some 33XX DASD identify themselves to EREP via *physical IDs*, identifiers assigned to the *storage control unit (SCU)*, the *controller*, and the *device*.

Other 33XX DASD are identified by the *physical* and *logical controller-unit addresses (CUAs)*.

The sources of these different identifiers are as follows:

IDENTIFIER	DESCRIPTION
<i>physical ID</i>	Is located in the sense records created for 3375, 3380, and 9345 devices and 3880, 3990, 9341, and 9343 storage controls.
<i>manufacture serial number</i>	Is located in the sense records for the 3390 and 9345 devices and the 3990, 9341, and 9343 storage controls.
<i>secondary control unit address (SCUA)</i>	Is located in the OBR or MDR record. It is the logical address from which the sense data is received.
<i>primary control unit address (PCUA)</i>	Is the address of the physical device via the base (primary) channel. This is the position of the drive in the string. The PCUA is also the physical address for <i>all</i> demountable DASD.

Some EREP reports show 33XX DASD by *physical ID*. In those that do not, the address shown is the PCUA. See “DASDID Control Statement” on page 51 for more information about the *physical ID*.

The only records used for 33XX DASD are OBR (long), MDR, and X'Ax' type records:

- OBR records indicate errors or single incidents.
- MDR records contain statistical data collected at the storage control unit for usage, errors, and overruns.

In the system summary and trends reports, 33XX devices providing *physical IDs* are only listed by those IDs; the CPU identifiers are omitted.

Devices having *physical IDs* do not require DASDID or SHARE statements.

The reports that require SHARE statements for nonphysical ID devices are:

- System summary

- Trends
- Data reduction (PRINT=DR or SD)

Subsystem Exception Report

The following DASD subsystems are included in the subsystem exception report series:

- 0671 devices
- 3310-3350, 3375, 3380 and 3390 DASD drives
- 9313, 9332, 9335, 9336, and 9345 DASD drives
- 3830 and 3880 DASD storage controls
- 3990 and 3380-CJ DASD storage controls

Important: The system exception series replaces detail summaries for these devices.

3375 and 3380 errors are reported differently from those of other DASD in the various summary reports of the system exception series, because:

- The 3375 and 3380 can have two or more controllers at the head of the string
- The PHYSICAL ID field contains failures associated with the *lowest* control ID for the string with the device or volume failure.

Detail Edit Report

The following parameters allow you to selectively print X'Ax' type records (SIMs) in a detail edit report.

```
PRINT=PT
DEV=(33XX)
TYPE=A
```

Important: The DASD summaries included in the system exception series replace the following reports:

- The combined OBR/MDR detail summary (PRINT=PS|SD|SU,TYPE=OT)
- The MDR detail edit and summary reports

DASDID Control Statement

Important:

- The DASDID control statement only applies to the system exception report series.
- The DASDID control statement is not valid for the 3375, 3380 and 3390 DASD devices.
- The description and explanation of the DASDID statement are in [“DASDID Control Statement” on page 51](#).

The 3880 control unit supplies its own physical ID. Note those physical IDs before assigning any IDs to control units.

The control unit ID assigned by the DASDID control statement must coincide with the storage director physical ID. The physical ID for each control unit should have been set with hardware switches at installation.

LIMIT Control Statement

The LIMIT control statement works differently for each of the product groups.

Important: The LIMIT control statement only applies to the system exception report series.

The LIMIT control statement has the following format for 33XX DASD:

```
LIMIT dasd,keyword[,keyword...]
```

dasd

Represents the device type designation for DASD products. *dasd* can be one of the following generic product types:

Product type	
33XX	3370
3310	3375
3330	3380
3340	3830
3350	3880

Note: 3340 includes 3344.

33XX is the general device type designation for all the listed direct access devices and control units. When you code 33XX on a LIMIT control statement, you are requesting that the limits apply to all devices of the general type.

Important: The LIMIT control statement is not valid for the following devices and storage controllers:

Device/Storage Controller		
0671	9332	9341
3390	9335	9343
9313	9336	9345

keyword

Represents one or more DASD product-dependent keyword parameters with the associated numeric limits.

You can set minimum thresholds for different kinds of temporary errors or events using the keyword values listed here:

TO SET LIMITS FOR	USE KEYWORD
Seek errors	SKS=nnnn
Read errors	RD=nnnn
Bus out parity errors	B=nnnn
Equipment checks	EQUCHK=nnnn
Check data	C=nnnn
Invoked offsets	I=nnnn
Diskette checks	D=nnnn
Overruns	OVRN=nnnn
All not otherwise specified	ALL=nnnn
Note: <i>nnnn</i> can range from 1 to 9999; it requires no leading zeros.	

Not all the keywords are valid for every device type. The following table shows the valid error type keywords for each of the 33XX DASD device types:

DEVICE TYPE	SKS	RD	B	EQUCHK	C	I	D	OVRN	ALL
3310	X	X		X	X				X

DEVICE TYPE	SKS	RD	B	EQUCHK	C	I	D	OVRN	ALL
3330	X	X		X					X
3340	X	X		X					X
3350	X	X		X					X
3370				X	X	X			X
3375				X		X			X
3380				X		X			X
3830			X	X			X	X	X
3880			X	X			X	X	X
33XX	X	X	X	X	X	X	X	X	X

Notes:

- If you do not specify a number for *nnnn*, EREP uses a default value of 01 applying no limits to temporary errors. So all errors of that type are included in the subsystem exception report.
- When you set limits on temporary errors EREP excludes those errors that do not equal or exceed the LIMIT control statement values. *For example*, if you code:

```
LIMIT 3830,EQUCHK=5,OVRN=10
```

the DASD subsystem exception report shows temporary equipment checks and overrun errors for a 3830 control unit only if there are 5 or more equipment checks or 10 or more overruns recorded against the device.

- When you specify 33XX or ALL on a LIMIT control statement, EREP only uses the valid keywords for each device type included.
- EREP ignores the ALL values on any LIMIT control statements that follow a 33XX statement on which ALL is specified. *For example*:

```
LIMIT 3330,SKS=5,ALL=10
LIMIT 33XX,ALL=15
LIMIT 3340,RD=5,ALL=20
```

EREP limits the 3330 using the values in the 3330 statement, and limits all other DASD using the value in the 33XX statement. It ignores the ALL value in the 3340 statement, because the 33XX statement takes precedence. If you need the ALL value for 3340s, put that LIMIT control statement before the one for 33XX. *For example*:

```
LIMIT 3330,SKS=5,ALL=10
LIMIT 3340,RD=5,ALL=20
LIMIT 33XX,ALL=15
```

Now EREP limits the 3330 using the values in the 3330 statement, the 3340 using the values in the 3340 statement, and all other DASD using the value in the 33XX statement.

- Only one LIMIT control statement is allowed for the general device class of 33XX.

Chapter 18. Diskette Unit

This topic provides device specific information about how to use EREP controls to produce EREP reports for the devices listed below.

