

Environmental Record Editing and Printing Program
(EREP)



Reference

Version 3 Release 5

Note

Before using this information and the product it supports, read the information in "Notices" on page 379.

Eighth Edition (September 2015)

This book applies to *EREP Version 3 Release 5* until otherwise indicated in new editions.

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International Business Machines Corporation
MHVRCFS, Mail Station P181
2455 South Road
Poughkeepsie, NY 12601-5400
United States of America

FAX (United States and Canada): 1+845+432-9405

FAX (Other Countries):

Your International Access Code +1+845+432-9405

IBMLink™ (United States customers only): IBMUSM10(MHVRCFS)

Internet e-mail: mhvrcfs@us.ibm.com

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Preface

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, IFCEREP0) 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. |

Organization and Contents

| MANUAL | DESCRIPTION |
|----------------|---|
| EREK 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, “EREK Parameters,” on page 5, presents the syntax and coding rules for all EREP keyword parameters.
 - Chapter 3, “EREK Control Statements,” on page 51, presents the format and coding rules for EREP control statements.
 - Chapter 4, “Error Records for EREP,” on page 75, presents general information about the records that EREP uses, showing format and contents.
 - Chapter 5, “Correcting EREP Job Set-Up Problems,” on page 85, provides information about methods to identify and correct EREP job set up problems.
 - Chapter 6, “EREK Messages,” on page 91, 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 109, lists the control unit codes, outboard record (OBR) codes, and miscellaneous data record (MDR) codes.
- Part 2, “Examples of Output from Reports,” on page 117 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 119, 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 127, 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 135, 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 141, 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 239, 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 245, provide environmental information, hexadecimal dumps and summaries of errors to determine their nature and causes.

- Part 3, “Product-Dependent Information,” on page 327 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 329
 - Chapter 15, “Card Readers and Punches,” on page 333
 - Chapter 16, “Consoles and Displays,” on page 335
 - Chapter 17, “Direct-Access Storage Devices (DASD),” on page 337
 - Chapter 18, “Diskette Unit,” on page 347
 - Chapter 19, “Magnetic Tape Devices,” on page 349
 - Chapter 20, “OCR/MICR Devices,” on page 357
 - Chapter 21, “Optical Devices,” on page 359
 - Chapter 22, “Printers,” on page 361
 - Chapter 23, “Processors (CPUs),” on page 365
 - Chapter 24, “Punched Tape Devices,” on page 369
 - Chapter 25, “Teleprocessing (TP) Devices,” on page 371
 - Chapter 26, “Other Devices,” on page 373

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 Knowledge Center (<http://www.ibm.com/support/knowledgecenter/SSLTBW/welcome>).

Organization and Contents

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.

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 83
- A new DASD SIM example, see Figure 56 on page 250
- Support for processor model 2818.

Sixth Edition

This book includes new EREP reports for High Performance FICON for System z, also referred to as High Performance FICON or zHPF.

- MIH Report
- OBR Report
- SLH Reports

System Initialization (IPL) reports for 2084 have been added, see Figure 71 on page 264 and Figure 72 on page 264.

EREP now supports processor models 2086, 2094, 2096, 2097, and 2098.

CPU reports involving the obsolete processor models 3081, 3083, 3084, and 3090 have been replaced by CPU reports of supported processor models. Also, other references to these obsolete processor models have been removed or updated if necessary.

Fifth Edition

This book includes new and updated EREP reports for Alternative Subchannel Support.

- MIH (370XA) Detail Edit Report, see Figure 83 on page 280
- MIH (370XA) Detail Summary Report, see Figure 84 on page 280
- OBR (Long) Detail Edit Report, Device Type 3590, see Figure 100 on page 296
- OBR (Long) Detail Edit Report, Device Type 3380, DPA, see Figure 106 on page 302
- OBR (Long) Detail Edit Report, Device Type 3590, DPA, see Figure 107 on page 303
- OBR (Long) Dynamic Pathing Validation Analysis Detail Edit Report, Device Type 3390, see Figure 110 on page 305

- SLH Detail Edit Report, Device Type FCTC, see “Subchannel Logout Handler (SLH) Detail Edit Report, FCTC” on page 320

This book includes new EREP reports for Extended Address Volume (EAV), provided by APAR IO03548.

- DASD String Summary, Part 2 (2), see Figure 17 on page 165
- OBR (Long) Detail Edit Report for Extended Address Volume (EAV), see Figure 113 on page 307

This book includes new and updated EREP reports in support of the 3592-E06 tape drives.

- 3592 Tape Subsystem Exception Report, see Figure 49 on page 234
- 3592 Emulated Device Summary Report, see Figure 50 on page 235
- TAPE Media Informational Messages (MIMs), see Figure 52 on page 237

This book includes updates to the following messages:

- IFC253I
- IFC258I

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 51 |
| Chapter 4, "Error Records for EREP," on page 75 |
| Chapter 5, "Correcting EREP Job Set-Up Problems," on page 85 |
| Chapter 6, "EREP Messages," on page 91 |
| Chapter 7, "Codes for Control Units, OBRs, and MDRs," on page 109 |

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*.

Syntax Rules

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:

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 13 to be sure they are the ones you want.

See Part 3, “Product-Dependent Information,” on page 327 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 : : </pre> <p style="text-align: center;">or</p> <pre> : : 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 28 |
| 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: <code>PRINT=SD</code> is the default report parameter. The other options are shown in the syntax for the print parameter: <code>PRINT={AL \| DR \| NO \| PS \| PT \| <u>SD</u> \| SU}</code> The only way to run EREP without producing any report output is to code <code>PRINT=NO</code> . | "PRINT — Print reports (report parameter)" on page 36 |
| 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 40 |
| 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 41 |
| 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 44 |
| 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 46 |

Table 1 on page 11 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 17 |
| 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 19 |
| 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 20 |
| DATE | Use only the records created during this date range. | "DATE — Date Range (Selection Parameter)" on page 22 |
| 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 24 |
| 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 26 |
| ERRORID (Error identifier) | Use only the MCH and MVS software records containing this particular error identifier. | "ERRORID — Error Identifier (Selection Parameter)" on page 27 |
| 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 30 |
| MOD (Processor model) | Use only the records containing this processor machine type (number). | "MOD — Processor Model (Selection Parameter)" on page 34 |
| MODE (370 or 370XA) | Use only the records created in this operating mode. | "MODE — Operating Mode (Selection Parameter)" on page 35 |
| SYMCDE (Fault symptom code) | Use only the 33XX DASD records containing this particular fault symptom code. | "SYMCDE — Fault Symptom Code (Selection Parameter)" on page 38 |
| TERMN (Terminal name) | Use only the VTAM OBR records containing this terminal name. | "TERMN — Terminal Name (Selection Parameter)" on page 43 |
| TIME | Use only the records created during this time range. | "TIME — Time Range (Selection Parameter)" on page 45 |
| TYPE (Record type) | Use only the records of the specified types. | "TYPE — Record Type (Selection Parameter)" on page 47 |

| SELECTION PARAMETERS | TELLS EREP TO: | REFER TO |
|------------------------------|---|--|
| 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 49 |

Table 1 on page 11 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 16 |
| HIST (History) | Tells EREP that its input consists of records on a history file. | "HIST — History Input (Processing Parameter)" on page 29 |
| 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 31 |
| 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 32 |
| 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 33 |
| 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 37 |
| 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 42 |
| 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 50 |

Table 1 on page 11 shows the parameters that *cannot* be used together.

EREP Parameter Combinations

To help you to avoid using invalid parameter combinations, Table 1 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 | | | | | | | | | | | | | | |
|-------------------|-----------------------|------|-------|--------|-------|-------|---------|------|-----|--------|----------------------|-----|--------|---------|------------|-----|------|--------|-------|------|------|----------|--|--|--|
| | ACC | HIST | LINCT | LINELN | MERGE | SHORT | TABSIZE | ZERO | CPU | CUA 14 | DATE | DEV | DEVSER | ERRORID | LIA/LIBADR | MOD | MODE | SYMCDE | TERMN | TIME | TYPE | VOLID 15 | | | |
| 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 | | | | | | | | | | | | | | | | | |
| LINCT | | | X | | | | | | | | | | | | | | | | | | | | | | |
| LINELN | | | | 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 | | | |
| 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 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. |
| 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. |
| SYMCODE | 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. |

Table 2. When You Omit EREP Parameters (continued)

| PARAMETER | IF YOU OMIT THIS PARAMETER |
|-----------|---|
| 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[= <u>Y</u>] \| =N | “ACC — Accumulate Records (Processing Parameter)” on page 16 |
| CPU={({nnnnnn \| Xnnnnn \| XXnnnn}.model[, ...]) | “CPU — Central Processing Unit (Selection Parameter)” on page 17 |
| CPUCUA=(serial.{cua \| cuX}[,serial.{cua \| cuX}]...) | “CPUCUA — CPU/Channel/Unit Address (Selection Parameter)” on page 19 |
| CUA={({[N]addr \| [N]addr-[N]addr}[, ...]) | “CUA — Channel/Unit Address (Selection Parameter)” on page 20 |
| DATE={({yyddd[,yyddd] \| yyddd[-yyddd]}) | “DATE — Date Range (Selection Parameter)” on page 22 |
| DEBUG=(nn[,nn] ...) | “DEBUG — Debug (Diagnostic Parameter)” on page 23 |
| DEV=(type \| Ntype[,type \| Ntype]...) | “DEV — Device Type (Selection Parameter)” on page 24 |
| DEVSER=(serial[,serial]...) | “DEVSER — Device Serial Number (Selection Parameter)” on page 26 |
| ERRORID=(seqno[,cpuid,asid,hh,mm,ss,t]) | “ERRORID — Error Identifier (Selection Parameter)” on page 27 |
| EVENT[= <u>Y</u>] \| =<u>N</u> | “EVENT — Event History (Report Parameter)” on page 28 |
| HIST[= <u>Y</u>] \| =<u>N</u> | “HIST — History Input (Processing Parameter)” on page 29 |
| LIA \| LIBADR=address | “LIA/LIBADR — Line Interface Base Address (Selection Parameter)” on page 30 |
| LINECT=nnn | “LINECT — Line Count (Processing Parameter)” on page 31 |
| LINELEN={132 \| 165 \| 204} | “LINELEN — Line Length (Processing Parameter)” on page 32 |
| MERGE[= <u>Y</u>] \| =<u>N</u> | “MERGE — Merge Input Data Sets (Processing Parameter)” on page 33 |
| MOD=(model[,model]...) | “MOD — Processor Model (Selection Parameter)” on page 34 |
| MODE={370 \| 370XA \| <u>ALL</u> } | “MODE — Operating Mode (Selection Parameter)” on page 35 |

| SYNTAX | REFER TO |
|---|---|
| PRINT={AL \| DR \| NO \| PS \| PT \| <u>SD</u> \| SU} | "PRINT — Print reports (report parameter)" on page 36 |
| SHORT[=Y] \| =<u>N</u> | "SHORT — Print Short OBR Records (Processing Parameter)" on page 37 |
| SYMCDE={nnnn \| nnnX \| nnXX \| nXXX} | "SYMCDE — Fault Symptom Code (Selection Parameter)" on page 38 |
| SYSEXN[=Y] \| =<u>N</u> | "SYSEXN — System Exception Reports (Report Parameter)" on page 40 |
| SYSUM[=Y] \| =<u>N</u> | "SYSUM — System Summary (Report Parameter)" on page 41 |
| TABSIZE=nnnnK | "TABSIZE — Sort Table Size (Processing Parameter)" on page 42 |
| TERMN= <i>name</i> | "TERMN — Terminal Name (Selection Parameter)" on page 43 |
| THRESHOLD=(<i>xxx,yyy</i>) | "THRESHOLD — Threshold Summary (Report Parameter)" on page 44 |
| TIME={({ <i>hhmm,hhmm</i> \| <i>hhmm-hhmm</i> }) | "TIME — Time Range (Selection Parameter)" on page 45 |
| TRENDS[=Y] \| =<u>N</u> | "TRENDS — Trends Report (Report Parameter)" on page 46 |
| TYPE= <i>code</i> [<i>code</i>]... | "TYPE — Record Type (Selection Parameter)" on page 47 |
| VOLID=(<i>volser</i> [, <i>volser</i>]...) | "VOLID — Volume Identifier (Selection Parameter)" on page 49 |
| ZERO[=Y] \| =<u>N</u> | "ZERO — Clear the ERDS (Processing Parameter)" on page 50 |

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 | 9375 |
| 2064 | 2098 | 9377 |
| 2066 | 2817 | 9672 |
| 2084 | 2818 | 9673 |
| 2086 | 2827 | 9674 |
| 2094 | 2964 | |
| 2096 | 9373 | |

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 367.

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 367 for more information.

Parameter Conflicts

CPUCUA MOD THRESHOLD ZERO

CPU Parameter

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)

CPU=(XX1572.2096,X37297.2097)

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 367 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 375 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 327 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 327 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 350 in Part 3, “Product-Dependent Information,” on page 327.
- 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 CPEREPXA, 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 371 in Part 3, “Product-Dependent Information,” on page 327.

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 371 in Part 3, “Product-Dependent Information,” on page 327.

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 \geq 12 inches.