EREP Reports

Useful reports for these devices:

SYSUM
EVENT
TRENDS
PRINT=PT or PS with DEV=nnnn and TYPE=OH

Take care when requesting reports other than these as the results from other reports can be misleading.

EREP Controls

No special considerations.

Supported Devices

This device is valid for DEV=

3540

diskette I/O unit

Chapter 19. Magnetic Tape Devices

This topic provides device specific information about how to use EREP controls to produce EREP reports for the magnetic tape devices listed under the following headings:

HEADING
“Reports for Tape Devices” on page 327
“34XX Tape Devices” on page 327
“3480, 3490, and 3490E Tape Subsystems” on page 331
“9347 and 9348 Subsystem Exception Report” on page 332
“35XX Tape Devices” on page 332

Reports for Tape Devices

The following table identifies reports that can help analyze the performance of the tape devices:

DEVICE	34XX FAMILY	35XX FAMILY	SYSEXN	THRESH	FORCED LOG SUM	LIMIT CTL STMT
3400	YES	NO	YES	YES	NO	YES
3410	YES	NO	YES	YES	NO	YES
3420	YES	NO	YES	YES	NO	YES
3422	YES	NO	YES	NO	YES	YES
3424	NO	NO	YES	NO	NO	NO
3430	YES	NO	YES	NO	YES	YES
3480	YES	NO	YES	NO	YES	YES
3490	YES	NO	YES	NO	YES	YES
3590	NO	YES	YES	NO	NO	NO
8809	YES	NO	NO	YES	NO	NO
9347	NO	NO	YES	NO	NO	NO
9348	NO	NO	YES	NO	NO	NO
Note: The 3494 and 3495 tape libraries are processed as 3490 devices, but are put on separate reports.						

34XX Tape Devices

This section provides information about EREP reports and EREP controls specific to the 34XX tape devices.

Subsystem Exception Report

The SYSEXN (subsystem exception report series) report parameter produces different sets of reports for different 34XX tape devices. If you have all of the 34XX tape devices, you get one set of exception reports and summaries for each of the following sets of tape drives:

ORDER	TAPE DEVICE
1	3410/3420
2	3422
3	3430
4	3480
5	3490

Examples of the tape subsystem exception report and each of the tape subsystem summaries are shown in of the [EREP User's Guide](#).

Threshold Summary Report Information

The fields in the volume statistics section of the threshold summary report in the [EREP User's Guide](#) are used differently by different device types:

- 3410 and 3420 OBR records use the IO RDS field for total IOS.
- 8809 MDR and OBR records do not use the following fields at all:

MDR	OBR
TU SERIAL	
PERM RDS	PERM RDS
PERM WRTS	TEMP WRTS
PROGRAM ID	RETRY
MOD #	ERASE GAP
DENSITY	
HDR SER	
Note: Refer to “34XX/3803/8809 Subsystem Summary–Volume Statistics” on page 223 for a sample report.	

Use the DEV parameter to select records from one or two of the device types instead of all three.

Use the DEVSER or VOLID parameter to select records according to the device serial number or volume serial number.

The DEVSER selection parameter only applies to the threshold summary. The DEVSER parameter is only valid with TYPE=O, because only tape OBR records contain device serial numbers.

LIMIT Control Statement

The LIMIT control statement only applies to the system exception report series. The format of the LIMIT control statement for 34XX tape devices is:

```
LIMIT tape,keyword[,keyword...]
```

Important: 3480 and 3490 tape subsystem LIMIT control statements differ from the other 34XX devices shown here. See [“LIMIT Control Statement”](#) on page 331 for details.

tape

One of these device types: 34XX?410?420?422?430

keyword*xxbpi=nnn(ct)***xx**

Pairs of initials indicating the types of temporary errors to be limited.

bpi

Density (bits per inch) at which the device is operating. The possible values for bpi are 1600 and 6250.

nnn

Three-digit decimal value representing the number of megabytes of data processed between errors (MB/ERROR).

ct

Decimal value from 1 to 999 representing the number of errors encountered before the device or volume appears on the subsystem exception report.

Keywords and Values for LIMIT Control Statements

LIMIT keywords for 34XX tape drives are:

BPI	TO SET LIMITS FOR	USE KEYWORD
1600	Hardware read	HR1600=nnn(ct)
	Hardware write	HW1600=nnn(ct)
	Volume read	VR1600=nnn(ct)
	Volume write	VW1600=nnn(ct)
6250	Hardware read	HR6250=nnn(ct)
	Hardware write	HW6250=nnn(ct)
	Volume read	VR6250=nnn(ct)
	Volume write	VW6250=nnn(ct)

Temporary Error Limits

EREP uses both the *nnn* (MBYTES/ERROR) and *ct* (total errors) values to establish thresholds for temporary errors. The errors are reported on the subsystem exception report if *both* of the following criteria are met:

- The number of megabytes processed per error is less than the number of megabytes specified by the error frequency (*nnn*) value
- The number of times the error occurs is greater than or equal to the number specified by the count (*ct*) value

If you want the subsystem exception report for a 3420 tape subsystem to report 1600 bpi volume temporary read errors when:

- Less than 599MB are read per error
- The errors occur at least 5 times

Set the volume read limit control card as follows:

```
LIMIT 3420,VR1600=599(5)
```

With this setting:

WHEN	AND	THEN
Temporary read errors occur at a rate of 500MB per error	6 errors occur	The errors are reported on the subsystem exception report.
Temporary read errors occur at a rate of 600MB per error	6 errors occur	The errors are not reported on the subsystem exception report.
Temporary read errors occur at a rate of 500MB per error	4 errors occur	The errors are not reported on the subsystem exception report.

Note:

1. To cover all the possible sources of errors for a 34XX device, code LIMIT control statements for both hardware and volume read and write errors. Results are unpredictable if any values are omitted, or if a value is coded as zero.
2. If you do not code LIMIT control statements for a tape device or volume, the subsystem exception report includes only the permanent errors recorded against that device or volume.

Important: All temporary errors appear in the temporary error summary.

3. To force EREP to show all the temporary errors on the subsystem exception report, use 999(1) for the nnn(ct) variables on the LIMIT statement, provided that the number of megabytes processed per error is less than 999.
4. The density of 6250 BPI applies only to 3420 and 3430 drives. A LIMIT control statement for 34XX is ignored for 3410 devices.
5. If a tape drive is operating at a density other than 1600 or 6250 BPI, EREP uses the LIMIT values you specify for 1600 BPI.
6. Only one LIMIT control statement is allowed for the general 34XX type.
7. You may not continue a LIMIT control statement from one line to the next.
8. You should use separate LIMIT control statements to establish hardware and volume limits for a device.
9. If the device operates at both 1600 and 6250 BPI, you *must* use separate statements.
10. If only one tape density is involved, you can combine all four keywords on the same LIMIT control statement. *For example*, you may want to see the temporary errors for your 3410 and 3420 drives, operating at 1600 BPI density, as follows:

Hardware / Volume	R/W	Errors
Hardware	Read	1 or more errors, at 25MB per error
	Write	15 or more errors, at 10MB per error
Volume	Read	1 or more errors, at 25MB per error
	Write	15 or more errors, at 10MB per error

Note:

To set these limits, you can code the following LIMIT control statements:

```
LIMIT 3410,HR1600=025(1),HW1600=010(15),VR1600=025(1),VW1600=010(15)
LIMIT 3420,HR1600=025(1),HW1600=010(15),VR1600=025(1),VW1600=010(15)
```

Because the limiting values and density are the same, these two statements can be combined into a single 34XX LIMIT control statement:

```
LIMIT 34XX,HR1600=025(1),HW1600=010(15),VR1600=025(1),VW1600=010(15)
```

11. When your 34XX devices are operating at different densities, you cannot fit all four sets of keywords on the single 34XX LIMIT control statement.