204 High-density print, 3800 printer only, paper width \geq 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:

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

OR

```
//EREPT 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 29.
- 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 | 4321 | 9081 | 9375 |
| 0125 | 0158 | 2084 | 2964 | 4331 | 9083 | 9377 |
| 0135 | 0165 | 2086 | 3031 | 4341 | 9121 | 9672 |
| 0138 | 0168 | 2094 | 3032 | 4361 | 9190 | 9673 |
| 0145 | 2003 | 2096 | 3033 | 4381 | 9221 | 9674 |
| 0148 | 2064 | 2097 | 3062 | 9021 | 9373 | |

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 51

Parameter Conflicts

DEVSER SHORT

Notes

- See Part 3, “Product-Dependent Information,” on page 327, 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=*nnnn*K

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 371 in Part 3, “Product-Dependent Information,” on page 327, 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 371.

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

EREP 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

EREP produces no trends report.

Coding

EREP 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.

TYPE Parameter

- 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" |
| "Summarizing Control Statements" on page 52 |
| "Using Control Statements with Reports" on page 53 |
| "Control Statement Syntax" on page 54 |
| "CONTROLLER Control Statement" on page 56 |
| "DASDID Control Statement" on page 58 |
| "LIMIT Control Statement" on page 64 |
| "SHARE Control Statements" on page 66 |
| "SYSIMG Control Statement" on page 71 |

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.

General Coding Rules

| OP. SYSTEM | EREPCONTROL STATEMENT GUIDELINES |
|------------|--|
| MVS | <p>The EREPCONTROL 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>EREPCONTROL 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 CPEREPXA 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 CPEREPXA. 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 CPEREPXA EXEC. <p>Refer to Entering CPEREPXA Operands in the <i>EREPCONTROL 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>EREPCONTROL 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 EREPCONTROL 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 EREPCONTROL run cannot exceed 16.

Use the SYSIMG statement to expand EREPCONTROL's capabilities.

The SYSIMG statement allows EREPCONTROL 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 71 for additional information.

Summarizing Control Statements

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

| CONTROL STATEMENTS | WHAT THEY DO | REFER TO |
|--------------------|--|---|
| CONTROLLER | Tells EREPCONTROL 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 56 |

| 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 58 |
| 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 64 |
| 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 66 |
| 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 71 |

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 shows which control statements you can use with the various EREP report parameters.

Table 3. Valid Combinations of Control Statements and Report Parameters

| 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 |
| TRENDS | | | | YES | YES |

Using Control Statements with Reports

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

| PARAMETERS | CONTROLLER | DASDID | LIMIT | SHARE (1) | SYSIMG |
|--|------------|--------|-------|--------------|--------|
| Notes: <ol style="list-style-type: none"> SHARE statements are not used for DASD devices that provide product identifiers within their sense. These PRINT options include detail summaries, which can include shared I/O devices. Do not use if data is from the ERDS. 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. 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.

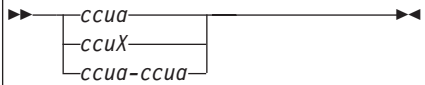

| SYNTAX | REFER TO |
|--|---|
| CONTROLLER=(cpuser.{ccua \| ccuX \| ccua-ccua}[,cpuser.{ccua \| ccuX \| ccua-ccua}]...) | "CONTROLLER Control Statement" on page 56 |
| 370: DASDID CPU=nnnnnn,CH=xx,SCU=ss,STR=ccuu,STR=ccuu,STR=ccuu,STR=ccuu,... | "DASDID Control Statement" on page 58 |
| 370XA: DASDID CPU=Xnnnnn,CHP=xx,SCU=ss,STR=ccddd,STR=ccddd,STR=ccddd,STR=ccddd,... | "DASDID Control Statement" on page 58 |
| LIMIT {dasd,dkeyword[,dkeyword]... \| tape,tkeyword[,tkeyword]... \| cpu,ckeyword[,ckeyword]...} | "LIMIT Control Statement" on page 64 |
| SHARE=(XA.[cpuser.{ccua \| ccuX \| ccua-ccua}][,XA.[cpuser.{ccua \| ccu X \| ccua-ccua}]...) | "SHARE Control Statements" on page 66 |
| SYSIMG BASESN={ALL \| sssss[,CPCTYPE=ttt][,CP=n.n...]} | "SYSIMG Control Statement" on page 71 |

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 of variables |
| | Required keyword followed by a required variable |
| | Optional sequence of variables |

Using Control Statements with Reports

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

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.

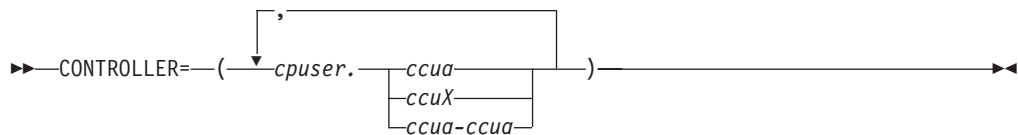
CONTROLLER control statements are:

- 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



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.

CONTROLLER Control Statements

- 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*a-*ccu*a) 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*a-*ccu*a):

| 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 66.
- 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 69 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 337 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 60 for detailed directions on preparing DASDID controls.

Indicates

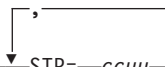
The paths from a processor through channels, storage control units and controllers to each drive.

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:

►►—DASDID CPU=—*nnnnnn*—,—CH=—*xx*—,—SCU=—*ss*—,—STR=—*ccuu*—►►



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:

▶▶—DASDID CPU=*Xnnnnn*—, —CHP=*xx*—, —SCU=*ss*—, —STR=*ccddd*—▶▶

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:

DASDID Control Statements

1. "Setting up DASDID Controls" describes how to set up DASDID control statements for your DASD subsystem.
2. "Checking Your DASDID Statements" on page 62 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 62 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.

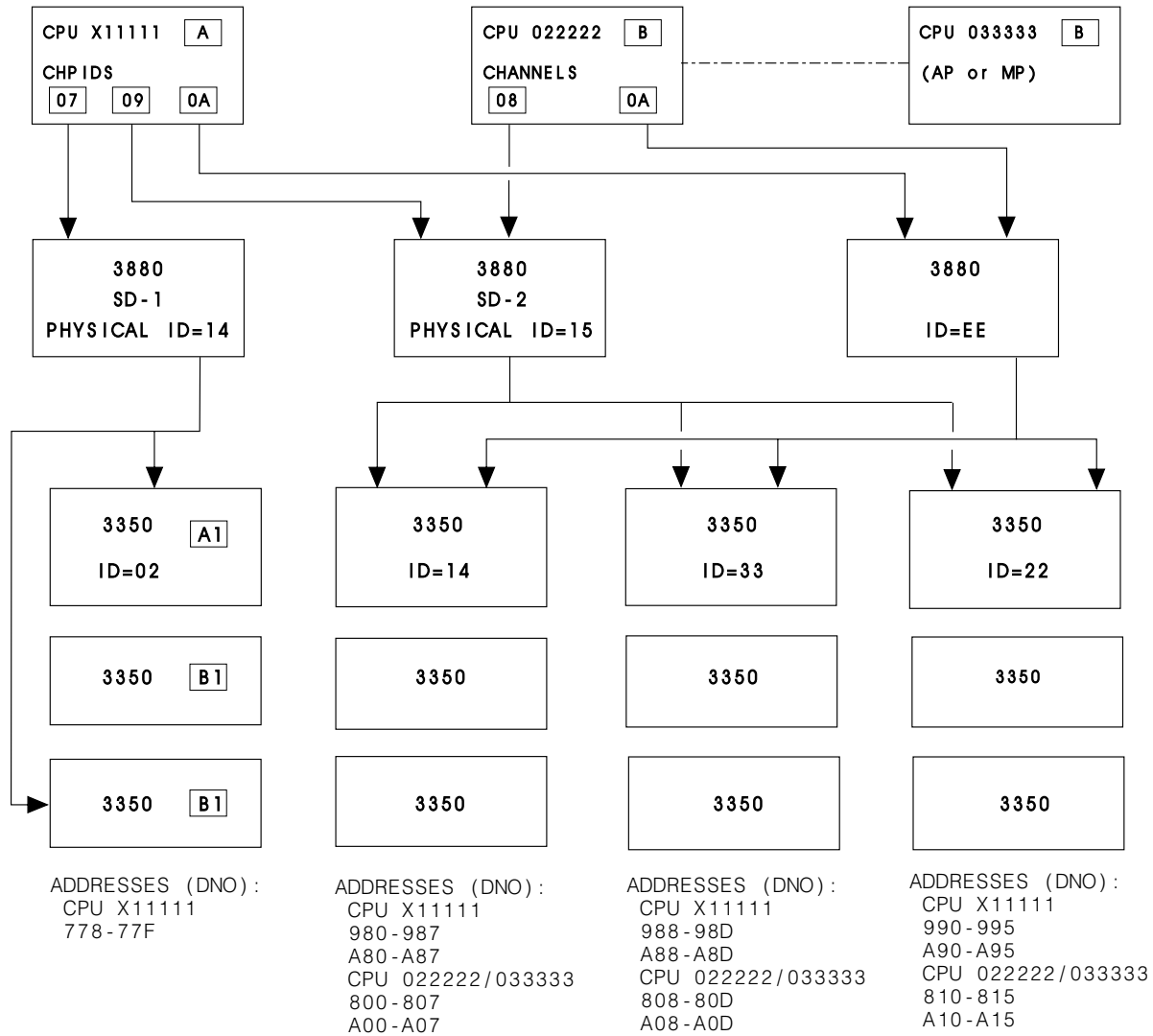
Use the following steps to set up DASDID controls for your DASD subsystem.

| STEP | ACTION | |
|------|---|---|
| 1 | Set up a diagram of your DASD configuration (see Figure 1 on page 61). | |
| | 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 61. |
| | 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) | 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. | |
| 2 | Create a comment line (as shown in Figure 2 on page 62) for each storage control unit, indicating the connected controllers and the DASD strings connected to them. For example: *SCU15 CTRL14,33,22 CPU A (980-995) B (800-815) | |
| | describes one of the storage control units shown in Figure 1 on page 61. 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: |
| | 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. | |

| STEP | ACTION |
|------|--|
| 3 | <p>Create DASDID statements according to the comment lines.</p> <p>Figure 2 on page 62 shows the completed comments and DASDID statements for the configuration shown in Figure 1.</p> |

Figure 1 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.

IFCUG005

Figure 1. DASD Configuration Diagram for DASDID Statements. DASD Configuration Diagram for DASDID Statements

Figure 2 on page 62 contains examples of the comment lines you create for each storage control unit, showing the controllers and the DASD strings connected to

DASDID Control Statements

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 86 shows the configuration chart produced for the DASDID statements in Figure 2. |

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:

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

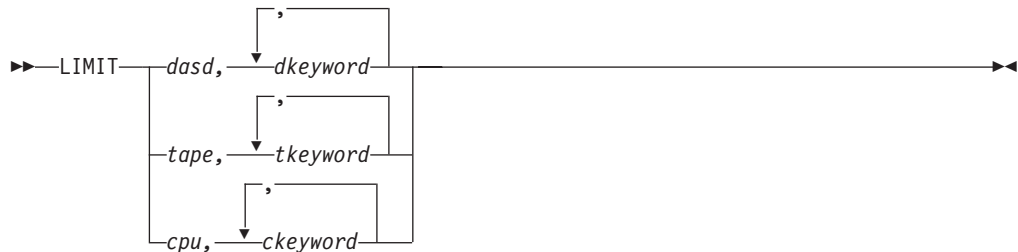
The LIMIT control statement allows you to set error thresholds for EREP to use with the subsystem exception reports:

- 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



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 327. 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 344
- For magnetic tape drives, see:
 - "LIMIT Control Statement" on page 350

- “LIMIT Control Statement” on page 354
- For processors, see “LIMIT Control Statement” on page 365

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 327.

Coding

The LIMIT statement is different for each product group. The details are in Part 3, “Product-Dependent Information,” on page 327.

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 327, for the details and examples of using LIMIT statements.

SHARE Control Statements

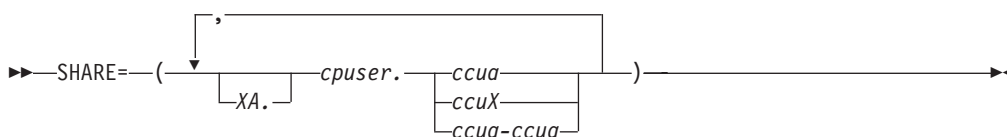
The SHARE control statement directs EREP to combine errors for any device that is shared between processors or systems. The report associates all the errors for that device with the device address rather than with the different processors.

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 69 for details.

Indicates

The paths to devices shared by processors.

Syntax



[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.ccuX|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 69 for details.
- Once you have specified a range (*cpuser.ccuX-ccuX*) 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” describes how to set up share statements for the devices in your system.
- “How EREP Assigns Numbers to CPUs” on page 69 describes how to control the numbers EREP assigns to the CPUs.

Using SHARE Statements to Combine Data in EREP Reports

Figure 3 on page 68 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.

SHARE Control Statements

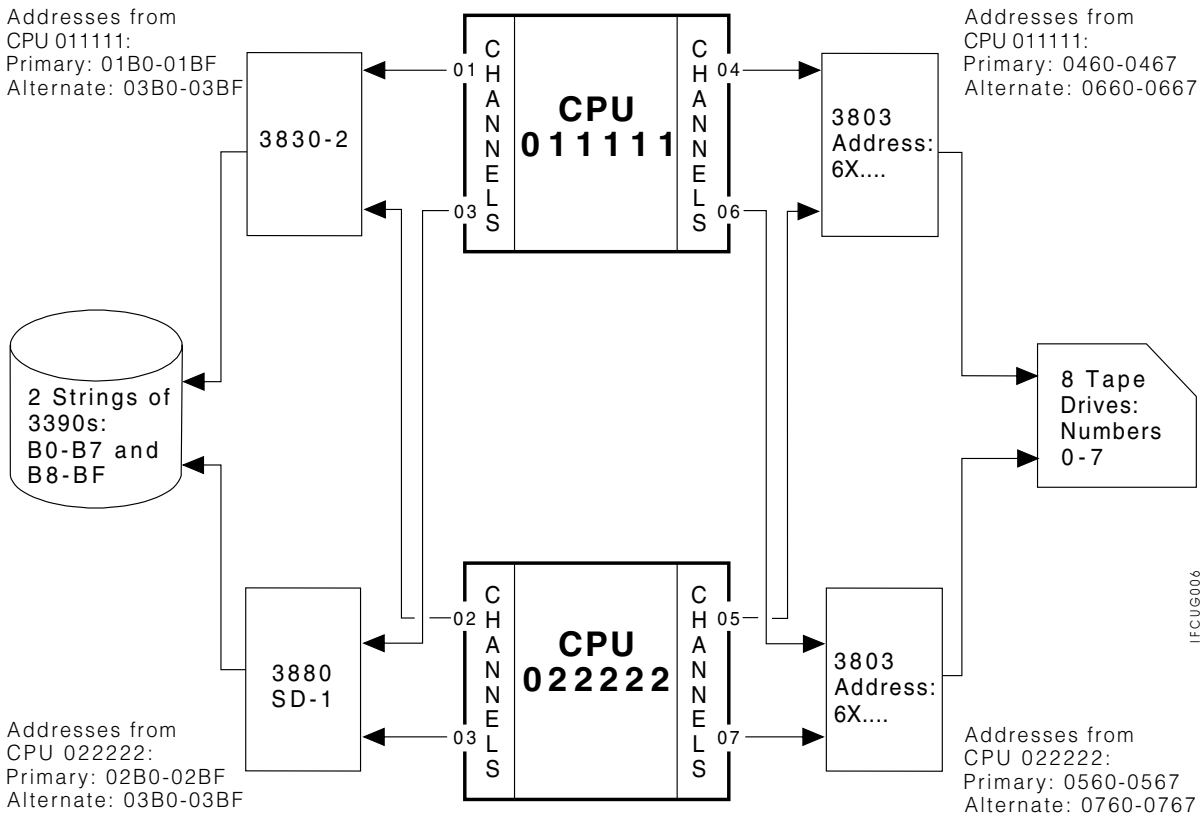


Figure 3. Configuration for SHARE Statements. An example of the kind of I/O configuration that requires SHARE statements

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 |

SHARE Control Statements

06 000007

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 367 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 '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:

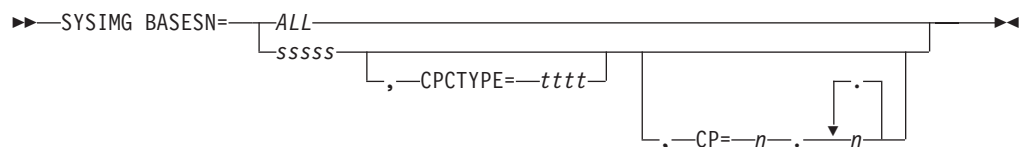
- To F for a single-image CPC
- To either F or E depending on the order of the SYSIMG control statements for a physically partitioned CPC

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



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

SYSIMG Control Statement

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 367 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" |
| "ERDS Formats" |
| "ERDS Header Record" on page 76 |
| "Time-Stamp Record for IPL Records" on page 80 |
| "Information in Error and Operational Records" on page 80 |

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
- 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 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. | | | | | | | | | | | | | | | | | | | | |
| 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: <table border="0"> <thead> <tr> <th>Code</th> <th>Device</th> </tr> </thead> <tbody> <tr> <td>04</td> <td>2302</td> </tr> <tr> <td>07</td> <td>2305 MOD II</td> </tr> <tr> <td>09</td> <td>3330 and 3333 MOD I or 3350 operating in 3330-1 compatibility mode</td> </tr> <tr> <td>0A</td> <td>3340 and 3344</td> </tr> <tr> <td>0B</td> <td>3350 native mode</td> </tr> <tr> <td>0C</td> <td>3375</td> </tr> <tr> <td>0D</td> <td>3330 and 3333 MOD II or 3350 operating in 3330-II compatibility mode</td> </tr> <tr> <td>0E</td> <td>3380</td> </tr> <tr> <td>0F</td> <td>3390</td> </tr> </tbody> </table> | 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 |
| 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... .. | 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. | | | | | | | | | | | | | | | | | | | | |
| 39(27) | .xxx xxxx 1 | SFTYBYTS | Reserved. Check byte. Each bit in this field is set to 1; the field is used to check the validity of the header-record identifier. | | | | | | | | | | | | | | | | | | | | |

Record Formats

VM Header Record for the Error Recording Area (Cylinder)

Table 5 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. |
| 4(4) | 2 | RECNEXT | 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 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 | Device code. Code indicating device type of system volume on which SYSREC resides: <table border="0"> <thead> <tr> <th>Code</th> <th>Device</th> </tr> </thead> <tbody> <tr><td>01</td><td>2311</td></tr> <tr><td>02</td><td>2301</td></tr> <tr><td>03</td><td>2303</td></tr> <tr><td>04</td><td>2302</td></tr> <tr><td>06</td><td>2305 MOD 1</td></tr> <tr><td>07</td><td>2305 MOD 2</td></tr> <tr><td>08</td><td>2314</td></tr> <tr><td>09</td><td>3330 and 3333 MOD 1 or 3350 operating in 3330-1 compatibility mode</td></tr> <tr><td>0A</td><td>3340 and 3344</td></tr> <tr><td>0B</td><td>3350 native mode</td></tr> <tr><td>0C</td><td>3375</td></tr> <tr><td>0D</td><td>3330 and 3333 MOD 11 or 3350 operating in 3330-11 compatibility mode</td></tr> <tr><td>0E</td><td>3380</td></tr> <tr><td>0F</td><td>3390</td></tr> </tbody> </table> | Code | Device | 01 | 2311 | 02 | 2301 | 03 | 2303 | 04 | 2302 | 06 | 2305 MOD 1 | 07 | 2305 MOD 2 | 08 | 2314 | 09 | 3330 and 3333 MOD 1 or 3350 operating in 3330-1 compatibility mode | 0A | 3340 and 3344 | 0B | 3350 native mode | 0C | 3375 | 0D | 3330 and 3333 MOD 11 or 3350 operating in 3330-11 compatibility mode | 0E | 3380 | 0F | 3390 |
| Code | Device | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01 | 2311 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02 | 2301 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | 2303 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04 | 2302 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 06 | 2305 MOD 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 07 | 2305 MOD 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 08 | 2314 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 09 | 3330 and 3333 MOD 1 or 3350 operating in 3330-1 compatibility mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0A | 3340 and 3344 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0B | 3350 native mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0C | 3375 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0D | 3330 and 3333 MOD 11 or 3350 operating in 3330-11 compatibility mode | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0E | 3380 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0F | 3390 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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 1... .. .1...1.x xxxx | EWMSW FRAMES | Switch byte: 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. An emergency recording has occurred. This switch is turned on when the system terminates because SYSREC is full. Machine-check and channel-check frames exist on SYSREC. 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 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. |

Record Formats

Table 7. VSE FBA SYSREC Header Record (continued)

| Offset Dec(Hex) | Size(bytes) Alignment(bits) | Field Name | Description |
|--------------------|--------------------------------|------------|--|
| 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 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): |
| | ...0 0... | | 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. |
| 2(2) | 1 | xxxSMS | Record-independent switches: |

Standard Record Header

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

| Offset Dec(Hex) | Size(bytes) Alignment(bits) | Field Name | Description |
|--------------------|--------------------------------|------------|---|
| | 1... .. 0... .. .x... .. | | More records follow. Last record. 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. |
| | ...x... .. | | XA mode bit: |
| | ...1... .. | | AIX: indicates ESA. |
| | ...1... .. | | MVS version 3 or higher (NEW FORMAT): indicates ESA. |
| | ...1... .. | | VM version 1 or higher: indicates ESA. |
| | 1... | | TIME macro used (MVS). |
| | 0... | | Time in timer units (VSE). |
| |xxx | | Reserved. |
| 3(3) | 1 | | Record-dependent data. |
| 4(4) | 1 | | Record-dependent data. |
| 5(5) | 1 | | Record-dependent data. |
| 6(6) | 1 | xxxRCDCT | Record count: |
| | xxxx ... | | Sequence number of this physical record. |
| | xxxx | | Total number of physical records in this logical record. |
| | 1 | Reserved. | |
| 7(7) | 1 | | Reserved. |
| | 1 | xxxRCDCT | Record count: |
| | xxxx ... | | Sequence number of this physical record. |
| | xxxx | | Total number of physical records in this logical record. |
| 8(8) | 8 | xxxDT | 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. |
| |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 327.

Table 9 on page 83 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 | | |
| 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 | |

Record Type Codes

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

| Description | MVS | VM | VSE |
|---|-----|----|-----|
| 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 |
| E0 through EF records | Y | Y | Y |
| F0 through FF records | Y | Y | Y |
| Note: | | | |
| 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)” |
| “Problem Determination Aids” on page 86 |
| “Missing Records” on page 89 |

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 91 for descriptions of the EREP messages. Figure 4 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 86 shows an example of the EREP messages file using the DASDID configuration chart in “DASDID Control Statement” on page 58.

Problem Determination

```

LEVEL = VERSION 3 RELEASE 5

INPUT PARAMETER STRING      HIST,ACC=N,SYSEXN

    * CPU DEFINITIONS  A=X11111 B=022222 C=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=15,STR=1400,STR=3308,STR=2210
    DASDID CPU=033333,CH=0A,SCU=15,STR=1400,STR=3308,STR=2210

DASDID CONFIGURATION CHART
CPUs - CPUS WITH IDENTICAL CONFIGURATIONS ARE IN THE SAME COLUMN
SCU - STORAGE CONTROL UNIT ID
CC,CC,CC,CC - CONTROLLER IDS ORDERED BY PHYSICAL UNIT ADDRESS
CHAN - CHANNELS WHICH CONNECT TO THE STORAGE CONTROL UNIT
UA-UA - LOWEST PHYSICAL UNIT ADDRESS OF FIRST AND LAST STRING (370 MODE)
DNO-DNO - LOWEST DEVICE NUMBER OF FIRST AND LAST STRING (370XA MODE)

      CPUs          CPUs
      X11111        022222
                       033333

SCU  CC,CC,CC,CC   CHAN  DNO-DNO   CHAN  UA-UA
-----
14   02             07  778
-----
15   14,33,22      09  980-990    08  00-10
EE   14,33,22      0A  A80-A90    0A  00-10

PARAMETER OPTIONS VALID FOR THIS EXECUTION

RECORD TYPES(MCH,CCH,OBR,SOFT,IPL,DDR,MIH,EOD,MDR,MODE ALL),
SYSTEM EXCEPTION,HISTORY
DATE/TIME RANGE - ALL
TABLE SIZE - 512K,LINE COUNT - 050
NONE

IFC221I NO SHARE CARD
IFC120I      3 RECORDS SAVED FOR SYSEXN
IFC120I      3 RECORDS THAT PASSED FILTERING

```

Figure 5. EREP Messages File (TOURIST Output): DASDID Configuration Chart

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 91 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 91. The standard problem determination procedures are described in Table 10.

Table 10. Standard Problem Determination Procedures

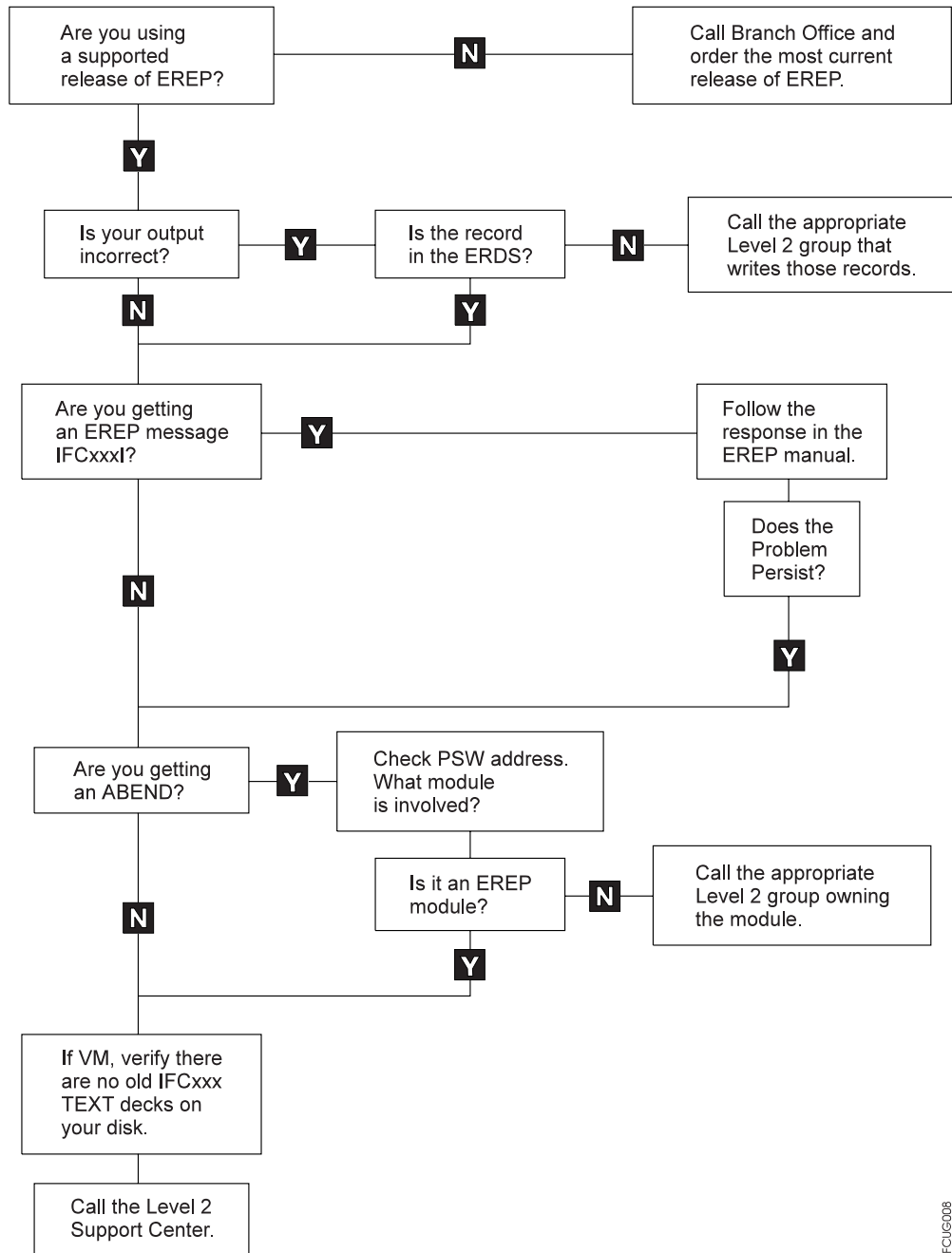
| STEP | ACTION |
|------|---|
| 1 | Save the console sheet from the operator console. In systems with a display operator console (DOC), save a copy of the hard copy log. |
| 2 | Save the system output associated with the job. |
| 3 | Save all the associated output. |
| 4 | Contact IBM for programming 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.

Problem Determination Tables



IFCUG008

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 23 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.

Problems Running EREP

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" in ascending order by the numbers.

Important: Not all messages apply to all operating systems.

Figure 6 is an example of the typical EREP messages file generated for an EREP report.