If you specify *only* the volume or hardware values for *both* densities on a single 34XX LIMIT control statement, EREP applies those values to whichever kinds of errors you have not specified. *For example:*

```
LIMIT 34XX, VR1600=010(1), VW1600=010(1), VR6250=020(1), VW6250=020(1)
```

EREP applies the values specified here for *volume* reads and writes to *hardware* reads and writes for all your 34XX devices.

Important: When EREP checks the LIMIT control statement syntax, it fills in any blanks it finds with the corresponding values supplied elsewhere on the same statement. This is why results can be unpredictable when you do not code all the values on a LIMIT control statement or code a value as zero.

3480, 3490, and 3490E Tape Subsystems

This section provides information specific to EREP reports and controls specific to the 3480, 3490, and 3490E tape subsystems.

Subsystem Exception Report

EREP produces a separate set of subsystem exception reports for the 3480, 3490, and 3490E subsystem. Records for the following devices are included in the report series:

- 34XX tape drives (3410, 3420, and 3430)
- 3480 flexible media tape subsystem
- 3490 and 3490E magnetic tape subsystems
- 3494 tape library (included in the 3490/3490E series)
- 3495 tape library (included in the 3490/3490E series)

You must request *both* OBR (type O) and MDR (type T) records; EREP uses both for the 3480, 3490, and 3490E subsystem exception report.

Important: You cannot get detail edit reports of 3480, 3490, and 3490E MDR records.

When you code DEV=34XX, EREP selects records from 3410, 3420, 3422, 3430, 3480, 3490, 3490E, and 8809 tape drives, depending on the report requested. See [“34XX Tape Devices”](#) on page 327 for details.

LIMIT Control Statement

The format of the 3480, 3490, and 3490E LIMIT control statement is:

```
LIMIT tape, keyword[, keyword...]
```

tape

One of these device types: 3480 or 3490

keyword

*xx*tape=*nnn*(*ct*)

xx

Pairs of initials indicating the types of temporary errors to limit. The possible values for *xx* are listed under the valid LIMIT keywords for 3490.

nnn

Three-digit decimal value representing the number of megabytes of data processed between errors (MB/ERROR).

ct

Decimal value from 1 to 999 representing the number of errors encountered before the device or volume appears on the subsystem exception report.

Keywords and Values for the LIMIT Control Statement

The LIMIT control statement uses the following keywords for the 3480, 3490, and 3490E:

TO SET LIMITS FOR	USE KEYWORD
Hardware read	HR3480=nnn(ct)
	HR3490=nnn(ct)
Hardware write	HW3480=nnn(ct)
	HW3490=nnn(ct)
Volume read	VR3480=nnn(ct)
	VR3490=nnn(ct)
Volume write	VW3480=nnn(ct)
	VW3490=nnn(ct)

Temporary Error Limits

See [“Temporary Error Limits” on page 329](#) to gain an understanding of how the temporary error limit works. To meet the conditions in [“Temporary Error Limits” on page 329](#), set the 3480 volume read limit control card shown as follows:

```
LIMIT 3480,VR3480=599(5)
```

The LIMIT control statement does not control the printing of nonerror records in the DEVNO/CUA statistics summary or volume statistics summary sections of the subsystem exception report. All nonerror activity is reported for each 3480 device or volume appearing in the subsystem exception report.

See the notes following [“Temporary Error Limits” on page 329](#) for more detailed information about LIMIT control statements.

9347 and 9348 Subsystem Exception Report

The LIMIT control statement is invalid for the 9347 and 9348. The current limits are not reported.

The count and frequency of permanent and temporary errors are not recorded, so the MB/ERR counts are not reported.

35XX Tape Devices

This section provides information about EREP reports and EREP controls specific to the 35XX tape devices.

Subsystem Exception Report

The SYSEXN (subsystem exception report series) report parameter produces different sets of reports for 35XX tape devices. If you have all of the 35XX tape devices, you get one set of exception reports and summaries that includes all the drives.

Examples of the TAPE subsystem exception report and the TAPE messages are shown in [“TAPE Subsystem Exception” on page 214](#).

Chapter 20. OCR/MICR Devices

This topic provides device specific information about how to use EREP controls to produce EREP reports for the devices listed below.

EREP Reports

Useful reports for these devices:

SYSUM
EVENT
TRENDS
PRINT=PT or PS with DEV=nnnn and TYPE=OTH

Take care when requesting reports other than these as the results from other reports can be misleading.

Some devices may produce different record types. In that case, request those record types when requesting detail edit and summary (PRINT) reports.

EREP Controls

No special considerations.

Supported Devices

These devices are valid for DEV=

1255
MICR reader
1270
optical character reader
1275
optical reader/sorter
1285
optical reader
1287
optical reader/sorter
1288
optical page reader
1419
MICR reader/sorter
3886
optical character reader
3890
document processor
3895
document reader/sorter

Chapter 21. Optical Devices

This topic provides device specific information about how to use EREP controls to produce EREP reports for the optical devices listed below.

3995 Optical Disk Storage Dataserver

EREP supports the following reports for the 3995 optical disk library:

SYSEXN
EVENT
PRINT=PT or PS with DEV=nnnn and TYPE=OTH

3995 is valid for the DEV parameter.

This device generates A3, OBR and MDR records.

A3/OBR codes — X'2182', X'2183', and X'4122'
MDR code — X'17', X'20' and X'50'

9246 Optical Library

EREP supports the following reports for the 9246 optical disk library:

SYSEXN
EVENT
PRINT=PT or PS with DEV=nnnn and TYPE=OTH (does not include A3 records)

9246 is valid for the DEV parameter.

This device only generates OBR records. The OBR code is X'2180'.

9247 Optical Disk Drive

EREP supports the following reports for the 9247 optical storage device:

SYSEXN
EVENT
PRINT=PT or PS with DEV=nnnn and TYPE=OTH (does not include A3 records)

9247 is valid for the DEV parameter.

This device only generates OBR records. The OBR code is X'2181'.

Chapter 22. Printers

This topic provides device specific information about how to use EREP controls to produce EREP reports for the printers listed under the following headings:

HEADING
“Reports for Printers” on page 337
“AFP1 Printers” on page 338
“3820 Printer” on page 339
“4248 Printer” on page 339
“6262 Printer” on page 339

Reports for Printers

Useful reports for these devices:

SYSUM
 EVENT
 TRENDS
 PRINT=PT or PS with DEV=nnnn and TYPE=OTH

Take care when requesting reports other than these as the results from other reports can be misleading.