```
LEVEL = VERSION 3 RELEASE 5                EREP INFORMATIONAL MESSAGES                DATE - 032 94
INPUT PARAMETER STRING                    SYSEXN,HIST,ACC=N,DATE=(89040-93365)
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,SYSTEM EXCEPTION,HISTORY INPUT
DATE/TIME RANGE - 89040,93365/00000000:24000000
TABLE SIZE - 0024K,LINE COUNT - 050
LINE LENGTH - 132
IFC221I NO SHARE CARD
IFC120I 359 RECORDS SAVED FOR SYSEXN
IFC120I 403 RECORDS THAT PASSED FILTERING
```

Figure 6. TOURIST Output that Describes EREP Messages

IFC101I **REQUEST FOR NON-EXISTENT IO SERVICE**

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.

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 87, items 1, 2, 4.

IFC102I *ddname* **OPEN REQUESTED, ALREADY OPEN**

Explanation: (MVS and VM) 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 DD statements or FILEDEFS are correct, and rerun the job. If the problem persists, perform problem determination.

Problem determination: Table 10 on page 87, items 1, 2, 4.

IFC103I *ddname* **DD STATEMENT MISSING OR INCORRECTLY CODED**

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 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 87, items 1, 2, 4.

IFC104I *ddname* **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 87, items 1, 2, 4.

IFC105I **RECORD IGNORED, *ddname* 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 CPEREP EXEC, with the CLEAR/CLEARF operand, to reinitialize the cylinders.

Problem determination: Table 10 on page 87, items 1, 2, 4, 5.

IFC106I *ddname* **CLOSE REQUESTED, *ddname* 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 87, 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 87, 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 87, 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 87, 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 CPEREP.

**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.

IFC117I • IFC123I

Problem determination: Table 10 on page 87, 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 CPEREP with CLEAR/CLEARF to reinitialize LOGREC. Records written on SYS1.LOGREC during processing will be lost.

Problem determination: Table 10 on page 87, 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 rrrrrrrr
|RECORDS THAT PASSED
FILTERING}

Explanation: (MVS, VM, and VSE)

1. Indicates the number of records that EREP used to generate the requested report; rrrrrrrr 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 CPEREP 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 *nnnnnnnnnn* 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 87, 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 - *parameter text*

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 32.

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

IFC135I • IFC143I

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 87, 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 87, 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 *nnnnnnnnnnnn*

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.

IFC170I • IFC178I

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 87, 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 87, 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 87, 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 87, 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 87, 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 87, 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 *text*
data ...

Explanation: (VSE) This message follows IFC182I 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 87, items 1, 2, 5.

IFC185I {GETVIS|GETVCE} FAILED FOR *ttttttt*

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 *nnnnnn* 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 *nnnnnn* 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 87, 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 - *parameter text*

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; *logical unit* {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 87, 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 87, 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 87, 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 87, 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 87, 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 87, items 3 and 4

IFC218I 303X DEFAULT SUMMARY TABLE
MODULE *nnnnnnnnnnnn* USED

Explanation: (MVS, VM, and VSE) EREP uses default module *nnnnnnnnnnnn* 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 87, items 3 and 4.

IFC219I 303X SUMMARY MODULE
nnnnnnnnnnnn NOT FOUND

Explanation: (MVS, VM, and VSE) EREP cannot find the selected *nnnnnnnnnnnn* 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 *mmmmmmmmmm*, 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=*mmmmmmmmmm* | PROC *ppppppppp*}; 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 *mmmmmmmmmm* FOR MODULE *xxxxxxx*; LMAT OVERFLOW—CRITICAL ERROR

Explanation: (MVS, VSE, and VM) Module *xxxxxxx* requested, via the IFCLoad or IFCCall macro, that EREP load module *mmmmmmmmmm*. 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 *mmmmmmmmmm*; 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 *mmmmmmmm* 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

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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 *mmmmmmmmmm* 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 *mmmmmmmmmm* 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 *mmmmmmmmmm* 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 *mmmmmmmmmm* 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 *mmmmmmmmmm* 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 *mmmmmmmmmm* 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 *mmmmmmmmmm* 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 *mmmmmmmmmm* 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 *mmmmmmmmmm* 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 *mmmmmmmmmm* 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 *mmmmmmmmmm*

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 *mmmmmmmmmm* 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 83.

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 *mmmmmmmmmm* 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 83.

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 *mmmmmmmmmm*
 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 42 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 111 and "MDR Codes" on page 114.

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
"mmmmmmmm", GETVIS FAILURE,
SIZE=' 'X.**

Explanation: (VSE) This error message indicates that the virtual storage request made for module *mmmmmmmmmm* 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.

Message Format

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" |
| "OBR Codes" on page 111 |
| "MDR Codes" on page 114 |

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 Byte 0 1... .. .xxx xxxx Byte 1 Byte 2 Byte 3 | ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ ⋮ | Device type for the device associated with the error. Byte 1 contains a control unit ID. Reserved. Control unit ID if byte 0(bit 0)=1. Otherwise system dependent data unused by EREP. Device class code. 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 |
| 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 | 082D = 1419 | 1013 = 5080 | 2183 = 3995 | 4102 = BCTC |
| 0802 = 2540DD | 082E = 1419 | 1014 = BA00 | 4000 = 7770 | 4105 = OSA |
| 0803 = 1442 | 082F = 2495 | 2001 = 2311 | 4001 = 2702 | 4106 = OSAD |
| 0804 = 2501 | 0830 = 3213 | 2002 = 2301 | 4002 = 2701 | 4107 = IQD |
| 0805 = 2520 | 0831 = 1017 | 2003 = 2303 | 4003 = 2703 | 4120 = FCTC |
| 0806 = 3505 | 0832 = 1018 | 2005 = 2321 | 4004 = 2955 | 4122 = 3995 |
| 0807 = 3525 | 0833 = 3210 | 2006 = 2305 | 4005 = 3705 | 4201 = 1030 |
| 0808 = 1403 | 0834 = 3215 | 2007 = 2305 | 4006 = 3705 | 4202 = 1050 |
| 0809 = 3211 | 0835 = 1255 | 2008 = 2314 | 4009 = 3704 | 4203 = 1060 |
| 080A = 1443 | 0836 = 1255 | 2009 = 3330 | 400A = 3968 | 4204 = 2740 |
| 080B = 3203 | 0837 = 1270 | 200A = 3340 | 4011 = 2702 | 4205 = 2740 |
| 080C = 3525 | 0838 = 1270 | 200B = 3350 | 4013 = 2703 | 4206 = 2741 |
| 080D = 3262 | 0839 = 2596 | 200C = 3375 | 4014 = 7772 | 4207 = 226T |
| 080E = 3800-01 | 083A = SWCH | 200D = 3330 | 4015 = 3705 | 4208 = 105T |
| 080F = AFP1 | 083D = 7443 | 200E = 3380-A,B | 4021 = 2702 | 4209 = 2760 |
| 0810 = 2671 | 0840 = 3890 | 201E = 3380-D | 4022 = 2701 | 420A = 83B3 |
| 0811 = 4245 | 0841 = 3886 | 2021 = 3380-J | 4023 = 2703 | 420B = 115A |
| 0812 = 1012 | 0842 = 3850 | 2023 = 3380-K | 4025 = 3705 | 420F = 1130 |
| 0813 = 4248 | 0844 = 3540 | 2024 = 3390-03 | 4031 = 2702 | 4210 = 2020 |
| 0813 = 6262 | 0846 = 2560 | 2026 = 3390-01 | 4032 = 2701 | 4211 = 2780 |
| 0814 = 2947 | 0847 = 3504 | 2027 = 3390-02 | 4033 = 2703 | 4212 = 2770 |
| 0816 = 3890 | 0848 = 5425 | 2028 = 9345-01 | 4035 = 3705 | 4213 = 2265 |
| 0817 = 3886 | 0849 = 3203 | 2029 = 9345-02 | 4041 = 2702 | 4214 = 2930 |
| 0818 = 2495 | 084C = 3838 | 202E = 3380-E | 4042 = 2701 | 4215 = 2972 |
| 0819 = 3895 | 084D = 5203 | 2031 = 3395-151 | 4043 = 2703 | 4216 = 327T |
| 081A = 1285 | 084E = 5203 | 2032 = 3390-09 | 4045 = 1060 | 4217 = 2970 |
| 081B = 1287 | 0880 = 5424 | 2033 = 9392-02 | 4051 = 2702 | 4218 = 3735 |
| 081C = 1288 | 0882 = 3848 | 2034 = 9392-01 | 4052 = 2701 | 4219 = 3945 |
| 081D = 1419 | 08A0 = 3800-03 | 2035 = 2105 | 4053 = 2703 | 421A = 2790 |
| 081E = 1419 | 1001 = 1015 | 2036 = 3995-153 | 4061 = 2702 | 421B = 3670 |
| 081F = 1275 | 1002 = 2250 | 2037 = 9395-01 | 4062 = 2701 | 4420 = 3700 |
| 0820 = 1052 | 1003 = 226D | 2038 = 9395-02 | 4063 = 2703 | 8001 = 2400 |
| 0821 = 2150 | 1004 = 105D | 203A = 9392-03 | 4071 = 2702 | 8003 = 3400 |
| 0822 = 3210 | 1005 = 2280 | 203B = IDSK | 4072 = 2701 | 8004 = 3420 |
| 0823 = 3215 | 1006 = 2282 | 203C = 2107 | 4073 = 2703 | 8005 = 3410 |
| 0824 = 2956 | 1007 = 3278 | 203D = 1750 | 4081 = 2702 | 8006 = 8809 |
| 0825 = 2956 | 1008 = 3066 | 2101 = 3310 | 4082 = 2701 | 8007 = 3430 |
| 0826 = 2956 | 1009 = 327D | 2102 = 3370 | 4083 = 2703 | 8008 = 7340 |
| 0827 = 2956 | 100A = 3284 | 2105 = 3370 | 4091 = 2702 | 8009 = 9347 |
| 0828 = 2956 | 100B = 3286 | 2106 = 9335 | 4092 = 2701 | 800A = 3422 |
| 0829 = 1419 | 100C = 3158 | 2107 = 9332 | 4093 = 2703 | 800C = 3424 |
| 082A = 1275 | 100D = 3036 | 2108 = 9313 | 40F1 = 3791 | 800E = 9348 |
| 082B = 1275 | 100E = 3138 | 2111 = 9336 | 4100 = CTCA | 8080 = 3480 |
| 082C = 1275 | 100F = 3148 | 2112 = 0671 | 4101 = SCTC | 8081 = 3490 |
| | | 2180 = 9246 | | 8083 = 3590 |
| | | 2181 = 9247 | | 8084 = 3591/3490 EMU |
| | | 2182 = 3995 | | 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 |
| 0671 = 2112 | 2400 = 8001 | 2780 = 4211 | 3380-E = 202E | 3995 = 2182 |
| 1012 = 0812 | 2495 = 0818 | 2790 = 421A | 3390-01 = 2026 | 3995 = 2183 |
| 1015 = 1001 | 2495 = 082F | 2930 = 4214 | 3390-02 = 2027 | 3995 = 4122 |
| 1017 = 0831 | 2501 = 0804 | 2947 = 0814 | 3390-03 = 2024 | 4245 = 0811 |
| 1018 = 0832 | 2520 = 0805 | 2955 = 4004 | 3390-09 = 2032 | 4248 = 0813 |
| 1030 = 4201 | 2540DD = 0801 | 2956 = 0824 | 3400 = 8003 | 5080 = 1013 |
| 105D = 1004 | 2540DD = 0802 | 2956 = 0825 | 3410 = 8005 | 5203 = 084D |
| 105T = 4208 | 2560 = 0846 | 2956 = 0826 | 3420 = 8004 | 5203 = 084E |
| 1050 = 4202 | 2596 = 0839 | 2956 = 0827 | 3422 = 800A | 5424 = 0880 |
| 1052 = 0820 | 2671 = 0810 | 2956 = 0828 | 3424 = 800C | 5425 = 0848 |
| 1060 = 4045 | 2701 = 4002 | 2970 = 4217 | 3430 = 8007 | 6262 = 0813 |
| 1060 = 4203 | 2701 = 4022 | 2972 = 4215 | 3480 = 8080 | 7340 = 8008 |
| 1130 = 420F | 2701 = 4032 | 3036 = 100D | 3490 = 8081 | 7443 = 083D |
| 115A = 420B | 2701 = 4042 | 3066 = 1008 | 3504 = 0847 | 7770 = 4000 |
| 1255 = 0835 | 2701 = 4052 | 3138 = 100E | 3505 = 0806 | 7772 = 4014 |
| 1255 = 0836 | 2701 = 4062 | 3148 = 100F | 3525 = 0807 | 83B3 = 420A |
| 1270 = 0837 | 2701 = 4072 | 3158 = 100C | 3525 = 080C | 8809 = 8006 |
| 1270 = 0838 | 2701 = 4082 | 3203 = 0849 | 3540 = 0844 | 9246 = 2180 |
| 1275 = 081F | 2701 = 4092 | 3203 = 080B | 3590 = 8083 | 9247 = 2181 |
| 1275 = 082A | 2702 = 4001 | 3210 = 0822 | 3590 = 8085 | 9313 = 2108 |
| 1275 = 082B | 2702 = 4011 | 3210 = 0833 | 3591 = 8084 | 9332 = 2107 |
| 1275 = 082C | 2702 = 4021 | 3211 = 0809 | 3670 = 421B | 9335 = 2106 |
| 1285 = 081A | 2702 = 4031 | 3213 = 0830 | 3700 = 4420 | 9336 = 2111 |
| 1287 = 081B | 2702 = 4041 | 3215 = 0823 | 3704 = 4009 | 9345-01 = 2028 |
| 1288 = 081C | 2702 = 4051 | 3215 = 0834 | 3705 = 4005 | 9345-02 = 2029 |
| 1403 = 0808 | 2702 = 4061 | 3262 = 080D | 3705 = 4006 | 9347 = 8009 |
| 1419 = 081D | 2702 = 4071 | 327D = 1009 | 3705 = 4015 | 9348 = 800E |
| 1419 = 081E | 2702 = 4081 | 327T = 4216 | 3705 = 4025 | 9392-01 = 2034 |
| 1419 = 082D | 2702 = 4091 | 3278 = 1007 | 3705 = 4035 | 9392-02 = 2033 |
| 1419 = 082E | 2703 = 4003 | 3284 = 100A | 3735 = 4218 | 9392-03 = 203A |
| 1419 = 0829 | 2703 = 4013 | 3286 = 100B | 3791 = 40F1 | 9395 = 2037 |
| 1442 = 0803 | 2703 = 4023 | 3310 = 2101 | 3800-01 = 080E | 9395 = 2038 |
| 1443 = 080A | 2703 = 4033 | | 3800-03 = 08A0 | |
| 1750 = 203D | | | 3838 = 084C | |
| 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

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 code = device type | MDR code = device type |
|--------------------------|------------------------|
| 01 = 3330 | 23 = 3380 MOD K |
| 02 = 2305 MOD 2 | 24 = 3390-03 |
| 03 = 3277 | 25 = 3725 |
| 03 = 3286 | 26 = 3390-01 |
| 03 = 3284 (non-NCP mode) | 27 = 3390-02 |
| 04 = 3211 | 28 = 9345-01 |
| 05 = 3705 (non-NCP mode) | 29 = 9345-02 |
| 06 = 3670 | 2A = 0671 |
| 07 = 3168 | 2B = 9336 |
| 08 = 2715 | 2E = 3720 |
| 09 = 3340 | 2F = 3745 |
| 09 = 3344 | 30 = NMVT |
| 0A = 3330 MOD 11 | 31 = 3995-151 |
| 0B = 3277 | 32 = 3390-09 |
| 0C = 3800 MOD 1 | 33 = 9392-02 |
| 0D = 3895 | 34 = 9392-01 |
| 0E = 3850 | 35 = 2105 |
| 0F = IGAR Diskette | 36 = 3995-153 |
| 10 = 3203 | 37 = 9395 |
| 10 = 3289 | 38 = 9395 |
| 11 = 3350 | 3A = 9392-03 |
| 12 = 2305 MOD 1 | 3B = IDSK |
| 13 = 3277 (NCP mode) | 3C = 2107 |
| 14 = 3380 Mod A,B | 3D = 1750 |
| 15 = 3705 (NCP mode) | 3E = 2107 EVA mod A |
| 16 = 3310 | 40 = 8809 |
| 17 = 3370 MOD 1 | 41 = 3480 |
| 18 = 3375 | 42 = 3490 |
| 19 = 9313 | 44 = 3424 |
| 1A = 3370 MOD 2 | 45 = 9348 |
| 1B = 3380 MOD E | 46 = 3590 |
| 1C = 3380 MOD D | 47 = 3591/3490 EMU |
| 1D = 9335 | 48 = 3590/3490 EMU |
| 1E = 9332 | 50 = 3995 |
| 1F = 9347 | F0 = 2946 |
| 20 = 3800 MOD 3,8 | F1 = 2948 |
| 21 = 3380 MOD J | F3 = 2703 |

Note: MDR codes are *left* of the equal signs; device types are *right* 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 | 3490 | = 42 |
| 1750 | = 3D | 3590 | = 46 |
| 2105 | = 35 | 3591/3490 EMU | = 47 |
| 2107 | = 3C | 3590/3490 EMU | = 48 |
| 2107 EVA mod A | = 3E | 3670 | = 06 |
| 2305 MOD 1 | = 12 | 3705 (non-NCP mode) | = 05 |
| 2305 MOD 2 | = 02 | 3705 (NCP mode) | = 15 |
| 2703 | = F3 | 3720 | = 2E |
| 2715 | = 08 | 3725 | = 25 |
| 2946 | = F0 | 3745 | = 2F |
| 2948 | = F1 | 3800 MOD 1 | = 0C |
| 3168 | = 07 | 3800 MOD 3,8 | = 20 |
| 3203 | = 10 | 3850 | = 0E |
| 3211 | = 04 | 3895 | = 0D |
| 3277 | = 03 | 3995 | = 50 |
| 3277 | = 0B | 3995-151 | = 31 |
| 3277 (NCP mode) | = 13 | 3995-153 | = 36 |
| 3284 (non-NCP mode) | = 03 | 9336 | = 2B |
| 3286 | = 03 | 8809 | = 40 |
| 3289 | = 10 | 9313 | = 19 |
| 3310 | = 16 | 9332 | = 1E |
| 3330 | = 01 | 9335 | = 1D |
| 3330 MOD 11 | = 0A | 9345-01 | = 28 |
| 3340 | = 09 | 9345-02 | = 29 |
| 3344 | = 09 | 9347 | = 1F |
| 3350 | = 11 | 9348 | = 45 |
| 3370 MOD 1 | = 17 | 9392-01 | = 34 |
| 3370 MOD 2 | = 1A | 9392-02 | = 33 |
| 3375 | = 18 | 9392-03 | = 3A |
| 3380 MOD A,B | = 14 | 9395-01 | = 37 |
| 3380 MOD J | = 21 | 9395-02 | = 38 |
| 3380 MOD K | = 23 | IDSK | = 3B |
| 3380 MOD E | = 1B | IGAR Diskette | = 0F |
| 3380 MOD D | = 1C | NMVT | = 30 |
| 3390-01 | = 26 | | |
| 3390-02 | = 27 | | |
| 3390-03 | = 24 | | |
| 3390-09 | = 32 | | |
| 3424 | = 44 | | |
| 3480 | = 41 | | |

Note: Device types are *left* of the equal signs; MDR codes are *right* of the equal signs.

MDR Codes

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 119 |
| Chapter 9, "Trends Report," on page 127 |
| Chapter 10, "Event History Report," on page 135 |
| Chapter 11, "System Exception Report Series," on page 141 |
| Chapter 12, "Threshold Summary Report," on page 239 |
| Chapter 13, "Detail Edit and Summary Reports," on page 245 |

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 69 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 71 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 |

System Summary Report Part 1

| 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 121 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 66 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 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 123 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 | PAGE |
|-------------------------------|--|
| System Summary Report, Part 1 | “System Summary Report, Part 1” |
| System Summary Report, Part 2 | “System Summary Report, Part 2” on page 123 |

System Summary Report, Part 1

S Y S T E M S U M M A R Y
(PART 1)
CPU/STORAGE/SCP

REPORT DATE 012 09
PERIOD FROM 230 06
TO 263 06

| IPL | TOTAL | CPU-0 | CPU-1 | CPU-2 | CPU-3 | CPU-4 | CPU-5 | CPU-6 | CPU-7 | CPU-8 | CPU-9 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 11 | 8 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |

System Summary Report Part 2

MACHINE CHECK

| | | | | | | | | | | | |
|-----------------|-----|----|---|---|---|---|---|---|---|---|----|
| RECOVERABLE | 163 | 75 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88 |
| NON-RECOVERABLE | 0 | 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)
SUBCHANNEL/CHANNEL

REPORT DATE 012 09
PERIOD FROM 230 06
TO 263 06

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 |

System Summary Report Part 2

| | | | | | | | | | | | |
|---------------------|-------|-------|----|------|----|----|-------|-----|------|------|-------|
| 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

SYSTEM SUMMARY
(PART 2)
I/O SUBSYSTEM

REPORT DATE 012 09
PERIOD FROM 230 06
TO 263 06

| CONS +UR | TOTAL | | PATH | CPU-0 | | CPU-1 | | CPU-2 | | CPU-3 | | CPU-4 | | CPU-5 | | CPU-6 | | CPU-7 | | CPU-8 | | CPU-9 | |
|--------------------|-------|------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|-------|------|
| | PERM | TEMP | | PERM | TEMP | PERM | TEMP | PERM | TEMP | PERM | TEMP | PERM | TEMP | PERM | TEMP | PERM | TEMP | PERM | TEMP | PERM | TEMP | PERM | TEMP |
| ***** | | | | | | | | | | | | | | | | | | | | | | | |
| 3525 000B | 1 | 0 | 0 | 1 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3800 000F | 2 | 1 | 0 | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3505 0012 | 1 | 2 | 0 | 1 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3213 0016 | 3 | 0 | 0 | 3 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 02C7 0200 | 2 | 0 | 0 | 2 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| AFP1 0390 | 1 | 0 | 0 | 1 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1403 041E | 1 | 0 | 0 | 1 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3800 0803 | 4 | 3 | 0 | 4 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 0803 | 1 | 0 | 0 | - | - | - | - | - | - | 1 | 0 | - | - | - | - | - | - | - | - | - | - | - | - |
| 3800 0B09 | 0 | 1 | 0 | - | - | - | - | - | 0 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3800 0B17 | 1 | 0 | 0 | - | - | - | - | - | 1 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 0B17 | 1 | 0 | 0 | - | - | - | - | - | - | 1 | 0 | - | - | - | - | - | - | - | - | - | - | - | - |
| DASD ***** | | | | | | | | | | | | | | | | | | | | | | | |
| 3350 0100 | 1 | 0 | 0 | - | - | - | - | - | 1 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3350 010C | 1 | 0 | 0 | - | - | - | - | - | - | 1 | 0 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2305 01CX | 4 | 0 | 0 | 4 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3340 03E8 | 0 | 1 | 0 | 0 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2314 0530 | 4 | 0 | 0 | 4 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3310 0597 | 0 | 4096 | 0 | 0 | 4096 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 9246 0ACX | 0 | 2 | 0 | 0 | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1 | | | | | | | | | | | | | | | | | | | | | | | |
| 3990-SSID 00C2 | 0 | 0 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 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 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DASD STRINGS ***** | | | | | | | | | | | | | | | | | | | | | | | |
| 3422 015X | 1 | 0 | 0 | 1 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3400 0180 | 1 | 4 | 0 | 1 | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

System Summary Report Part 2

| | | | | | | | | | | | | | | | | | | | | | |
|-----------|----|-----|---|----|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 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

| TAPE | PERM | TEMP | PATH | CPU-0 PERM | CPU-0 TEMP | CPU-1 PERM | CPU-1 TEMP | CPU-2 PERM | CPU-2 TEMP | CPU-3 PERM | CPU-3 TEMP | CPU-4 PERM | CPU-4 TEMP | CPU-5 PERM | CPU-5 TEMP | CPU-6 PERM | CPU-6 TEMP | CPU-7 PERM | CPU-7 TEMP | CPU-8 PERM | CPU-8 TEMP | CPU-9 PERM | CPU-9 TEMP |
|-----------|------|------|------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 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 | | | | | | | | | | | | | | | | | | | | | | | |
| CNTRLR | 1 | 0 | 0 | 1 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3705 0036 | | | | | | | | | | | | | | | | | | | | | | | |
| CNTRLR | 3 | 0 | 0 | 3 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3791 0319 | | | | | | | | | | | | | | | | | | | | | | | |
| CNTRLR | 0 | 3 | 0 | 0 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3705 0581 | | | | | | | | | | | | | | | | | | | | | | | |
| LINES | 1 | 0 | 0 | 1 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 3705 06FF | | | | | | | | | | | | | | | | | | | | | | | |
| CNTRLR | 0 | 3 | 0 | 0 | 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| LINES | 0 | 1 | 0 | 0 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2703 0740 | | | | | | | | | | | | | | | | | | | | | | | |
| CNTRLR | 1 | 0 | 0 | 1 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 7770 0740 | | | | | | | | | | | | | | | | | | | | | | | |
| CNTRLR | 6 | 0 | 0 | 6 | 0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

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 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.

System Summary Report Part 2

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 120. |

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" |
| Trends Report, Part 2 | "Trends Report, Part 2" on page 131 |

Trends Report, Part 1

```

TRENDS REPORT                REPORT DATE 071 97
(PART 1)                     PERIOD FROM 041 97
CPU/CHANNEL/STORAGE/SCP      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  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  0  1

```


Trends Report

CPU F 0 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

TRENDS REPORT
(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

Trends Report

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 |
| SOFTWARE | 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 |
| SOFTWARE | 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 |
| SOFTWARE | 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 |
| SOFTWARE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

CPU 4

| | | | | | | | | | | | | | | | | | |
|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0 |
| SOFTWARE | 0 | 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 | 0 |
| SOFTWARE | 0 | 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

TRENDS REPORT 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 | 0 | 1 |
| 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 |

Trends Report

```

DEVICE FF.X-16
PERM 0 0 0 0 0 0 4 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
DEVICE FF.X-17
PERM 2 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
CNTRL XX-0D-XX
PERM 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
DEVICE 01.X-11
PERM 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
DEVICE SD.02
PERM 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
SD 10114
PERM 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

```

```

TAPE
3400 4
0180 2
PERM 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 4
0181 2 5
PERM 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 0 0
TEMP 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
TEMP 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
TEMP 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 2
TEMP 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 1
TEMP 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 3
TEMP 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
TEMP 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 280 0

```

TRENDS REPORT
(PART 2)
I/O SUBSYSTEM

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

TP CNTRL
3705
00FE C
CNTRLR
PERM 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
0120 F
LINES
PERM 0 0 0 0 0 0 0 0 0 0 0 1 1 0 0 0 0
TEMP 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 | 0 | 1 | 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 58 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.

Trends Report

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 136 |
| 2 | Is the event history. It provides information for up to 256 processors (CPUs). | Figure 8 on page 137 |
| 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 69 for an explanation of the identifiers. | Figure 9 on page 138 |

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 71 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:                   CUA  DEVT                                VOLUME/TERM NAME
MIH:                   CUA  DEVT  SCUA                CSID                VOLUME/TERM NAME
DDR:                   CUA  DEVT                                VOLUME/TERM NAME
OBRDMT, OBREOD:       CUA  DEVT                                VOLUME/TERM NAME
OBRPRM, OBRTMP, OBRPTH: CUA  DEVT      CMD CSW  SENSE  04 06 08 10 12 14 16 18 20 22 VOLUME  SEEK  SD CT
OBRDPA:               CUA  DEVT      CMD CSW  SPID                SNID
SFTLST:               REASON  PSW-MCH /PROG-EC  RYRYXIT  COMP/MOD  CSECTID  ERROR-ID
IPL:                   SSYS ID  REASON
MDRDAS:               CUA  DEVT                SENSE  04 06 08 10 12 14 16 18 20 22 VOLUME                SD CT

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:                   DNO  DEVT  CHP                                VOLUME/TERM NAME
MIH:                   DNO  DEVT  CHP  REASON                CSID                VOLUME/TERM NAME
DDR:                   DNO  DEVT                                VOLUME/TERM NAME
OBRDMT, OBREOD:       DNO  DEVT  CHP                                VOLUME/TERM NAME
OBRPRM, OBRTMP, OBRPTH: DNO  DEVT  CHP  CMD SCSW  SENSE  04 06 08 10 12 14 16 18 20 22 VOLUME  SEEK  SD CT
OBRDPA:               DNO  DEVT  CHP  CMD SCSW  SPID                SNID
SFTLST:               REASON  PSW-MCH /PROG-EC  RYRYXIT  COMP/MOD  CSECTID  ERROR-ID
IPL:                   SSYS ID  REASON
MDRDAS:               DNO  DEVT  CHP                SENSE  04 06 08 10 12 14 16 18 20 22 VOLUME                SD CT

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 Report

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 | | | | CSECTID | ERROR-ID | VOLUME | SEEK | SD CT | |
|------|---------|--------|----|----------|--------|-----|---------|----------|------------------|---------------------------------|--------------------------|----------|----------------------|----------------------|----------|----------|----------|----------------------|------------|
| | | | | | | | | PSW-MCH | /PROG-EC | RCYRYXIT | COMP/MOD | 12 | 14 | | | | | | 16 | 18 | 20 | 22 |
| | | | * | DNO | DEVT | CMD | CSW | SENSE | 04 | 06 | 08 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | |
| | | | | | CRW | CHP | SCSW | | | | | | | | | | | | |
| 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 | | | | LOST RECORD SUMMARY - COUNT= 10 | | | | N/A | | | | | |
| 14 | 30 | 22 | 51 | *MASTER* | SFTMCH | 0C | | 900F3000 | 040C00008105E932 | IEAVEDSR | IEAVEDS0 | IEAVEDS0 | IEAVEDS0 | 0019004100010007F7EE | | | | | |
| DATE | 042 | 97 | | | | | | | | | | | | | | | | | |
| 00 | 20 | 32 | 34 | N/A | MCH | 09 | | | | 070E000000000000 | | | | | | | | 3D8F0000000000000000 | |
| 02 | 31 | 48 | 38 | PACAH210 | OBRTPM | 11 | 0239 | 3390 | | 07 0200 | 10000600 | 3932C143 | 00030000 | 01050404 | 22101842 | 11440C01 | 00000F01 | 0C000000 | AH210 |
| 04 | 12 | 59 | 12 | VARY | OBRDPA | 0F | 0A82 | 3380 | 40 | AF 2210 | 000002112830849718 | CEFO | 00000000000000000000 | | | | | | |
| 08 | 59 | 03 | 32 | *MASTER* | CCH | 0D | 0063 | 3277 | | | 0100000000020080 | | | | | | | | CSID=00,00 |
| 09 | 29 | 08 | 68 | *MASTER* | OBRTPM | 02 | 0880 | 3590 | 1C | 04 0200 | 004A8C5A | 80100050 | 0004FF00 | 00000000 | 00000000 | 00000088 | 20042300 | 00011010 | |
| 12 | 07 | 30 | 59 | | MCH | 05 | | | | | 070E000000000000 | | | | | | | | N/A |
| 14 | 27 | 10 | 15 | N/A | MDR | 0B | 0884 | 3590 | 29 | | | | | | | | | | |
| 20 | 10 | 52 | 49 | T2SRTMRG | OBR | 03 | 04BC | 3490 | 16 | 02 0400 | | | | | | | | | T2SRT1 |
| 20 | 32 | 10 | 71 | | DDR | 0A | 0580 | 3400 | | TO 0581 | 3400 | | | | | | | | F22011 |
| 22 | 02 | 80 | 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 | | | | | | | | VMRESA |
| 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 | EREPIST | MIH | 06 | 03B2 | 3380 | NA | START | PENDING | | | | | | | | CATLOG |
| 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 138.)

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 | CP U-6 | CPU-7 | CPU-8 | CPU-9 | CPU-A | CPU-B | CPU-C | CPU-D | CPU-E | CPUS>E |
|------------------------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| 1 | | | | | | | | | | | | | | | | | |
| 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 |
| OBRDPA | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| OBR | 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 |
| BUFFER OFFLOAD | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 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 | CP U-6 | CPU-7 | CPU-8 | CPU-9 | CPU-A | CPU-B | CPU-C | CPU-D | CPU-E | CPUS>E |
|-------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| START PENDING | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MISSING INTERRUPT XA 2 | 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 |

| RECORD TYPES | TOTAL | CPU-0 | CPU-1 | CPU-2 | CPU-3 | CPU-4 | CPU-5 | CP U-6 | CPU-7 | CPU-8 | CPU-9 | CPU-A | CPU-B | CPU-C | CPU-D | CPU-E | CPUS>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 |
| 3 | | | | | | | | | | | | | | | | | |
| 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 9. Event History Summary

- 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.

Event History Report

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 143 |
| A subsystem exception report series | "Examples of the Subsystem Exception Report Series" on page 149 |

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 327.

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 |
| MCH | CPUs |
| 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 10 on page 144 |
| System Error Summary, Part 2 | “System Error Summary, Part 2” on page 147 |

Examples of the System Error Summary

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 10 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  TIME SINCE
      TYPE      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
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  JOBL0ADA 0233/3380 INTERFACE CONTROL CHECK  CONTROL
***** 2 DUPLICATE LINES WITHIN THIS TIME INTERVAL HAVE NOT BEEN PRINTED 5
13:14:33:09  JOBL0ADA 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  TIME SINCE
      TYPE      LAST ACTIVE  REASON PROBABLE CAUSE

DATE 042/97
08:30:06:49  TERM-XA
DATE 043/97
05:03:54:33  TERM-XA
DATE 049/97
11:10:00:07  TERM-XA
22:43:27:00  TERM-XA
EOD  NORMAL END OF DAY PROCESSING
EOP  IOS ERROR
```

Figure 10. 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

Examples of the System Error Summary

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 |
| 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

Examples of the System Error Summary

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” 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 | | | |
|----------------------------------|---|--------------------|-------------|-----------------------|--------------|-----------|---------------------------------|-----------------------|--|
| TIME | JOBNAME | CPU | PHYSICAL ID | PHYSICAL TYPE ADDRESS | ERROR PATH | VOLUME | ERROR DESCRIPTION | PROBABLE FAILING UNIT | |
| DATE 041/97 | | | | | | | | | |
| 11:59:12:87 | GAM297 | 05 | FF.X-17 | 3380-JK 0297 | 02-0297 | RAS297 | PERMANENT DATA CHECK | VOLUME | |
| 12:07:58:52 | P\$POOL2 | 01 | 36-XX-XX | 3880 0470 | 0C-0470 | | PERMANENT OVERRUN | CHANNEL | |
| DATE 042/97 | | | | | | | | | |
| 02:24:35:55 | I\$ITA80 | 03 | XX-10-02 | 3380 | 0A82 56-0A82 | | PERMANENT EQUIPMENT CHECK | DEVICE | |
| 09:10:37:29 | OC19USG1 | 07 | N/A | 3422 | 0156 01-0156 | 340002 | N/A | HARDWARE | |
| 09:55:02:83 | MAINT | 00 | N/A | 9347 | 0C70 0C70 | | N/A | HARDWARE | |
| 13:28:25:71 | D#CLP471 | 01 | 32-XX-XX | 3880 | 0471 02-0471 | | PERMANENT OVERRUN | CHANNEL | |
| DATE 043/97 | | | | | | | | | |
| 00:F3:F9:4E | ICFSMLPB | 08 | N/A | 3420 | 0180 0180 | | NOT CAPABLE | HARDWARE | |
| 01:53:41:99 | PAUSEBG | 00 | N/A | 9335 | 0D53 0D53 | KEST53 | PERMANENT EQUIPMENT CHECK | DEVICE | |
| 04:22:15:46 | SORTCHK | 08 | N/A | 3430 | 0190 0190 | | N/A | HARDWARE | |
| 09:53:09:10 | GAM704 | 00 | 20.X-04 | 3380-JK 0704 | 17-0704 | RAS704 | PERMANENT DATA CHECK | VOLUME | |
| 14:28:49:77 | TSIMLRW | 04 | N/A | 3480 | 03EB EB40 | TPF490 | PERMANENT EQUIPMENT CHECK | DEVICE | |
| DATE 044/97 | | | | | | | | | |
| 00:46:37:09 | MAINT | 00 | N/A | 9347 | 0C70 0C70 | | N/A | HARDWARE | |
| 01:01:EE:7B | ICFSMLPB | 08 | N/A | 3420 | 0181 0181 | | UNDEFINED | HARDWARE | |
| 04:08:28:13 | MAINT | 00 | N/A | 9347 | 0C70 0C70 | | N/A | HARDWARE | |
| 12:31:46:69 | GAM7C3 | 05 | 60.X-03 | 3380-JK 07C3 | 17-07C3 | RAS7C3 | PERMANENT EQUIPMENT CHECK | DEVICE | |
| 12:31:46:70 | GAM7C3 | 05 | 60.X-03 | 3380-JK 7C3B | 07-07C3 | RAS7C3 | PERMANENT EQUIPMENT CHECK | DEVICE | |
| 18:18:31:01 | #IPORES | 06 | N/A | 3330 | 0428 0428 | IPORES | PERMANENT EQUIPMENT CHECK | DEVICE | |
| 18:43:38:16 | #IPORES | 06 | N/A | 3330 | 0428 0E28 | IPORES | PERMANENT EQUIPMENT CHECK | DEVICE | |
| DATE 045/97 | | | | | | | | | |
| 10:26:02:92 | GAM7C3 | 05 | 60.X-03 | 3380-JK 07C3 | 17-07C3 | RAS7C3 | PERMANENT EQUIPMENT CHECK | DEVICE | |
| 10:26:03:25 | GAM7C3 | 05 | 60.X-03 | 3380-JK 07C3 | 17-07C3 | RAS7C3 | PERMANENT EQUIPMENT CHECK | DEVICE | |
| 10:26:03:67 | GAM7C3 | 05 | 60.1-XX | 3380-JK 07C3 | 17-07C3 | RAS7C3 | PERMANENT EQUIPMENT CHECK | CONTROLL | |
| ER | | | | | | | | | |
| 14:25:47:01 | DSF | 0D | XX-84-04 | 3380 | 0734 0734 | PAK167 | PERMANENT DATA CHECK | VOLUME | |
| 18:03:30:85 | #IPORES | 06 | N/A | 3330 | 0428 0428 | IPORES | PERMANENT EQUIPMENT CHECK | DEVICE | |
| 18:48:02:12 | BSAM01 | 0E | XX-95-XX | 3380-DE 0DB6 | 00-0DB6 | EVERD6 | PERMANENT PATH ERROR | CONTROLL | |
| ER | | | | | | | | | |
| DATE 046/97 | | | | | | | | | |
| 03:00:13:92 | RMF | 0F | A8-XX-XX | 3880 | 0100 01=0100 | PAGE01 | PERMANENT SUB-STG EQPMT CHECK | SCU | |
| 14:24:12:55 | D15ELPIF | 06 | N/A | 34XX | 575 N/A | L00200 | DDR INDICATES SWAP TO PCUA 570 | N/A | |
| 18:10:48:55 | 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 | | |

| TIME | JOBNAME | CPU | ¹ PHYSICAL ID | PHYSICAL TYPE ADDRESS | ERROR PATH | VOLUME | ² ERROR DESCRIPTION | ³ PROBABLE FAILING UNIT |
|-------------|---------|-----|--------------------------|-----------------------|------------|--------|--------------------------------|------------------------------------|
| DATE 054/97 | | | | | | | | |

Examples of the System Error Summary

```

13:18:24:18  EREP    0A  N/A  9348  0490  0490  V00002  N/A
13:20:34:47  EREP    0A  N/A  9348  0490  0490  V00002  N/A
D
13:27:02:64  EREP    0A  N/A  9348  0490  0490  V00002  N/A
*****  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
14:00:22:39  EREP    0A  N/A  9348  0490  0490  V00004  N/A
14:00:29:43  EREP    0A  N/A  9348  0490  0490  V00004  N/A
D
14:05:16:99  EREP    0A  N/A  9348  0490  0490  V00004  N/A
14:31:50:57  EREP    0A  N/A  9348  0490  0490  V00006  N/A

```

```

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

```

- 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 | |

- The ERROR DESCRIPTION field contains subsystem-dependent information. The DDR swap description appears in this field.

- 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 150 |
| "Channel Subsystem Exception" on page 152 |
| "DASD Subsystem Exception" on page 154 |
| "Optical Subsystem Exception" on page 177 |
| "Tape Subsystem Exception" on page 193 |

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 |

Processor (CPU) Subsystem Exception

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 11 shows an example of the processor subsystem exception report.

```

1
SUBSYSTEM EXCEPTION          REPORT DATE 065 97
PROCESSOR                   PERIOD FROM 041 97
                             TO      059 97

2
MODEL 3033  SERIAL 021595  CPU B

  TERMINATION ERROR 3
SERVICE LEVEL INDICATOR          4 TOTAL COUNT   5 DATE/TIME OF LAST ERROR

  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
60 MINUTE REFERENCE TOTAL COUNT   DATE/TIME OF LAST ERROR

  EXTERNAL DAMAGE . . . . .          2 . . .    4      044/97  13:35:58:77
  BUFFER ERROR    . . . . .          2 . . .    2      051/97  17:54:45:87
  HIR SUCCESSFUL  . . . . .          1 . . .    1      056/97  12:22:33:46

LIMITS APPLIED  EXTD=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 11. 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

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 12 shows an example of the channel subsystem exception report.

1

```
SUBSYSTEM EXCEPTION          REPORT DATE 065 97
CHANNEL                       PERIOD FROM 041 97
                               TO    059 97
```

2

```
MODEL 3033  SERIAL 021595  CPU 01
```

| 3 SERVICE LEVEL INDICATOR | 4 EXCEPTION COUNT 60 MINUTE REFERENCE | 5 TOTAL COUNT | 6 DATE/TIME OF LAST ERROR |
|-------------------------------------|--|-------------------------|-------------------------------------|
| 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 12. 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 156 |
| 1 | "DASD Subsystem Exception, Part 2" on page 161 |
| 2 | "DASD String Summary, Part 1" on page 162 <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 165 |
| 3 | "DASD Service Informational Messages (SIMs)" on page 166 <i>Informational Messages</i> help you define a problem to IBM customer service personnel. |
| 3 | "DASD Informational Messages" on page 167 |
| 4 | "DASD Data Transfer Summary" on page 168 <i>Data Transfer</i> is further broken down according to whether the PFU is the volume or something other than the volume. |
| 5 | "DASD Symptom Code Summary" on page 171 <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 176 <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 |

| TYPE | SOURCE |
|------|--------|
| | |

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 19 on page 167 through Figure 20 on page 176 and Chapter 17, "Direct-Access Storage Devices (DASD)," on page 337.

Figure 13 on page 156 through Figure 20 on page 176 show examples of the reports in the DASD subsystem exception series.

DASD Subsystem Exception

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 13 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 13. 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 FAILING UNIT          4 FAILURE AFFECT 5 CPU 6 PHYSICAL ADDRESS 7 -----TOTALS-----
                               EQU  CHK  SKS  RD  OVRN  OTHER
*****
CHAN  0C          CHAN/SCU          03  TOTAL          1
                               36-XX-XX          1
10
      02          CHAN/SCU          03  TOTAL          1
                               32-XX-XX          1
      05XX        CHAN/SCU          07  TOTAL          1
                               A0-XX-XX          1
      07XX        CHAN/SCU          07  TOTAL          1
                               61-XX-XX          1
SCU  10111.3     SCU          00+  TOTAL          6
      3990-02 11          10111.3          6
      10114.2     SCU          01  TOTAL          3
      3990-02          10114.2          3
      A8-XX-XX    SCU          2B+  TOTAL          5  1  1
      3880          *A8-XX-XX          5  1  1
      03.         SCU          00  TOTAL          2  2
      3880          03.          2  2
      *052X       SCU          35  TOTAL          1  1
      3830          *0520          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 FAILING UNIT          FAILURE AFFECT  CPU  PHYSICAL ADDRESS  -----TOTALS-----
                               EQU  CHK  SKS  RD  OVRN  OTHER
*****
CTLR 20.1-XX     SCU/CTLR          01+  TOTAL          8  3  3
      3380-JK          00+  20.1-XX          2  2  2
                               20.0-XX          6  1  1
      20.0-XX     CTLR/DEV          TOTAL          4  2  2
  
```


DASD Subsystem Exception

```

3380-JK          00    20.0-03          1
                  01    20.0-00          1
                  01    20.0-0E          1    1
                  00    20.0-0F          1    1
                  00    20.0-05          1
                  01    20.0-07          1

20.1-XX          MULTIPLE          TOTAL          4    1    1
3380-JK          00    20.1-09          1
                  00    20.1-05          1
                  01    20.1-08          1    1    1
                  00    20.0-06          1
                  01    20.0-07          1

AH210.0-XX      CTLR          TOTAL          1
3390-09          00    AH210.0-XX          1
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
MULT 20.X-XX    MULTIPLE          TOTAL          7    7
3380-JK          00    20.0-0C          1    1
                  01    20.0-0E          1    1
                  00    20.0-0F          1    1
                  01+  20.0-04          2    2
                  00    20.0-05          1    1
                  01    20.0-07          1    1
-----+-----+-----+-----+-----+-----+-----+
DEV  XX-10-02   CTLR/DEV          TOTAL          1
3380          02    76-10-02          1

*04AE          SEEK          TOTAL          7    7
3330          2A    *04AE          7    7

HANDY.X-08      DEV          TOTAL          1
3390-09          01    HANDY.0.08          1

GRAM9.X-17      DATAFR          TOTAL          2
3390-01          0A    GRAM9.0-17          2
VOL  RAS70F      DATAFR          TOTAL          1    2    2
3380-JK          01    20.0-0F          1    1    1
                  01+  20.1-0F          1    1    1

RAS296          DATAFR          TOTAL          4

** WARNING ** INVALID PHYSICAL ID ON NEXT LINE
3380-JK          00+  FF.0-16          2

** WARNING ** INVALID PHYSICAL ID ON NEXT LINE
3380-JK          01    FF.2-16          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
FAILING          FAILURE          PHYSICAL          -----TOTALS-----          ---IMPACT OF TEMPORARY ERRORS---
UNIT             AFFECT          ADDRESS          SIMS  PERM  TEMP          EQU          SKS  RD  OVRN  OTHER
*****
PACV07          DATAFR          TOTAL          1          4096
3390-09          01    HANDY.0-01          1          4096

ERPVOL          DATAFR          TOTAL          4096          4096
3310          26    *0597          4096          4096

PAGE03          DATAFR          TOTAL          128          128
3310          26    *059D          128          128-C
-----+-----+-----+-----+-----+-----+-----+
** WARNING ** NO DASDID CARD FOUND OR INVALID PHYSICAL ID - PROBABLE UNIT NOT ASSIGNED FOR THE FOLLOWING:

3330          CTLR/DEV          TOTAL          3    3
                  19+  *0428          3    3
*****
0 UNIT(S) EXCLUDED DUE TO LIMITS 12
*****