Some devices may produce different record types. In that case, request that record type when requesting detail edit and summary (PRINT) reports.

EREP produces a combined OBR/MDR summary for the 3800 printing subsystem when you request detail summaries for that product.

Devices Supported by EREP

These devices are valid for DEV=

AFP1
 printers
1053
 printer
1403
 printer
1443
 printer
2245
 printer
3203
 printer
3211
 printer
3262
 printer
3284
 printer

Printers

3286

printer

3287

printer

3288

printer

3289

line printer

32XX

includes families of IBM printers

3800

printing subsystem

3820

page printer

38XX

includes families of IBM printers

4245

printer

4248

printer

5080

graphics systems workstation

5203

printer

6262

printer

AFP1 Printers

AFP1 is a family of system printers designed to operate under the Print Services Facility™ (PSF) of the Advanced Function Printing (AFP) software application. The entire family of non-impact system printers use the common control unit (CCU) to drive various printer engines. AFP1 is the general device type designation that includes all of this family of printers.

The following printers are members of the AFP1 family:

TYPE/MODEL	DESCRIPTION
3825/01	Cut sheet printer
3827/01	Cut sheet printer
3835/01	Fan fold printer
3900/01	Fan fold printer

Detail Edit Report

The detail report provides detailed information for each OBR error record including the sense information in hexadecimal.

The unique TYPE/MODEL information is obtained from the long OBR error record and printed in the device dependent data area.

Detail Summary Report

This report provides summary information for the OBR error records, sorted by System Reference Code (SRC). It shows the total permanent and temporary occurrences of each SRC during the period of the report.

The unique TYPE/MODEL information is printed in the device dependent data area.

For a description of what the SRC number means for each unique printer, refer to the maintenance library for that specific machine type.

EREP Controls

DEV=(AFP1) is valid for this family and appears in the DEVICE TYPE field in the header of the reports.

When AFP1 is selected, a set of reports is produced for each printer address for all of the printers of this family that are attached to the system.

The OBR code is X'080F'.

OBRDEVDP (one double-word at offset X'40') in the OBR contains the following:

```
00TTTTMM
```

00

Not used

TTTT

TYPE

MM

MODEL

3820 Printer

EREP includes records from the 3820 printer with the other OBR records produced by the 3791 cluster controller.

3820 is valid for DEV=. However, that number does not appear in EREP reports. All 3820 records and incidents are identified by "3791".

4248 Printer

If the device is running in 3211 mode, code DEV=(3211).

6262 Printer

The general information about EREP for IBM printers also applies to the 6262 line printer.

Useful reports for this device are:

PRINT=PT or SU or PS with DEV=6262 and TYPE=O (OBR records).

Take care when requesting reports other than these as the results from other reports can be misleading.

6262 is valid for DEV=

The OBR code is X'0813', the same as the 4248 printer.

Chapter 23. Processors (CPUs)

This topic provides device specific information about how to use EREP controls to produce EREP reports for the processors listed under the following headings:

HEADING
“Processor Information” on page 341
“LIMIT Control Statement” on page 341
“PR/SM Feature” on page 343

Processor Information

The following table identifies what types of records the processors generate, whether or not CPU= and MOD= are valid parameters, and whether or not the processor is included in the subsystem exception report series.

CPU	SYSEXN	CPU= MOD=	CCH	MCH	SLH CRW ¹	LIMIT CTL STMT
0158	YES	VALID	X	X		VALID
0168	YES	VALID	X	X		VALID
303X	YES	VALID	X	X		VALID
9021	NO	VALID	X	X	X	NO
9121	NO	VALID	X	X	X	NO
9221	NO	VALID	X	X	X	NO
9373	NO	VALID	X	X		NO
9375	NO	VALID	X	X		NO
9377	NO	VALID	X	X		NO

LIMIT Control Statement

The LIMIT control statement applies only to the system exception report series. The following is a description of how to use LIMIT control statements for the processor and channel subsystem exception reports.

The LIMIT control statement has the following format for processors:

```
LIMIT cpu,keyword=nn[,keyword=nn...]
```

cpu

Is one of the following S/370 processors and its associated channels:

0158
0168
3031
3032
3033

keyword

Is one of the keywords representing the various types of soft machine checks or channel checks covered by the system exception report series.

nn

Is a two-digit decimal value ranging from 1–99. It indicates the minimum number of errors that must be recorded during a 60-minute *reference period* for the processor or channel to be included on the subsystem exception report. The reference period begins when an error of the type specified in the LIMIT control statement is recorded.

LIMIT keywords for processors and channels are:

DEVICE	TO SET LIMITS FOR	USE KEYWORD
Processor	External damage	EXTD=nn
	Hardware instruction retry	HIRS=nn
	Buffer error	BUFE=nn
Channel	Channel error	CHAN=nn
	Storage error	STOR=nn
	Director error	DRCT=nn
	Control unit error	CTRL=nn

Note:

1. If you do not supply a number for *nn*, EREP applies a default value of 01, meaning that all soft errors recorded on processors or channels are included in the printed report. In this case, the line in the report showing the CURRENT LIMITS contains 00 for that keyword.
2. The LIMIT keywords for processors and channels only apply to soft errors. They represent the types of errors listed:
 - Under SOFT MACHINE CHECK in the processor subsystem exception report
 - Under the three SERVICE LEVEL INDICATOR categories in the channel subsystem exception report.

Refer to the subsystem exception report examples in “Processor (CPU) Subsystem Exception” on page 144 and “Channel Subsystem Exception” on page 145.

3. The following STOR and DRCT keywords for channel errors are mutually exclusive:
 - STOR applies to the 0158 and 0168 processors
 - DRCT applies to the 303X processors
4. You can set limits for processor and channel errors on separate LIMIT control statements or on the same statement. For example:

```
LIMIT 3033,EXTD=05,HIRS=05,BUFE=03
LIMIT 3033,CHAN=01,DRCT=04,CTRL=08
```

or

```
LIMIT 3033,CHAN=01,DRCT=04,CTRL=08,EXTD=05,HIRS=05,BUFE=03
```

5. You may not continue a LIMIT control statement from one line to the next. You may code as many separate LIMIT control statements as you need.
6. The only valid values for the CHAN LIMIT control statement keyword for a 303X processor are CHAN=00 and CHAN=01. If you code any other value for CHAN, EREP processes it as if it were CHAN=01.

PR/SM Feature

When the processor resource/system manager (PR/SM) feature is used to create logical partitions on a central processor complex (CPC) a unique logical CPUID is created for each logical partition by creating a new and unique CPU identification number (all other fields are unchanged).

The CPU identification number is a six-digit number as follows:

asnnnn

a

Logical processor address

s

PR/SM logical partition identifier or second digit of the machine serial number

nnnn

Represents the last four digits of the machine serial number

The logical processor address is a function of the CPC model, whether the CPC is a single image or physically partitioned and how many logical processors are assigned to the partition.