```

** WARNING ** NO DASDID CARD FOUND OR INVALID PHYSICAL ID - PROBABLE UNIT NOT ASSIGNED FOR THE FOLLOWING:

```

3330          CTLR/DEV          TOTAL          3    3
                  19+  *0428          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:

DASD Subsystem Exception

** 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 58 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.

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. |
| DATAXFR | Data transfer: the function of reading or writing data; the failure may be in the controller, the drive, or the volume. |
| DATAXFR(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 176 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.

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 |

DASD Subsystem Exception

Table 13. PFU Identifier Formats (continued)

| PFU | IDENTIFIER FORMAT |
|------|--|
| SCU | <p>SS-XX-XX</p> <p>SS storage control unit/director ID</p> <p>SS-XX-XX SEQNUM.P, if the PFU is 3390</p> <p>SS storage control unit/director</p> <p>SEQNUM manufacturer's serial number of storage control</p> <p>P storage path</p> |
| CTLR | <p>XX-CC-XX</p> <p>CC controller ID</p> <p>XX-CC-XX SEQNUM.P ____ .P-XX, if the PFU is 3390</p> <p>CC controller ID</p> <p>SEQNUM manufacturer's serial number of storage control</p> <p>____ 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> <p>P controller</p> |
| DEV | <p>XX-CC-DD</p> <p>CC controller ID</p> <p>DD physical device ID</p> <p>XX-CC-DD SEQNUM.X-DD, if the PFU is 3390</p> <p>CC controller ID</p> <p>SEQNUM manufacturer's serial number of failing device</p> <p>DD physical device ID</p> |
| VOL | <p>nnnnnn (The volume serial number from the OBR/MDR device-dependent VOLID field)</p> <p>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.</p> |

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 64 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 14 shows an example of the DASD subsystem exception, part 2.

| 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 | TOTAL 10221.2 | 1 |
| -----+-----+-----+-----+-----+ | | | | |
| SCU 34988.3 9341 | SCU/CTRL | 03+ | TOTAL 22887.3-XX | 3 |
| -----+-----+-----+-----+-----+ | | | | |
| CTRL FFFFF.0-XX 9343 | SCU/CTRL | 01 | TOTAL FFFFF.0-XX | 1 |
| -----+-----+-----+-----+-----+ | | | | |
| MULT 12245.X-XX 9345 | MULTIPLE | 01 02 | TOTAL 12245.1-1A 12245.2-1B | 2 1 1 |
| -----+-----+-----+-----+-----+ | | | | |
| DEV 23345.X-02 9345 | CTRL/DEV | 01+ | TOTAL 23345.0-02 | 2 2 |
| ***** | | | | |
| 0 UNIT(S) EXCLUDED DUE TO LIMITS | | | | |

Figure 14. 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 15 on page 163 shows an example of the DASD subsystem exception, part 2.

DASD String Summary

```

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
EQU. ³SEEK ³DATA    SEEK    MEGABYTES    MEGABYTES
SSID   SCU   CTLR   DEV   VOLUME  CHKS ³   ³XFER  ACCESSES  READ    WRITTEN
*****
                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
                11   RAS291    Y
0243   .0      00
        HHGK6.0  00
                ZZZ23-0F  SOQV04                131        112
                ZZZ23-0F  SOQV06    Y
1144   .0      00
        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
                *****-1F  SOQV13    Y
1144   .0      01
        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 ACCESSES 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 15. 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 |

DASD String Summary

| FAILURE AFFECT | ERROR TYPE COLUMN WITH A Y |
|----------------|----------------------------|
| DATAXFR | DATAXFER |
| DATAXFR(HDA) | DATAXFER |
| MULTIPLE | Any combination |

- 2** The usage data for each volume/physical ID appears under three possible headings:
 - 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 16 and Figure 17 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 16. 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 17. DASD String Summary, Part 2 (2)

DASD Service Informational Messages

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 18 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 18. 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 19 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 19. 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” 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

DASD Data Transfer Summary

```

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:

DASD Data Transfer Summary

| 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” 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
                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 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          ERROR
                ADDRESS  SSID-STRING  PATH  CPUS
*****
    
```

DASD Symptom Code Summary

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
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
```

```
FA08 * N/A 3 0 SCU 049/97 03:51:39:59 049/97 03:52:00:95
      3880      10100100 000000F4 08000000 FFFFFFFF FFFFFFFF 040EFA08
      013C      41-0130 03
      013D      01-0131 03
      0138      01-0130 03
```

```
FA04 * N/A 2 0 SCU 049/97 03:29:44:54 049/97 03:31:11:23
      3880      10100100 000000F4 04000000 FFFFFFFF 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 | | SENSE FROM FIRST OCCURRENCE | | | | | | | | | | | | | | | | | | | |
|--------------|------------------|-----------------------|----------------|------------------|-----------------|-----------------------------|---------|---------|---------|---------|---------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | FIRST OCCURRENCE | LAST 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 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 ADDRESS | | SSID-STRING | | | ERROR PATH | | CPUS | | | | | | | | | | | | | | | | | |

SEQUENCE BY SCUID, SYMPTOM CODE -----

```
2800 * 14-XX-XX 0 1 SCU 050/97 08:52:47:37 050/97 08:52:47:37
      3880      10000096 81360B2F 04000020 09A00760 00210000 00142800
      14-XX-XX      00-0AB1 03
```

```
2810 * 22. 0 1 SCU/CTLR 049/97 21:47:18:81 050/97 21:47:18:81
      3880      10008260 03A6622F 82000002 09F30060 05880005 10222810
      60.0-XX      22-0 07-07C3 00
```

SEQUENCE BY PCUA, SYMPTOM CODE -----

```
3F29 * N/A 0 1 CHAN/SCU 041/97 15:59:16:46 041/97 15:59:16:46
      3880      10000000 00106839 00000000 00D60900 07000040 02603F29
      0840      22-0840 04
```

```
27F9 * N/A 1 0 CHAN/SCU 050/97 02:55:57:79 050/97 02:55:57:79
      3880      10000000 10050028 80000002 0903838F 86800400 006527F9
      0443      54-0443 03
```

```
F223 N/A 0 2 SCU 042/97 02:37:38:85 049/97 05:24:46:26
      3880      00001100 000000F2 17100000 00020000 00000883 CCA8F223
      0105      41-0101 03
      011D      01-0111 03
```

```
F426 * N/A 1 0 SCU 046/97 02:30:14:17 046/97 02:30:14:17
      3880      10900100 000000F2 21800000 00020040 C0004881 CCA8F426
      0100      01-0100 03
```

```
FB04 * N/A 4 0 SCU 049/97 02:41:29:60 049/97 02:45:21:41
      3880      00900100 000000F5 04000000 00000000 00000000 CCA8FB04
      0104      01-0100 03
      0109      51-0101 03
      0118      41-0110 03
      0119      51-0111 03
```


DASD Symptom Code Summary

PROBABLE FAILING UNIT: CONTROLLER-----
 SEQUENCE BY CTLID, SYMPTOM CODE -----

```
834D *  XX-11-XX  1  0  CTLR/DEV  042/97 01:53:15:92  042/97 01:53:15:92
        3380      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 OCCURRENCE | LAST OCCURRENCE |
| | DEVICE | 0 0 0 0 | 0 0 0 0 | 0 0 1 1 | 1 1 1 1 |
| | 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 |

```
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 CODE | PHYSICAL ID | OCCURRENCES PERM/TEMP | FAILURE AFFECT | DATE AND TIME OF | |
|--------------|-------------|-----------------------|----------------|------------------|-----------------|
| | | | | FIRST OCCURRENCE | LAST OCCURRENCE |
| | DEVICE | 0 0 0 0 | 0 0 0 0 | 0 0 1 1 | 1 1 1 1 |
| | 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 |

DASD Symptom Code Summary

```

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
      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 CODE | PHYSICAL ID | OCCURRENCES PERM/TEMP | FAILURE AFFECT | DATE AND TIME OF | | | | | | | | | | | | | | | | | | | | | | |
|------------------|-------------|-----------------------|----------------|-----------------------------|---|---|---|---|---|---|---|-----------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | FIRST OCCURRENCE | | | | | | | | LAST OCCURRENCE | | | | | | | | | | | | | | |
| | | | | SENSE FROM FIRST OCCURRENCE | | | | | | | | | | | | | | | | | | | | | | |
| DEVICE | | | | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 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 |
| PHYSICAL ADDRESS | | | | ERROR 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
  
```

DASD Symptom Code Summary

```

                                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 343 for exceptions). See Table 13 on page 159 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 158.
- 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

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 20 shows an example of the DASD storage control unit summary.

```
DASD STORAGE CONTROL UNIT SUMMARY                                REPORT DATE 065 97
                                                                PERIOD FROM 041 97
                                                                TO    059 97

*****
PHYSICAL ID 101114.0  DEVTYPE 3990-02

CPU/CHANNEL                                04
  OVERRUNS  INTF-A  INTF-B  INTF-C  INTF-D  INTF-E  INTF-F  INTF-G  INTF-H  1
  CMND      0      2      0      0      0      0      0      0      0
  DATA     0      0      0      0      0      0      0      0      0

PHYSICAL ID N/A      DEVTYPE 3830      PHYSICAL ADDR 032X      CPU(S) 19 27

  OVERRUNS  INTF-A  INTF-B  INTF-C  INTF-D
  CMND      0      2      4      0
  DATA     0      0      0      0

PHYSICAL ID A0-XX-XX  DEVTYPE 3880

CPU/CHANNEL 03
  OVERRUNS  INTF-A  INTF-B  INTF-C  INTF-D  INTF-E  INTF-F  INTF-G  INTF-H
  CMND      4      0      0      0      0      0      0      0
  DATA     0      0      0      0      0      0      0      0

  DISKETTE READER  SEEK      DATA
  TEMPORARY CHECKS  0      0

*****

CPU  MODEL  SERIAL
00  9375   234567
01  3090XA 170028
02  3084XA 321128
03  3084XA 121128
04  3081XA 021170
05  3084XA 221103
06  3081XA 220447
07  3081XA 020447
08  3062   511352
09  3083XA 221573
```

Figure 20. 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" |
| "9246/9247 Optical Subsystem Exception Report Series" on page 185 |

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 21 on page 178 |
| 3995 Optical Drives Error Summary | Figure 22 on page 179 |
| 3995 Volume Statistics Summary | Figure 23 on page 181 |
| 3995 DEVNO/CUA Statistics Summary | Figure 24 on page 183 |

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 22 shows an example of the 3995 optical drives error summary.

| 3995 OPTICAL DRIVES ERROR SUMMARY | | | | | 1 REPORT DATE 167 97 | | | | | | | | | |
|--|--------|---------------|-----------|-------------|----------------------|---|-------------|----------|-----------|-----------|------|------|------|------|
| **** SORTED BY CUA AND CPU **** | | | | | PERIOD FROM 102 97 | | | | | | | | | |
| | | | | | TO 118 97 | | | | | | | | | |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | 11 | | 12 | | |
| DEVNO | CPU | DRIVE | CARTRIDGE | MB/ERR PERM | MB/ERR PERM | MB/ERR TEMP | MB/ERR TEMP | TOTAL MB | SEEK ERRS | LOAD ERRS | PERM | TEMP | PERM | TEMP |
| /CUA | | 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 | 0 | 0 | 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 22. 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.

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- 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 CUA/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 23 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
**** SORTED BY VOLUME DATE AND TIME ****
 2  3  4  5  6  7  8  9 10 11 12 13 14 15 16 17
          C
          PCT TOTAL
          SPR NO.
VOLUME USER INFO. DTE TIME      C
ID      10 BYTES  DAY HHMMSS CUA U
-----
000578          117 110545 0285 00 0 0000 0 0
000578 NAME OF CO 117 110653 0284 01 3 8000 0 0
000578 NAME OF CO 117 110702 0284 01 3 8000 0 0

000582          117 104727 0280 01 0 0000 0 0
000582 NAME OF CO 117 110629 0283 00 2 8000 0 0
000582 NAME OF CO 117 110638 0283 01 2 8000 0 0

000602          117 111014 0285 01 0 0000 0 0
000602 NAME OF CO 117 111119 0284 01 3 8000 0 0
000602 NAME OF CO 117 111129 0284 02 3 8000 0 0

000642          117 111726 0285 01 0 0000 0 0
000642 NAME OF CO 117 111833 0283 01 2 8000 0 0
000642 NAME OF CO 117 111844 0283 01 2 8000 0 0

000671          117 104727 0285 01 0 0000 0 0

000673          117 104727 0282 01 0 0000 0 0

000677          117 103340 0280 00 0 0000 0 0
000677          117 104727 0280 00 0 0000 0 0

          18
CPU  MODEL  SERIAL NUMBER
00   9021XA  110947
01   9021XA  210947
02   9021XA  010947
    
```

Figure 23. 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.

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- 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 24 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
DTE TIME VOLUME MED. MB/ERR PERM----- MB/ERR TEMP----- TOTAL MB----- SEEK ERRS---- LOAD ERRS----
DAY HHMMSS ID CPU TYPE READ(CT) WRITE(CT) READ(CT) WRITE(CT) READ WRITE PERM TEMP PERM TEMP
-----
105 081325 000662 00 8000 -- ( 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
102 132005 000662 01 8000 -- ( 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
117 111014 000602 01 0000 -- ( 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
102 125718 000654 02 8000 -- ( 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
15
CPU MODEL SERIAL NUMBER
00 9021XA 110947
01 9021XA 210947
02 9021XA 010947

```

Figure 24. 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.

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- 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 25 on page 186 |
| 9246 Optical Library Permanent/Temporary Error Summary by CUA | Figure 26 on page 187 |
| 9247 Optical Disk Drive Permanent/Temporary Error Summary | Figure 27 on page 188 |
| 9247 Optical Disk Drive Error Code Summary | Figure 28 on page 190 |
| 9247 Optical Disk Drive Volume Error Summary | Figure 29 on page 191 |

9246/9247 Optical Subsystem Exception Report

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 25 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  LIBRARY LIBRARY  ADAPTER OVERALL  FAULT  BACKUP
-ID /CUA   CPU DTE HHMMSS  NAME   SERIAL FAILING NO. OF PROTO RETURN LIBRARY  MODE  MODE  PERM/TEMP
          CPU  MODEL  SERIAL NUMBER
          00  3090XA  073676

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 25. 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.
- 17 CPU, 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 26 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

O*** UNDETERMINED          2
8
TOTAL                      2

```

Figure 26. 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.
- 5 FREQUENCY is the accumulated number of each LIBRARY FAILING COMMAND 4 .
- 6 OVERALL LIBRARY STATUS is the library status characters.
- 7 FREQUENCY is the accumulated number of each OVERALL LIBRARY STATUS 6 .
- 8 TOTAL is the accumulated number of FREQUENCYs 7 .

9246/9247 Optical Subsystem Exception Report

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 27 shows an example of the 9247 permanent/temporary error summary.

```

9247 PERMANENT/TEMPORARY ERROR SUMMARY          1 REPORT DATE 064 97
                                                PERIOD FROM 054 97
                                                TO      056 97

****SORTED BY:CUA, DATE AND TIME****
 2  3  4  5  6  7  8  9  10  11  12  13  14  15  16
  C      VOLUME FAILING      SCSI SCSI      PERM SENSE
  CHP DEVNO P      TIME DRIVE  SERIAL SCSI  NUMBER ADPT ADPT SCSI  OF RTRN CMPL CMPL SENSE  OR BYTE
  -ID /CUA  U  DTE HHMMSS NAME  NUMBER COMMAND  OF RTRN CMPL CMPL SENSE  TEMP DATA

  00 0AC0 00 054 142833 LID2      INQUIRY      1  00  21  06 NO SENSE  PERM 00000000000000000000000000000000
  00 0AC0 00 056 142833 LID2      INQUIRY      1  00  21  06 NO SENSE  PERM 00000000000000000000000000000000

17
CPU  MODEL      SERIAL NUMBER
00  3090XA      073676

18
FAILING SCSI COMMAND:      19
                            FREQUENCY: .

  INQUIRY      .      20
                            21
SENSE KEY      FREQUENCY

  NO SENSE      2
22
  TOTAL      2

```

Figure 27. 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.
- 17** CPU, 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.
- 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** .

9246/9247 Optical Subsystem Exception Report

9247 Error Code Summary

This error code summary presents 9247 permanent and temporary errors sorted by sense key (PFU), CUA, date, and time.

Figure 28 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      CHP DEVNO P      TIME DRIVE  VOLUME FAILING  NUMBER  SCSI  SCSI
KEY        -ID /CUA  U   DTE HHMMSS NAME  SERIAL SCSI  OF     RTRN  ADPT  ADPT  SCSI  PERM  SENSE
          /CUA  U   DTE HHMMSS NAME  NUMBER COMMAND  RETRIES CODE  CODE  STAT  OR   BYTE
          /CUA  U   DTE HHMMSS NAME  NUMBER COMMAND  RETRIES CODE  CODE  STAT  OR   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 28. 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 29 shows an example of the 9247 volume error summary.

```

9247 VOLUME ERROR SUMMARY                                1 REPORT DATE 065 97
                                                         PERIOD FROM 054 97
                                                         TO 056 97

****SORTED BY:VOLUME, CUA, DATE AND TIME****
 2      3 4 5 6 7      8      9      10      11 12 13 14      15 16
VOLUME      C          FAILING  NUMBER  11 12 13 14      15 16
SERIAL CHP DEVNO P      TIME DRIVE  SCSI   OF    RTRN CMPL CMPL SENSE  OR BYTE
NUMBER -ID /CUA U  DTE HHMMSS NAME  COMMAND RETRIES CODE CODE STAT KEY  TEMP DATA

      00 0AC0 00 054 142833 L1D2  INQUIRY  1 00 21 06 NO SENSE  PERM 00000000000000000000000000000000
      00 0AC0 00 056 142833 L1D2  INQUIRY  1 00 21 06 NO SENSE  PERM 00000000000000000000000000000000

17
CPU MODEL SERIAL NUMBER
00 3090XA 073676

18
FAILING SCSI COMMAND      19
                           FREQUENCY

  INQUIRY                  2
20
SENSE KEY                  21
                           FREQUENCY

 NO SENSE                  2
22
TOTAL                      2
    
```

Figure 29. 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.

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- 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 |
| 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:

Tape Subsystem Exception

| REPORT | REFER TO |
|--|-----------------------|
| 3490 Subsystem Exception Report Example | Figure 30 on page 195 |
| 3490 Forced Log Report Example | Figure 31 on page 199 |
| 3490 Temporary Error Summary Channel Example | Figure 32 on page 202 |
| 3490 Temporary Error Summary Device Example | Figure 33 on page 204 |
| 3420/3410 Temporary Error Summary | Figure 34 on page 206 |
| 9347 Temporary Error Summary | Figure 35 on page 207 |
| 3490 Volume Statistics Summary | Figure 36 on page 209 |
| 3490 Permanent/Recovered Error Summary Example | Figure 37 on page 213 |
| 3420/3410 Permanent Error Summary | Figure 38 on page 215 |
| 3424 Permanent / Recovered Error Summary | Figure 39 on page 215 |
| 3490 FRU Summary Report Example | Figure 40 on page 216 |
| 3490 Error Code Summary Example | Figure 41 on page 218 |
| 3490 DEVNO/CUA Statistics Summary Report Example | Figure 42 on page 221 |
| 3422 DEVNO/CUA Statistics Summary | Figure 43 on page 223 |
| 9347 DEVNO/CUA Statistics Summary | Figure 44 on page 223 |
| Tape Library Permanent Error Summary Example | Figure 45 on page 225 |
| Tape Library Service Alert Summary Example | Figure 46 on page 228 |
| Tape Library Error Code Summary Example | Figure 47 on page 230 |

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 64 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 30 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  CURRENT LIMITS            TEMP WRT(CT)  TEMP RD(CT)
  MBYTES/ERR                 HARDWARE      999 5      999 1
                               VOLUME      40 3      200 1

3  EXCEPTION                 4  VOLUME     5  DEVNO   6  EQU    7  ---MB/ERR  8  PERM----  9  ---MB/ERR  10  TEMP----  11  BUS OVR  12  TOTAL -  13  HDR
      SERIAL                   /CUA CPU  CHK  READ(CT)  WRITE(CT)  WRITE(CT)  READ(CT)  OUT  RUN  READ  WRITE  SER

HARDWARE
PERMANENT ERROR
      5A3  E  1  0  0      0  0  1339 1      0  0      0  0      3249  1339
      5A7  E  0  0  0      0  0  0  0      0  0      0  0      3985  1160

HARDWARE
FAILED TEMPORARY READ OR WRITE LIMITS
      5BC  E  0  0  0      0  0  0  0      428  1      0  0      428    1

VOLUME OR CREATING DRIVE
PERMANENT READ OR WRITE ERRORS ON MORE THAN ONE DRIVE
      L30570 1 5A5  F  1  0  0      3  1  0  0      0  0      0  0      0    3  00000
      L27530 5A2  E  0  0  0      5  1  0  0      0  0      0  0      0    5  00000

VOLUME OR CREATING DRIVE
FAILED TEMPORARY READ OR WRITE LIMITS ON MORE THAN ONE DRIVE
      L70630 5A4  F  0  0  0      0  0  0  12      0  0      0  0      0    0  00000
      L72930 5B2  F  0  0  0      0  0  0  0      39  1      0  0      39    0  00000

VOLUME
FAILED TEMPORARY READ OR WRITE LIMITS
      B42750 5BC  E  0  0  0      0  0  0  0      0  1      0  0      0    0
      B07146 5A2  E  0  0  0      0  0  0  0      73  1      0  0      73   73

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 30. 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.

Tape Subsystem Exception

- 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 64 and Chapter 19, "Magnetic Tape Devices," on page 349.
- 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 31 on page 199 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
2 2 2 2 2 3                                     1 1 1 1 1 2
2 3 C 2 2 3                                     17
2 4 6 8 0
CHP DEVNO P TIME W CCW SCSW64-95 -----CU----- ---DR--- CU
-ID /CUA U DTE HMMSS VOLID E CMD FLG /CSW32-63 ERR1 ERR2 ERRL HW ERR1 ERR2 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

CHP DEVNO P C R SENSE BYTES----> 0 2 4 6 8 1 1 1 1 1 2 2 2 2 2 3
-ID /CUA U DTE TIME VOLID E CMD FLG /CSW32-63 -----CU----- ---DR--- CU
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 31. 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.

Tape Subsystem Exception

- 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-ERR3 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—63These 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 32 on page 202 |
| 3490 Temporary Error Summary Device Example | Figure 33 on page 204 |
| 3420/3410 Temporary Error Summary | Figure 34 on page 206 |
| 9347 Temporary Error Summary | Figure 35 on page 207 |

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3490 TEMPORARY ERROR SUMMARY CHANNEL

1 REPORT DATE 067 97
 PERIOD FROM 049 97
 TO 052 97

| 2 10 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | TOTAL BLOCKS | | | | 11 | | | |
|-----------------------|----------|----------|----------|---------------------|----------|--------------------|----------|---------------|-----------------|---------------------|--------|--------------------|------|---------------------|-----|
| DEVNO /CUA | DRIVE ID | CPU | MOUNTS | --WRITE-- MB/ERR | ERRCT | --READ-- MB/ERR | ERRCT | TOTAL READ | MBYTES WRITE | -PROCESSED- READ | WRITE | --READ-- MB/COR | ECC | --WRITE-- 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 (#) = THERE WERE NO ERRORS LOGGED FOR CALCULATION
 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 32. 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.

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.

Tape Subsystem Exception

3490 TEMPORARY ERROR SUMMARY DEVICE

1 REPORT DATE 067 97
 PERIOD FROM 049 97
 TO 052 97

| | | | | | | | | | | 11 | 12 | 13 | 15 | | | | | | | |
|----------|----------|----------|-------------|----------|-------------|----------|-------|--------|-------------|--------------|-------------|-----------|-------------|--------|-------|-------|-----------|-----|-----|-----|
| 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | 9 | | | | | | | | | | |
| | | | | | | | | | | TOTAL BLOCKS | | | READ | WRITE | DRV | CU | 16 | | | |
| | | | | | | | | | | | | | REC | ERASE | DET | EQC | TRA | | | |
| erk. | DEVNO | DRIVE | --WRITE---- | | --READ----- | | TOTAL | MBYTES | -PROCESSED- | | --READ----- | | --WRITE---- | | RECVY | ERASE | DET | EQC | TRA | |
| /CUA | ID | CPU | MOUNTS | MB/ERR | ERRCT | MB/ERR | ERRCT | READ | WRITE | READ | WRITE | MB/COR | ECC | MB/COR | ECC | ACTS | GAPS | ERR | CHK | ERR |
| 5A0 | 08160 | 0F | 101 | -- | 0 | -- | 0 | 2495 | 2328 | 530176 | 300288 | 68 | 71 | 62 | 100 | 0 | 0 | 0 | 0 | 0 |
| 5A1 | 08151 | 0F | 94 | -- | 0 | -- | 0 | 4070 | 1691 | 458240 | 237824 | 74 | 146 | 49 | 101 | 0 | 0 | 0 | 0 | 0 |
| 5A2 | 08152 | 0F | 118 | 866 | 1 | 7030 | 1 | 7030 | 866 | 653056 | 94720 | 35 | 391 | 33 | 56 | 3 | 0 | 0 | 0 | 0 |
| 5A3 | 08153 | 0F | 151 | 2108 | 1 | -- | 0 | 5563 | 2108 | 793088 | 330752 | 34 | 318 | 20 | 207 | 0 | 0 | 0 | 0 | 0 |
| 5A4 | 08154 | 0F | 94 | 179 | 12 | -- | 0 | 6114 | 2148 | 802408 | 243968 | 49 | 243 | 41 | 102 | 0 | 0 | 1 | 0 | 0 |
| 5A5 | 08155 | 0F | 109 | 1516 | 1 | -- | 0 | 6492 | 1516 | 797440 | 200448 | 60 | 215 | 59 | 51 | 0 | 0 | 0 | 0 | 0 |
| 5A6 | 08156 | 0F | 106 | -- | 0 | -- | 0 | 1676 | 1590 | 190464 | 283392 | 45 | 79 | 20 | 166 | 0 | 0 | 0 | 0 | 0 |
| 5A7 | 08157 | 0F | 127 | -- | 0 | -- | 0 | 5697 | 1970 | 705792 | 227072 | 85 | 248 | 56 | 121 | 0 | 0 | 0 | 0 | 0 |
| 5B0 | 12450 | 0F | 23 | -- | 0 | -- | 0 | 42 | 142 | 5376 | 13568 | 27 | 1 | 10 | 13 | 0 | 0 | 0 | 0 | 0 |
| 5B1 | 12451 | 0F | 35 | -- | 0 | -- | 0 | 2584 | 195 | 173070 | 25600 | 27 | 182 | 4 | 42 | 0 | 0 | 0 | 0 | 0 |
| 5B2 | 12452 | F0 | 29 | -- | 0 | 528 | 1 | 528 | 55 | 95744 | 4096 | 132 | 15 | 44 | 1 | 0 | 0 | 0 | 0 | 0 |
| 5B3 | 12453 | F0 | 25 | 383 | 1 | -- | 0 | 22 | 383 | 4864 | 46848 | -- | 0 | 82 | 22 | 0 | 1 | 0 | 0 | 0 |
| 5B4 | 12454 | F0 | 18 | -- | 0 | -- | 0 | 541 | 481 | 48384 | 26112 | 19 | 87 | 80 | 17 | 0 | 0 | 0 | 0 | 0 |
| 5B5 | 12455 | F0 | 17 | -- | 0 | -- | 0 | 19 | 8 | 2048 | 1024 | 14 | 3 | 8 | 1 | 0 | 0 | 0 | 0 | 0 |
| 5B8 | 12458 | F0 | 21 | -- | 0 | -- | 0 | 5 | 553 | 3840 | 18432 | -- | 0 | 66 | 21 | 0 | 0 | 0 | 0 | 0 |
| 5B9 | 12459 | F0 | 25 | -- | 0 | -- | 0 | 856 | 185 | 77568 | 6144 | 35 | 53 | 185 | 1 | 0 | 0 | 0 | 0 | 0 |
| 5BA | 1245A | F0 | 19 | -- | 0 | -- | 0 | 6 | 4 | 768 | 0 | -- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5BB | 1245B | F0 | 15 | -- | 0 | -- | 0 | 12 | 256 | 1024 | 23040 | -- | 0 | 42 | 15 | 0 | 0 | 0 | 0 | 0 |
| 5BC | 1245C | F0 | 12 | -- | 0 | 609 | 1 | 609 | 13 | 53760 | 3328 | 64 | 26 | 3 | 4 | 0 | 0 | 0 | 0 | 0 |
| 5BD | 1245D | F0 | 16 | -- | 0 | -- | 0 | 728 | 83 | 65792 | 6912 | 52 | 43 | 41 | 4 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | | | 1155 | | 16 | | 3 | 45076 | 17076 | 5534K | 1899K | | 1843 | 950 | 3 | 1 | 1 | 0 | 0 | 0 |

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 (#) = THERE WERE NO ERRORS LOGGED FOR CALCULATION
 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 Device 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 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.

Tape Subsystem Exception

3420/3410 TEMPORARY ERROR SUMMARY

REPORT DATE 065 97
 PERIOD FROM 041 97
 TO 059 97

| DEVNO /CUA | TAPE UNIT SER | C P U | DEN- SITY | TOTAL I/O CNT | TOTAL MOUNT | WRITE STATISTICS | | READ STATISTICS | | ENV VRC | MTE LRC | SRC /PC | EDC CRC | VEL CHG | SKEW ERR | R/W VRC | WTM CHK | PAR/ TACH | OVER RUN | IBG DET | |
|---|---------------------|-------------|--------------|------------------|----------------|---------------------|--------|--------------------|--------|------------|------------|------------|------------|------------|-------------|------------|------------|--------------|-------------|------------|---|
| | | | | | | MB/ERR(CT) | ERSGAP | MB/ERR(CT) | CLNACT | | | | | | | | | | | | |
| 0180 | 59437 | 07 | 6250 | 10 | 0 | -- (0) | 0 | -- (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 | 0 | 0 | 0 |
| 0181 | N/A | 07 | 6250 | 6 | 0 | -- (0) | 0 | -- (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 | 0 | 0 | 0 |
| 0570 | N/A | 08 | 0THR | 7 | 1 | -- (0) | 0 | -- (0) | 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 | 0 | 0 | 0 |
| 0573 | N/A | 03 | 6250 | 2314 | 1 | -- (0) | 0 | -- (0) | 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 | 0 | 0 | 0 |
| 0575 | N/A | 03 | 1600 | 3 | 1 | -- (0) | 0 | -- (0) | 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 | | | | | | | | | | | | |
| 0THRBPPI 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 34. 3420/3410 Temporary Error Summary

Tape Subsystem Exception

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 | 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 35. 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 36 on page 209 shows an example of the tape volume statistics summary.

Tape Subsystem Exception

3490 VOLUME STATISTICS SUMMARY

1 REPORT DATE 067 97
 PERIOD FROM 051 97
 TO 051 97

| VOLUMES FAILING | | LIMITS OR PERMANENT ERRORS | | TEMP WRT(CT) | | TEMP RD(CT) | | | | | | | | | | | |
|-------------------------|-----------|----------------------------|-----------|--------------|----------|-------------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------|----------|---|
| 2 CURRENT LIMITS | | VOLUME | | 40 (3) | | 200 (1) | | | | | | | | | | | |
| MBYTES/ERR | | | | | | | | | | | | | | | | | |
| 3 | 17 | 4 | 13 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 14 | 15 | 16 | | | |
| READ | | | | | | R | | | | | | | | | | | |
| VOLUME | DATE | TIME | CHP | DEVNO | W | BLOCK | MB/ERR | PERM | MB/ERR | TEMP | RECVY | ERASE | BLKS | PROC | BLK | JOB | |
| SERIAL | DAY | YR | -ID | /CUA | E | ID | READ(CT) | WRITE(CT) | WRITE(CT) | READ(CT) | ACTNS | GAPS | READ | WRITE | LEN | NAME | |
| | | | | | | | | | | | | | | | | | |
| 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 | E0X 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 | E0S EXIT | E |
| L30570 | 051 97 | 19:03:22 | 22 | 5A5 | W | | -- (0) | -- (0) | 3 (1) | -- (0) | 0 | 0 | 0 | 5934 | 0234 | E0S EXIT | E |
| L27530 | 051 97 | 20:31:22 | 06 | 5A2 | W | | -- (0) | -- (0) | 5 (1) | -- (0) | 0 | 0 | 0 | 10120 | 0256 | E0S EXIT | E |
| L70630 | 051 97 | 16:24:33 | 06 | 5A4 | | | -- (0) | -- (0) | -- (12) | -- (0) | 0 | 0 | 0 | 9050 | 1250 | E0S EXIT | E |
| L72930 | 051 97 | 11:22:19 | 22 | 5B2 | | | -- (0) | -- (0) | -- (0) | 39 (1) | 0 | 0 | 20302 | 0 | 2350 | E0S 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 36. 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 .
- 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.

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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.

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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 37 on page 213 |
| 3420/3410 Permanent Error Summary | Figure 38 on page 215 |
| 3424 Permanent/Recovered Error Summary | Figure 39 on page 215 |

Tape Subsystem Exception

```

3490 PERMANENT / RECOVERED ERROR SUMMARY          1 REPORT DATE 063 97
                                                    PERIOD FROM 049 97
                                                    TO    052 97

                4                8    17    18    10                11  12  13  14                15  16
2    2    2    3    C                R   SENSE BYTES--> 0    2    4    6    8    0    2    4    6    8    0    2    4
2    6    8    0    6                W   CCW SCSW64-95    -----CU-----    ---DR---
CHP DEVNO P 5 TIME    7    W 9    CCW SCSW64-95
CU
-ID /CUA  U DTE HMMSS  VALID E CMD FLG /CSW32-63    ERR1 ERR2 ERRL HW    ERR1 ERR2    SER#

                ***** PERMANENT ERRORS *****

**** DRIVE ****

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    0 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 0 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 0 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    0 01 64 0E007FF8 0A44 7048 0000 0020 0000 A130 3300 0000 D5C1 0002 0000 0000 F680 0CE1 0813 7719
22 05A7 07 051 221838    0 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    0 02 24 00000000 0048 3948 0000 0020 0000 7161 7161 7161 0000 0002 0000 0000 F680 0CE1 0813 7700
22 05A7 17 051 221840    0 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

3490 PERMANENT / RECOVERED ERROR SUMMARY          REPORT DATE 117 97
                                                    PERIOD FROM 062 97
                                                    TO    062 97

                C                R   SENSE BYTES--> 0    2    4    6    8    1    1    1    1    1    2    2    2    2    2    3
                W   CCW SCSW64-95    HDW- STR- V/C-    0    2    4    6    8    0    2    4    6    8    0
- ID /CUA  U DTE TIME  VALID E CMD FLG /CSW32-63    PSC DEV FSC
                20  21  22

                ***** SERVICE ALERTS *****

**** CONTRL UNIT ****

    0188 FF 062 081932    0 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    0 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    0 00 00 0E004000 0244 2048 002F 8820 0000 B012 2000 B140 D007 0002 0000 0000 F680 08E1 0140 6F00

**** DEVICES ****

    0186 FE 062 081932    0 00 00 0E004000 0244 2048 002F 8820 0000 B013 0200 B108 D007 0002 0000 0000 F680 08E1 0140 6F00
    0189 FE 062 081933    0 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 37. 3490 Permanent/Recovered Error Summary Example

1 REPORT DATE, PERIOD FROM, PERIOD TO

Tape Subsystem Exception

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

      C          R          ...SENSE...
CHP DEVNO P      W          1      1      2
-ID /CUA  U DTE  TIME  VALID E CMD FLG  CNT CSW64-95/  2      6      0      EXPLANATION  HDR
                                                    0      0      0      SER
**** 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 38. 3420/3410 Permanent Error Summary

```

3424 PERMANENT / RECOVERED ERROR SUMMARY        REPORT DATE 065 97
                                                    PERIOD FROM 041 97
                                                    TO    059 97

      C          R  SENSE BYTES---> 0  2  4  6  8  1  1  1  1  1  2  2  2  2  2  0
CHP DEVNO P      W  CCW  SCSW64-95  ER BLOCK SN  -- CU --  DR.  DR.  DR.  DR.  DR.  DR.  DR.  DR.
-ID /CUA  U DTE  TIME  VALID 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 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 0000 F680 0CF1 1783 6620
    
```

Figure 39. 3424 Permanent / Recovered Error Summary

Tape Subsystem Exception

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 40 shows an example of the 3490 FRU summary report.