The PR/SM logical partition identifier is the same hexadecimal digit used to identify the partition when it was initially defined (in the IOCDS).

The PR/SM logical partition identifier must be used in conjunction with the last four digits of the machine serial number, whenever using the CPU serial number in a parameter or control statement.

Chapter 24. Punched Tape Devices

This topic provides device specific information about how to use EREP controls to produce EREP reports for the devices listed below.

EREP Reports

Useful reports for these devices:

SYSUM
TRENDS
EVENT
PRINT=PT or PS with DEV=nnnn and TYPE=OH

Take care when requesting reports other than these as the results from other reports can be misleading.

EREP Controls

No special considerations.

Supported Devices

These devices are valid for DEV=

1012

paper tape punch

1017

paper tape reader

1018

paper tape punch

2671

paper tape reader

Chapter 25. Teleprocessing (TP) Devices

This topic provides device specific information about how to use EREP controls to produce EREP reports for the devices listed below.

EREP Reports

VTAM record type 36 will no longer be supported by the detail summary report.

In OBR records, EREP sees the 3720, 3725 and 3745 communications controllers as 3705s. Therefore, if you want to isolate an OBR record from a 3720, 3725 or 3745 controller, you must request the detail report using DEV=3705 and TYPE=O.

In MDR records, the 3720, 3725 and 3745 have their own device codes, so you can select records by coding DEV=(3720,3725, or 3745) and TYPE=T.

NMVT alert records have their own device code, so you can select records by coding DEV=(NMVT) and TYPE=T. NMVT alert records can only be printed as detail edit reports.

In the MDR detail summary report, the LIB ADDR field contains the line interface base address for 3705s. If the field is all zeros, it means the error is in the device rather than in the line.

Some devices may produce different record types. In that case, request that record type when requesting detail edit and summary (PRINT) reports.

EREP Controls

The LIA/LIBADR and TERMN parameters are for use with TP devices. LIA/LIBADR is for 3705, 3720, 3725 and 3745 communications controllers, and TERMN is for 2700 terminals and 3705 controllers.

EREP does not limit the device or record type in response to the TERMN parameter alone. You must also code TYPE=O and DEV=(27XX,3705) to limit a report to VTAM records from terminals with the specified names.

Notes

- The network control program (NCP) does not recognize XA-specific MDR record information for 3705 and 3725 communications controllers. It records 370-mode MDR records even when the device is generating XA-mode records.
- Selected NMVT records are logged by VTAM. These records originate within SNA network devices (for example, 3745).
- Selected NMVT records are logged in a 9370/VM environment. These records originate within the attached token-ring network.

Chapter 26. Other Devices

This topic provides device specific information about how to use EREP controls to produce EREP reports for the devices listed below.

EREP Reports

The channel-to-channel adapter, CTCA, appears as "CACA" on report output, because the characters must be translated to hexadecimal digits.

EREP Controls

No special considerations.

Supported Devices

These devices are valid for DEV=

2280

high speed microfilm output film recorder

2282

film recorder/scanner

2495

magnetic tape cartridge reader

2930

tape intersystem connection unit

2955

remote service terminal

2956

badge and badge/card reader

3838

array processor

3848

cryptographic unit

7443

service recording facility

7770

audio response unit

7772

audio response unit

BA00

serial OEM interface adapter

BCTC

basic mode CTC

CTCA

channel-to-channel adapter

ESIO

I/O devices on ESCON link

OSA

Open Systems Adapter

Other Devices

OSAD

Open Systems Adapter

SCTC

serial CTC

SWCH

channel switch

These devices are recognized by EREP, but are *NOT* valid for DEV= parameter:

IDSK Internal Disk (internal to certain processors)

EREP recognizes the following device types as *unknown*:

2101

3703

3967

125D

BA00 Serial OEM Interface Adapter

Useful reports for this device:

- SYSUM
- EVENT
- TRENDS
- PRINT=PT or PS with DEV=(BA00) and TYPE=O

Take care when requesting reports other than these as the results from other reports can be misleading.

BA00 is valid for DEV=

The SOEMI adapter generates OBR records. The OBR code for the device is X'1014'.

CTCA Channel to Channel Adapters

Devices included in this section are:

BCTC
CTCA
OSA
OSAD
SCTC

A trailing space is required in DEV= for three letter adapters. For example:

```
DEV=(OSA ) is valid
DEV=(OSA) is invalid
```

Useful reports for these devices:

- SYSUM
- EVENT
- PRINT=ALPTPS

Take care when requesting reports other than these as the results from other reports can be misleading.

CTCA appears as CACA on the TRENDS and the PRINT reports. The basic mode CTC (BCTC), serial CTC (SCTC), and open systems adapters (OSA and OSAD) are *not* supported on the TRENDS report.

ESIO I/O Connected to an ESCON Link

ESIO in the DEV= parameter selects the following set of devices:

Device

3380	3801
3390	3803
3420	9345
3480	AFP1
3490	SWCH

Useful reports for this device:

SYSUM
EVENT
PRINT=PT

Take care when requesting reports other than these as the results from other reports can be misleading.

The ESIO parameter is helpful for creating a file for the I/O devices defined when running PRINT=NO.

IDSK Internal Disk

This section contains special considerations for EREP reports that contain information about the IDSK.

This subsystem is internal to a processor and is defined to the operating system as the type of control unit/DASD that is being emulated (for example: 3990-06/3390-03). Addresses with these devices are selected with the same parameter as the emulated device (for example: DEV=(3390) or DEV=(33XX) - NOTE: DEV=(IDSK) is *NOT* valid).

The following report is useful for this mode of connection:

EVENT

Only the emulated device type will appear on this report.

Bytes 54 and 55 of the OBR contain the OBR code of the device the IDSK is emulating (for example: x'2024' for a 3390-03). The OBR code of the IDSK is in the ECKD sense data later in the record. See "OBR Codes" in Chapter 7.

Byte 4 of the MDR contains the MDR code of the device the IDSK is emulating (for example: x'24' for a 3390-03). The MDR code of the IDSK is in the ECKD sense data later in the record. See "MDR Codes" in Chapter 7.

Serial Link Connection

The following reports are useful for this mode of connection:

EVENT
PRINT=PT or PS with DEV=(N33XX) and TYPE=A

For each A2 record, the event report provides a time of occurrence indication that displays the following:

- Incident node type, model, interface
- Attached node type, model, interface

Other Devices

- Incident code
- Dedicated connection interface identifier (when applicable)

The PRINT report provides an interpretation of the node information from the A2 record.

The control parameters are the following:

- Time
- Type
- DEV

SWCH Channel Switch

Devices included in this section are:

SWCH
9032
9033
9034
9037

DEV= applies *only* to the SWCH and not the individual models.

Appendix A. Accessibility

Accessible publications for this product are offered through [IBM Documentation \(www.ibm.com/docs/en/zos\)](http://www.ibm.com/docs/en/zos).

If you experience difficulty with the accessibility of any z/OS information, send a detailed message to the [Contact the z/OS team web page \(www.ibm.com/systems/campaignmail/z/zos/contact_z\)](http://www.ibm.com/systems/campaignmail/z/zos/contact_z) or use the following mailing address.

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United States

Accessibility features

Accessibility features help users who have physical disabilities such as restricted mobility or limited vision use software products successfully. The accessibility features in z/OS can help users do the following tasks:

- Run assistive technology such as screen readers and screen magnifier software.
- Operate specific or equivalent features by using the keyboard.
- Customize display attributes such as color, contrast, and font size.

Consult assistive technologies

Assistive technology products such as screen readers function with the user interfaces found in z/OS. Consult the product information for the specific assistive technology product that is used to access z/OS interfaces.

Keyboard navigation of the user interface

You can access z/OS user interfaces with TSO/E or ISPF. The following information describes how to use TSO/E and ISPF, including the use of keyboard shortcuts and function keys (PF keys). Each guide includes the default settings for the PF keys.

- *z/OS TSO/E Primer*
- *z/OS TSO/E User's Guide*
- *z/OS ISPF User's Guide Vol I*

Dotted decimal syntax diagrams

Syntax diagrams are provided in dotted decimal format for users who access IBM Documentation with a screen reader. In dotted decimal format, each syntax element is written on a separate line. If two or more syntax elements are always present together (or always absent together), they can appear on the same line because they are considered a single compound syntax element.

Each line starts with a dotted decimal number; for example, 3 or 3.1 or 3.1.1. To hear these numbers correctly, make sure that the screen reader is set to read out punctuation. All the syntax elements that have the same dotted decimal number (for example, all the syntax elements that have the number 3.1)

are mutually exclusive alternatives. If you hear the lines 3.1 USERID and 3.1 SYSTEMID, your syntax can include either USERID or SYSTEMID, but not both.

The dotted decimal numbering level denotes the level of nesting. For example, if a syntax element with dotted decimal number 3 is followed by a series of syntax elements with dotted decimal number 3.1, all the syntax elements numbered 3.1 are subordinate to the syntax element numbered 3.

Certain words and symbols are used next to the dotted decimal numbers to add information about the syntax elements. Occasionally, these words and symbols might occur at the beginning of the element itself. For ease of identification, if the word or symbol is a part of the syntax element, it is preceded by the backslash (\) character. The * symbol is placed next to a dotted decimal number to indicate that the syntax element repeats. For example, syntax element *FILE with dotted decimal number 3 is given the format 3 * FILE. Format 3* FILE indicates that syntax element FILE repeats. Format 3* * FILE indicates that syntax element * FILE repeats.

Characters such as commas, which are used to separate a string of syntax elements, are shown in the syntax just before the items they separate. These characters can appear on the same line as each item, or on a separate line with the same dotted decimal number as the relevant items. The line can also show another symbol to provide information about the syntax elements. For example, the lines 5.1*, 5.1 LASTRUN, and 5.1 DELETE mean that if you use more than one of the LASTRUN and DELETE syntax elements, the elements must be separated by a comma. If no separator is given, assume that you use a blank to separate each syntax element.

If a syntax element is preceded by the % symbol, it indicates a reference that is defined elsewhere. The string that follows the % symbol is the name of a syntax fragment rather than a literal. For example, the line 2.1 %OP1 means that you must refer to separate syntax fragment OP1.

The following symbols are used next to the dotted decimal numbers.

? indicates an optional syntax element

The question mark (?) symbol indicates an optional syntax element. A dotted decimal number followed by the question mark symbol (?) indicates that all the syntax elements with a corresponding dotted decimal number, and any subordinate syntax elements, are optional. If there is only one syntax element with a dotted decimal number, the ? symbol is displayed on the same line as the syntax element, (for example 5? NOTIFY). If there is more than one syntax element with a dotted decimal number, the ? symbol is displayed on a line by itself, followed by the syntax elements that are optional. For example, if you hear the lines 5 ?, 5 NOTIFY, and 5 UPDATE, you know that the syntax elements NOTIFY and UPDATE are optional. That is, you can choose one or none of them. The ? symbol is equivalent to a bypass line in a railroad diagram.

! indicates a default syntax element

The exclamation mark (!) symbol indicates a default syntax element. A dotted decimal number followed by the ! symbol and a syntax element indicate that the syntax element is the default option for all syntax elements that share the same dotted decimal number. Only one of the syntax elements that share the dotted decimal number can specify the ! symbol. For example, if you hear the lines 2? FILE, 2.1! (KEEP), and 2.1 (DELETE), you know that (KEEP) is the default option for the FILE keyword. In the example, if you include the FILE keyword, but do not specify an option, the default option KEEP is applied. A default option also applies to the next higher dotted decimal number. In this example, if the FILE keyword is omitted, the default FILE (KEEP) is used. However, if you hear the lines 2? FILE, 2.1, 2.1.1! (KEEP), and 2.1.1 (DELETE), the default option KEEP applies only to the next higher dotted decimal number, 2.1 (which does not have an associated keyword), and does not apply to 2? FILE. Nothing is used if the keyword FILE is omitted.

*** indicates an optional syntax element that is repeatable**

The asterisk or glyph (*) symbol indicates a syntax element that can be repeated zero or more times. A dotted decimal number followed by the * symbol indicates that this syntax element can be used zero or more times; that is, it is optional and can be repeated. For example, if you hear the line 5.1* data area, you know that you can include one data area, more than one data area, or no data area. If you hear the lines 3* , 3 HOST, 3 STATE, you know that you can include HOST, STATE, both together, or nothing.

Notes:

1. If a dotted decimal number has an asterisk (*) next to it and there is only one item with that dotted decimal number, you can repeat that same item more than once.
2. If a dotted decimal number has an asterisk next to it and several items have that dotted decimal number, you can use more than one item from the list, but you cannot use the items more than once each. In the previous example, you can write HOST STATE, but you cannot write HOST HOST.
3. The * symbol is equivalent to a loopback line in a railroad syntax diagram.

+ indicates a syntax element that must be included

The plus (+) symbol indicates a syntax element that must be included at least once. A dotted decimal number followed by the + symbol indicates that the syntax element must be included one or more times. That is, it must be included at least once and can be repeated. For example, if you hear the line 6.1+ data area, you must include at least one data area. If you hear the lines 2+, 2 HOST, and 2 STATE, you know that you must include HOST, STATE, or both. Similar to the * symbol, the + symbol can repeat a particular item if it is the only item with that dotted decimal number. The + symbol, like the * symbol, is equivalent to a loopback line in a railroad syntax diagram.

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Glossary

This glossary contains a list of terms used within the Environmental Record Editing and Printing Program library.

A

AFP

Advanced Function Printing.

B

BPI

Bits per inch.

BTAM

Basic telecommunications access method.

BUFE

Buffer error.

BYTES RD/SRCHD

Megabytes read/searched.

C

CAT

Channel availability table.

CCF

Channel-check frame.

CCH

Channel-check handler.

CCHCRH

CCH channel reconfiguration hardware.

CCHINC

CCH incomplete record.

CCU

Channel control unit.

CCW

Channel control word.

CDDA

Command data.

CE

IBM customer engineer (changed to IBM service representative).

central processor (CP)

One of the internal processors that is part of a central processing complex.

channel

The physical connector between a processor and an input/output device, usually via a control unit of some kind. In the case of the extended architecture (System 370/XA), the hardware channels are replaced by subchannels, which are capable of dynamic variation controlled by microcode in the processor complex.

While this book refers to "subchannels" when discussing fields in 370XA report output, it uses "channel" in the general sense to mean the connection between controller and device.

channel-check frame (CCF)

The record on the ERDS that EREP uses to format channel-check records from the 303X group of processors.

channel-check handler (CCH)

A S/370 hardware feature that, when a channel error occurs, records information about the error and issues a message to the operator. In VSE, machine check analysis and recording performs a similar function. The records created in both cases are called CCH records.

channel-report word (CRW)

In S/370XA, a part of the channel-subchannel recovery mechanism. It contains information about channel incidents reported through machine checks, specifying the error environment and the severity of the error. MVS/XA builds a CRW record that, in combination with the subchannel logout handler record, replaces the CCH record.

CHK

Check.

CHNL

Channel.

CHP

Channel path ID.

CHPID

Channel path ID.

CHR

Channel reporting (error).

CK

Check.

CKD

Count key data.

CLNACT

Cleaner action.

CMD

Command.

CMND

Command.

CMS

Conversational monitor system.

CNT

Count.

CNTRL

Control.

CNTRLR

Controller.

code

The programming-language instructions that make up a computer program. As a verb, "to code" is the same as "to write code".

COMP

Component.

CONS+UR

Console plus unit record.

controller

A single unit that provides an interface between one or more storage control units and a group of devices. Controllers usually reside within the same unit as the lowest drive addresses.

CORR

Correctable.

COR

Corrected.

CP

Central processor.

CPC

Central processing complex.

CPU serial number

A 6-digit hexadecimal number. The first digit identifies the central processor within the central processing complex. The second digit identifies the plant where the CPU was manufactured. The remaining digits identify the sequence number. For example, 120003 is CP 1 of the third CPC manufactured at plant two.

CRH

Channel reconfiguration hardware.

CRW

Channel-report word.

CSCH

Clear subchannel.

CSECTID

Control section (CSECT) identification.

CSID

Channel set ID.

CSW

Channel status word.

CT

Controller; count.

CTCA

Channel-to-channel adapter.

CTLID

Controller ID.

CTLR

Controller.

CU

Control unit.

CUA

Channel-control unit-device address.

CUD

Control unit detecting (error).

CUR

Control unit reporting (error).

D**DATA XFR**

Data transfer.

DATA CKS CORR/RTRY

Data checks correctable/retry.

DCB

Data control block.

DCI

Dedicated connection interface.

DDR

Dynamic device reconfiguration.

DDROPR

DDR operator requested.

DDRSYS

DDR system requested.

DEV

Device number.

DEVNO

Device number.

DEVNUM

Device number.

DEVT

Device type.

DLBL

DASD label.

DNO

Device number.

DOS (VS)

Disk Operating System. An obsolete name, replaced by VSE, Virtual Storage Extended. In this book, "VSE" includes and implies all releases of this operating system, from DOS to VSE/ESA.

DPA

Dynamic pathing availability.

DRCT

Storage director.

DTE

Date.

dynamic device reconfiguration

A facility that allows a demountable volume to be moved, and repositioned if necessary, without abnormally terminating the job or repeating the IPL procedure. The MVS operating systems create DDR records to provide information about operator-assisted recovery involving the relocation of tape and movable DASD volumes.

E**EBCDIC**

Extended binary code decimal interchange code.

ECC

Error correction code.

ECW

Extended control word.

EOD

End of day.

EQUCHK

Equipment check.

EQUIP

Equipment.

ERDS

Error-recording dataset.

EREP

Environmental record editing and printing program.

ERP

Error-recovery program/processing.

ERROPS

Error operations.

error-recovery dataset

Input to the IFCEREP1 program. In MVS systems, the ERDS is SYS1.LOGREC; in VSE systems, it is SYSREC; in VM, it is the error-recording area or cylinders.

error-recovery program/processing

System routines that detect and process errors, writing records to the ERDS.

ERSGAP

Erase gap.

ESIO

I/O devices on ESCON link.

ESW

Extended status word.

EXCP

Execute channel program.

EXTD

External damage.

F**FBA**

Fixed block access.

FCF

Function control flag.

FCG

Floating channel group.

FLG

Flag.

FMT

Format.

FRF

Function request flag.

FRR

Function recovery routines.

FTA

File tape adapter.

H**hard machine check or error**

A hardware error that disables the processor or other unit.

HDR SER

Header (tape)/serial number of drive that created tape.

HIRS

Hardware instruction retry (successful).

HSCH

Halt subchannel.

I**IC**

Incident code.

ICHPT

Installation channel path table.

ID

Identification.

initial program load (IPL)

The process by which an operating system is initialized at the beginning of the day or session. At IPL, the system operator enters the installation-specific information the operating system must have in order to manage the installation's computing system and handle the installation's application programs. This information includes system parameters, system dataset definitions, and other information needed so the operating system can begin operating.

installation

A data processing system location; for example, a computer center housing processors, I/O devices, other hardware devices, the software that controls the machines, and the people who control the computer center.

INV

Invalid.

INVK

Invoked.

IOB

Input output block.

IPL

Initial program load.

IRB

Interrupt response block.

J**JCL**

Job control language.

JCS

Job control statement.

K**KB**

Kilobyte.

L**LEN**

Length.

LMAT

Load-module-address table.

LSQA

Local system queue area.

M**machine-check frame (MCF)**

The record, on the ERDS, that EREP uses to format machine-check records from the 303X group of processors.

machine-check handler (MCH)

A S/370 hardware feature that analyzes errors and attempts recovery by retrying the failing instruction. If unsuccessful, it causes an interrupt that triggers the creation of an error record. In VSE systems, machine check analysis and recording performs similar functions. The records created in either case are called MCH records.

MB

Megabyte.

MCF

Machine-check frame.

MCH

Machine-check handler.

MCHTRM

MCH System terminated.

MCIC

Machine check interrupt code.

MCK

Machine check.

MDC

Maintenance device code.

MDR

Miscellaneous data record.

MDRDAS

DASD MDR record.

MI

Maintenance information.

MICR

Magnetic ink character recognition.

MIH

Missing-interrupt handler.

miscellaneous data record (MDR)

A record type that records error and usage information from buffered control units or communications controllers, and device failures on TP devices connected to 3705/3725 communications controllers. The record is created when there is an overflow of statistical counters; its purpose is to provide more information about the accompanying failure.

missing-interrupt handler (MIH)

An MVS and MVS/XA facility that keeps track of I/O interrupts, informing the operator and creating a record whenever an expected interrupt fails to occur in a preset time interval.

MIX

The XA version of the missing-interrupt handler.

MOD

Module.

MSHP

Maintain system history program.

MVS, MVS/ESA, MVS/XA

Multiple Virtual Storage, Multiple Virtual Storage/Enterprise Systems Architecture, and Multiple Virtual Storage/Extended Architecture, two versions of the System/370 operating system that are extensions of OS/VS2.

This manual uses "MVS" to refer to a family of operating systems that controls System/370 computing systems. "MVS" includes MVS/370, MVS/XA and MVS/ESA.

N**NCP**

Network control program.

network management vector transport (NMVT)

An SNA management services request unit that flows over an active session between a device implementing an SNA physical unit and a device implementing an SNA control point.

NMVT

Network management vector transport.

O**OBR**

Outboard recorder.

OBRDMT

OBR demount record.

OBRDPA

OBR dynamic pathing availability.

OBRDPS

OBR dynamic pathing validation analysis.

OBREOD

OBR End-of-day.

OBRPRM

OBR Permanent error record.

OBRPTH

OBR Permanent path error record.

OBRSHR

OBR Short record.

OBRTMP

OBR Temporary error.

OCR

Optical character recognition.

Operating System/Virtual Storage (OS/VS)

A family of operating systems that control IBM System/370 computing systems. OS/VS includes VS2, MVS/370, MVS/XA and MVS/ESA. This book refers to these operating systems by the general term "MVS".

OS/VS

Operating System/Virtual Storage.

OS/VS2

Virtual Storage 2 (MVS, Version 1). MVS/370; one of the MVS operating systems.

outboard recorder (OBR)

In VSE systems, the outboard recorder is a feature that records pertinent data about an unrecoverable I/O error. MVS systems create a similar record from information recorded when an I/O device is in *unit-check* status. The resulting record in both cases is called an OBR record.

OVERRN

Overrun.

OVERRUN CDDA

Overrun command data.

OVRN

Overrun.

P**PCCA**

Physical configuration communications area.

PCT

Product control table.

PCUA

Primary channel-control unit-device address.

PDAR

Program damage assessment and repair.

PERM

Permanent.

PFU

Probable failing unit.

PR/SM

Program resource/system manager.

PRGM INT

Program-initiated.

PRI

Primary.

PRM

Permanent.

product control table (PCT)

The internal table that contains data EREP needs in order to identify and process records from a particular IBM device or product.

PROG-EC

Program-extended control mode.

PSF

Print Services Facility.

PSW

Program status word.

PUB

Physical unit block.

Q**QSAM**

Queued sequential access method.

R**RCT**

Record control table.

RCVRYXIT

Recovery exit module.

RD

Read error.

RDE

Reliability data extractor.

REC-TYP

Record type.

ROD

Record on demand.

RPA

Return point address.

RSM

Real storage manager.

RTM

Recovery termination manager.

RTN

Routine.

RTRY

Retry.

R/W

Read/write.

S

S/370 and S/370XA

Computing systems built around large IBM processors. XA stands for Extended Architecture, the architecture basis for the 3081 and later processors, characterized by 31-bit addresses. S/370 implies not only the processor but also the many other data processing devices that can be connected to it to make a 370 (or 370XA) data processing *system*.

SCD

System control data.

SCP

System control program.

SCSW

Subchannel status word.

SCU

Storage control unit.

SCUA

Secondary channel-control unit-device address.

SCUID

Storage control unit ID.

SD

Storage director.

SDR

Statistical data recorder.

SDWA

System diagnostic work area.

SE

Systems Engineer.

SEC

Secondary.

SEEKS CNTR/HH

Seek errors cylinder track/head

SFT

Software record. A record that is produced as part of the system error recovery process. It includes such software-specific information as the ERRORID and the system diagnostic work area control block and its extensions for the failing task or request block. MVS and AIX/ESA[®] build software records.

SFTABN

SFT ABEND record.

SFTLST

SFT lost record.

SFTMCH

SFT machine error, recoverable.

SFTPI

SFT program interrupt.

SFTRST

SFT restart.

SIM

Service information messages.

SIO

Start I/O.

SKS

Seeks; data access errors.

SLH

Subchannel-logout handler.

SNA

Systems network architecture.

SNID

Sense path group ID (DPA).

Soft machine check or error

A hardware error that is not disabling.

SPID

Set path group ID (DPA).

SQA

System queue area.

SRC

System reference code.

SRCHD

Searched.

SRF

Service record file.

SSYS ID

Subsystem identifier.

STOR

Storage error.

storage control unit

A functional unit which resides between channels and controllers.

STSCH

Store subchannel.

SSCH

Start subchannel.

subchannel

The extended architecture version of "channel". See also *channel*.

subchannel-logout handler

A S/370XA feature that provides detailed model-independent information relating to a subchannel; the subchannel logout describes equipment errors detected by the channel subsystem. MVS/XA and MVS/ESA build an SLH record that, in combination with the CRW record, replaces the CCH record.

subsystem

In hardware terms, a group of devices that function together to perform I/O operations. An I/O subsystem can consist of a control unit (controller) and its associated drives—either disk or tape; or it can consist of *all* the DASD or tape storage—including drives and controllers—in an installation. In the case of newer DASD, the I/O subsystem also includes storage control units and storage directors, within the controller.

SVC

Supervisor call.

syntax

The relationships among the elements and characters in a parameter or language statement. For our purposes, the way you have to code something in order for the program to understand and accept it.

SYSGEN

System generation.

system control program

The minimum software package that will make your operating system work.

system generation

The process of selecting optional parts of an operating system and of creating a particular operating system tailored to the requirements of a data processing installation. Can also include I/OGEN, which is the time when the system programmer defines the installation's computing system configuration to the operating system.

Systems Engineer

The person responsible for helping you maintain the IBM software in your installation.

T**TCO**

Triple capacity option.

TEMP

Temporary.

TERM

Terminal.

TLBL

Tape label.

TMP

Temporary.

TP

Teleprocessing.

TPF

Transaction processing facility.

transaction processing facility (TPF)

A high performance, real-time operating system designed for message-driven applications that require high availability and rapid response time at high message volumes.

TSCH

Test subchannel.

U**UCB**

Unit control block.

V**virtual machine (VM)**

A time-sharing system control program that manages the resources of an IBM System/370 computing system so that multiple remote terminal users have a functional simulation of the computing system (a virtual machine) at their disposal. This book uses "VM" to mean all versions of the Virtual Machine system control program, including VM/370, VM/System Product, VM/SP/High Performance Option, VM/ESA, and VM/XA.

Virtual Storage Extended (VSE)

A family of disk operating systems that controls IBM System/360 and System/370 computing systems and includes VSE and VSE/Advanced Functions.

VM

Virtual machine.

VOLID

Volume serial number.

VS2

Virtual Storage 2 (MVS, Version 1). MVS/370; one of the OS/VS operating systems.

VSAT

Virtual storage address table.

VSE

Virtual Storage Extended.

VSE/AF

Virtual Storage Extended/Advanced Functions.

W**WRT**

Write error.

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