```

3490 FRU SUMMARY                                1 REPORT DATE 063 97
                                                PERIOD FROM 049 97
                                                TO    052 97

DEVICE TYPE 3490

  2      C   C   3      P      4  5  6  7  8  9 10 11      13
DEVNO   P   H   C   T      CU-1 F CU-2 CU-L CUHW DR-1 F DR-2 OCCURRENCES  DATE/TIME
/CUA    U   A   U   H      ***** FRU CODE *****  ***** 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 14
E 3081      210819
F 3081      010819
  
```

Figure 40. 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-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.
- 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.

Tape Subsystem Exception

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 41 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 | 12 | | | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | | | |
| DEVNO | C | C | C | C | -----CU----- | | | | | -----DR----- | | | **** 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 41. 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-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.
- 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.

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 42 on page 221 |
| 3422 DEVNO/CUA Statistics Summary | Figure 43 on page 223 |
| 9347 DEVNO/CUA Statistics Summary | Figure 44 on page 223 |

Tape Subsystem Exception

3490 DEVNO/CUA STATISTICS SUMMARY FOR]0480

1 REPORT DATE 063 97
 PERIOD FROM 049 97
 TO 052 97

DEVICES FAILING LIMITS OR PERMANENT ERRORS

| 2 CURRENT LIMITS | | HARDWARE | | TEMP WRT (CT) | | TEMP READ (CT) | | | | | | | | | | | | 17 | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|--------|-----------|----|---------------|------|----------------|-----|-------------------|-------|--------------|------|-----------|-----------|-----------|---------|-----------|------|-----------|-----|----------|------|------|------|------|-------|-----|------|-----|------|---------|------|-----|---|------|--|-----|--|-----|--|
| MBYTES/ERR | | | | 999 (5) | | 999 (1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | 5 | | 6 | | 7 | | 8 CRITERIA | | 9 ERP | | 11 | | 12 | | 13 | | 16 | | | | | | | | | | | | | | | | | | | | | |
| 3 | | 4 | | ER | | F | | MB | | PROC | | DATA | | CHK | | DATA | | ERROR | | MB/ERROR | | ERSE | | READ | | DRV | | CU | | INSTANT | | BLK | | PROC | | BLK | | COR | |
| HDR | C | ER | F | MB | PROC | DATA | CHK | DATA | ERROR | MB/ERROR | ERSE | READ | DRV | CU | INSTANT | BLK | PROC | BLK | COR | SER | P | | | | | | | | | | | | | | | | | | |
| DTE | TIME | VOLID | PA | M | WRT | RD | WRT | RD | WRT | RD | RD | RD | TEMPORARY | GAPS | RTY | DET | EQU | SPD | VAR | WRT | READ | WRT | READ | WRT | READ | WRT | READ | WRT | READ | WRT | READ | SER | P | | | | | | |
| | | 18 | | | | | | | | | | 10 | | | | 14 | | 15 | | | | | | | | | | | | | | | | | | | | | |
| 049 | 021022 | L32345 | 2B | 21 | 40 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 96 | 12 | 1 | 0 | 00000 | E | | | | | | | | | | | | | |
| 049 | 021228 | L32345 | 2B | 21 | 1 | 45 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 866 | 12 | 0 | 0 | 00000 | E | | | | | | | | | | | | | |
| 049 | 025623 | L32345 | 2B | 21 | 1 | 76 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 2821 | 14 | 7 | 9 | 00000 | E | | | | | | | | | | | | | |
| 050 | 069527 | L18500 | 2B | 21 | 201 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 2097 | 12 | 1 | 0 | 00000 | E | | | | | | | | | | | | | |
| 050 | 182840 | L33825 | 2B | 21 | 1 | 23 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 12 | 0 | 0 | 00000 | E | | | | | | | | | | | | | |
| 050 | 185954 | L31800 | 2B | 21 | 1 | 56 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 262 | 12 | 0 | 0 | 00000 | E | | | | | | | | | | | | | |
| 050 | 193136 | L16550 | 2B | 21 | 119 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 197 | 12 | 0 | 0 | 00000 | E | | | | | | | | | | | | | |
| 050 | 200742 | L31720 | 2B | 21 | 1 | 79 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 4198 | 6368 | 11 | 7 | 00000 | E | | | | | | | | | | | | | |
| 050 | 232824 | L31918 | 2B | 21 | 200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 2884 | 12 | 0 | 0 | 00000 | E | | | | | | | | | | | | | |
| 051 | 022619 | L13221 | 2B | 21 | 173 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 544 | 32 | 0 | 0 | 00000 | E | | | | | | | | | | | | | |
| 051 | 035419 | L22277 | 2B | 21 | 178 | 1 | 7 | 0 | 7 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 5375 | 12 | 3 | 0 | 00000 | E | | | | | | | | | | | | | |
| 051 | 035510 | L22814 | 2B | 21 | 1 | 29 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 5505 | 12 | 12 | 0 | 00000 | E | | | | | | | | | | | | | |
| 051 | 035849 | L22814 | 2B | 21 | 1 | 41 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 1966 | 12 | 1 | 0 | 00000 | E | | | | | | | | | | | | | |
| 051 | 050204 | L22814 | 2B | 21 | 1 | 68 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 64 | 12 | 0 | 0 | 00000 | E | | | | | | | | | | | | | |
| 051 | 193036 | L34645 | 2B | 21 | 1 | 92 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 66 | 12 | 0 | 0 | 00000 | E | | | | | | | | | | | | | |
| 051 | 214532 | | 34 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 1 | 0 | 0 | 0 | | | | | 43000 | E | | | | | | | | | | | | | |
| 051 | 230711 | L16553 | 2B | 21 | 147 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |]] |]] | 0 | 0 | 0 | 0 | 0 | 0 | 2687 | 12 | 2 | 0 | 00000 | E | | | | | | | | | | | | | |
| 051 | 233355 | L16546 | 2B | 21 | 200 | 1 | 5 | 0 | 5 | 0 | 0 | 0 | 200 |]] | 0 | 0 | 0 | 0 | 0 | 0 | 3808 | 224 | 0 | 0 | 00000 | E | | | | | | | | | | | | | |

| CPU | MODEL | SERIAL NUMBER |
|-----|-------|---------------|
| A | 3081 | 210819 |
| B | 3081 | 010819 |
| C | 3081 | 170563 |
| D | 3081 | 371074 |
| E | 3081 | 271280 |

Figure 42. 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

Tape Subsystem Exception

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.

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3422 DEVNO/CUA STATISTICS SUMMARY FOR-0156

REPORT DATE 065 97
PERIOD FROM 041 97
TO 059 97

| | | ----- 3422 ----- | | | | | | | | | | | | | | | | | | | | |
|--|--------|------------------|-----|-----------|----------|--------------|----------|-------------|-----|--------------|-----|-------------|-----|----------|-----|-----|-----|-----|------|----|------|------|
| | | 1600 BPI | | | | | 6250 BPI | | | | | | | | | | | | | | | |
| | | CURRENT LIMITS | | HARDWARE | | TEMP WRT(CT) | | TEMP RD(CT) | | TEMP WRT(CT) | | TEMP RD(CT) | | | | | | | | | | |
| | | MBYTES/ERR | | | | NONE () | | NONE () | | NONE () | | NONE () | | | | | | | | | | |
| DTE | TIME | VALID- | 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 | 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 43. 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 ----- | | | | | | | | | |
|-----|----------|--------|-------------|-------|-------|-----------|----------|-----------|----------|-------------------|----------|----------|----------|----------|------------------------|-----|-----|-----|-----|-----|-----|--|--|--|
| | | | | | | | | | | | | | | | 1 | 1 | 2 | 2 | 2 | | | | | |
| -ID | CPU | DTE | TIME | VALID | R/W | SCSW64-95 | FAULT | 0 | 4 | 8 | 2 | 6 | 0 | 4 | 8 | | | | | | | | | |
| 8 | | | HH:MM:SS | | E/O | CMD | FLG | /CSW32-63 | SYMCD | | | | | | | | | | | | | | | |
| | 00 | 042 | 09 55 02 | | R | 02 04 | 0E000000 | 2007 | 08C00409 | 10000010 | 38280000 | 00004000 | 80000400 | 00000000 | 00002007 | | | | | | | | | |
| | 00 | 044 | 00 46 37 | | E | 02 04 | 0E000000 | 3006 | 10240003 | 10000010 | 28380000 | 40000000 | 80000400 | 00000000 | 00003006 | | | | | | | | | |
| | 00 | 044 | 04 08 28 | | W | 02 04 | 0E000000 | 2003 | 0844000F | 10100010 | 38380000 | 00200000 | 80000400 | 00000000 | 00002003 | | | | | | | | | |
| | 00 | 045 | 18 55 37 | | W | 02 04 | 0E000000 | 2001 | 08441D07 | 10000010 | 38380000 | 00800000 | 80000400 | 00000000 | 00002001 | | | | | | | | | |
| | 00 | 045 | 20 02 06 | | E | 02 04 | 0E000000 | 3006 | 10240003 | 10000010 | 28380000 | 40000000 | 80000400 | 48C00000 | 00003006 | | | | | | | | | |
| | 00 | 049 | 05 32 25 | | W | 02 04 | 0E000000 | 2003 | 0844000F | 10100010 | 38380000 | 00200000 | 80000400 | 00000000 | 00002003 | | | | | | | | | |
| | 00 | 049 | 05 38 59 | | W | 02 04 | 0E000000 | 2003 | 0844000F | 10100010 | 38380000 | 00200000 | 80000400 | 00000000 | 00002003 | | | | | | | | | |
| | 00 | 049 | 06 34 24 | | W | 02 04 | 0E000000 | 2001 | 08440407 | 10000010 | 38380000 | 00800000 | 80000400 | 00000000 | 01002001 | | | | | | | | | |
| | 00 | 049 | 10 14 52 | | W | 02 04 | 0E000000 | 2003 | 0844000F | 10100010 | 38380000 | 00200000 | 80000400 | 00000000 | 00002003 | | | | | | | | | |
| DTE | HH:MM:SS | SERIAL | I/O--COUNTS | PERM | ERROR | TEMP | ERROR | RETRIES | REPSN | ----- COUNT ----- | | | | | | | | | | | | | | |
| C | | | READ | WRITE | READ | WRITE | READ | WRITE | READ | WRITE | COUNT | OVR | MLT | RUP | IBG | WPC | SKW | TR4 | TR5 | TRP | EC | | | |
| 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 44. 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 45 on page 225 |
| Tape Library Service Alert Summary Example | Figure 46 on page 228 |
| Tape Library Error Code Summary Example | Figure 47 on page 230 |

Tape Library Permanent and Recovered Error Summary Report

Figure 45 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 | | 1 11 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 3 3 | | | | | | | | | | | | |
| 2 SENSE BYTES -> 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 2 3 | | 4 5 6 7 8 9 0 1 | | | | | | | | | | | | | | |
| CHP -ID /CUA | DEVNO DTE | TIME CPU | STATUS ERA | BLK ID FMT | MOD LM | OTH VOL | SERIAL SW EC | SS ID SEQ | IF SF | EC HW-SER | DR SENSE VOLSER | | | | | | | | | | | |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| ***** PERMANENT ERRORS ***** | | | | | | | | | | | | | | | | | | | | | | |
| 60 | 0810 | 156 | 005317 | 00 | 00419C | 6F | 000000 | 23 | 03 | 6236 | 0000 | D7D6D6F2F4F8 | 07 | 02 | 0F4003 | FE | BE | 56 | 297247 | 00 | 00 | P00248 |
| 60 | 0810 | 156 | 005317 | 00 | 00419C | 60 | 000000 | 23 | 03 | 6236 | 0000 | D6D5D6F2F4F3 | 07 | 02 | 0F4003 | FE | BE | 56 | 297247 | 00 | 00 | QNO243 |
| 60 | 0810 | 156 | 005317 | 00 | 00419C | 62 | 000000 | 23 | 03 | 6236 | 0000 | D6D4D7F2F9F3 | 07 | 02 | 0F4003 | FE | BE | 56 | 297247 | 00 | 00 | OMP293 |
| 60 | 0810 | 156 | 005317 | 00 | 00419C | 63 | 000000 | 23 | 03 | 6236 | 0000 | D6D3D7F3F9F8 | 07 | 02 | 0F4003 | FE | BE | 56 | 297247 | 00 | 00 | OLP398 |
| 60 | 0810 | 156 | 005317 | 00 | 00419C | 6B | 000000 | 23 | 03 | 6236 | 0000 | D5D2D8F3F8F8 | 07 | 02 | 0F4003 | FE | BE | 56 | 297247 | 00 | 00 | NKQ388 |
| 61 | 0810 | 156 | 171237 | 00 | 004180 | 75 | 000000 | 23 | 03 | 623D | 0000 | C1C2C3F6F4F1 | 07 | 02 | 0F4003 | FE | BE | 56 | 297247 | 00 | 00 | ABC641 |
| 61 | 0810 | 156 | 203549 | 00 | 004184 | 7B | 000000 | 23 | 03 | 62A1 | 0000 | D7D8D2F1F2F3 | 07 | 02 | 0F4003 | FE | BE | 55 | 297247 | 00 | 00 | PQK123 |
| 61 | 0810 | 156 | 203549 | 00 | 004184 | 70 | 000000 | 23 | 03 | 62A1 | 0000 | D7D6D3F1F4F3 | 07 | 02 | 0F4003 | FE | BE | 55 | 297247 | 00 | 00 | POL143 |
| 61 | 0810 | 156 | 203549 | 00 | 004184 | 71 | 000000 | 23 | 03 | 62A1 | 0000 | D7D4D9F1F3F3 | 07 | 02 | 0F4003 | FE | BE | 55 | 297247 | 00 | 00 | PMR133 |
| 61 | 0811 | 156 | 033355 | 01 | 024080 | 6B | 000000 | 23 | 00 | 76E0 | 0000 | D1D2D3F8F5F2 | 07 | 02 | 0F4003 | FE | BE | 56 | 297247 | 11 | 00 | JKL852 |

A05M0017

A05M0020

Figure 45. Tape Library Permanent 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** The sense data from the OBR 23 log record.
- 3** The channel path ID obtained from byte 49 (or offset 49 decimal) of the OBR 23 log record.
- 4** The device number or the control unit address obtained from the offset (decimal) OBR format 23 log record.

Tape Subsystem Exception

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 46 on page 228 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. | |

Tape Subsystem Exception

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|--------------------------------|--|---|----------|----------|----------|-----------|-----------|-----------|-----------|--------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------|--|--|
| PERMANENT / RECOVERED ERROR TAPE LIBRARY | SUMMARY | 1 REPORT DATE 285 93 PERIOD FROM 156 92 TO 156 92 | | | | | | | | | | | | | | | | | | | | | |
| | | | 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 3 3 | | | | | | | | | | | | | | | | | | | | |
| | 2 SENSE BYTES --> 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 | | | | | | | | | | | | | | | | | | | | |
| CHP -ID | DTE | TIME | CPU | STATUS | ERA | BLK ID | FMT | MOD | LM | OTH | VOL | SERIAL | SW EC | SS ID | SEQ | IF | SF | EC | HW-SER | DR | SENSE VOLSER | | |
| 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | | |
| ***** SERVICE ALERTS ***** | | | | | | | | | | | | | | | | | | | | | | | |
| OTHER | | | | | | | | | | | | | | | | | | | | | | | |
| 61 | 156 | 091542 | 01 | 024080 | 74 | 000004 | 23 | 00 | 60B7 | 0000 | C4C3C9F2F5F7 | 07 | 02 | 0F4003 | FE | BE | 56 | 297247 | AA | 00 | DCI257 | | |
| 60 | 156 | 101802 | 00 | 02409C | 74 | 000000 | 23 | 00 | 85EF | 0111 | D4D7D4F7F3F3 | F3 | 02 | 0F4003 | FE | BF | 56 | 297247 | 22 | 00 | MPM733 | | |
| LIBRARY COMPONENT UNAVAILABLE | | | | | | | | | | | | | | | | | | | | | | | |
| 61 | 156 | 092803 | 00 | 024080 | 74 | 400049 | 23 | 01 | 60B7 | 0000 | D3D1D2F4F8F7 | F6 | 02 | 0F4003 | FE | BE | 56 | 297247 | 44 | 00 | LJK487 | | |
| OTHER | | | | | | | | | | | | | | | | | | | | | | | |
| 61 | 156 | 091842 | 01 | 024080 | 74 | 000000 | 23 | 03 | 60B7 | 0000 | C6C5C8F1F4F7 | 1F | 12 | 0F4003 | FE | BF | 56 | 297247 | 11 | 00 | FEH147 | | |
| 60 | 156 | 101826 | 00 | 024098 | 74 | 000000 | 23 | 03 | 85EF | 1111 | D6D2D8F4F0F0 | F0 | 02 | 0F4003 | FE | BE | 56 | 297247 | 33 | 00 | OKQ400 | | |
| OTHER | | | | | | | | | | | | | | | | | | | | | | | |
| 61 | 156 | 093415 | 02 | 024080 | 74 | 000004 | 23 | 7F | 60B7 | 0000 | C6C9C6F5F5F5 | F5 | F2 | 0F4003 | FE | BE | 56 | 297247 | CC | 00 | FEH147 | | |
| 61 | 156 | 101844 | 02 | 024080 | 74 | 000000 | 23 | 7F | 85EF | 1112 | D8D7D4F3F2F9 | F4 | 02 | 0F4003 | FE | BF | 56 | 297247 | 33 | 00 | QPM329 | | |
| PREVENTIVE MAINTENANCE | | | | | | | | | | | | | | | | | | | | | | | |
| 61 | 156 | 101751 | 00 | 024080 | 74 | 000000 | 23 | 80 | 76F0 | 0081 | E8E8E8F7F6F4 | F2 | 02 | 0F4003 | FE | BF | 56 | 297247 | 33 | 00 | YYY764 | | |
| 60 | 156 | 101900 | 00 | 02409C | 74 | 000000 | 23 | 80 | 76F0 | 0091 | D8D1D9F5F3F4 | F2 | F2 | 0F4003 | FE | BF | 56 | 297247 | 22 | 00 | QJR534 | | |
| THRESHOLD EXCEEDED | | | | | | | | | | | | | | | | | | | | | | | |
| 61 | 156 | 101755 | 00 | 024080 | 74 | 000000 | 23 | 81 | 76F0 | 0082 | E8E5E5F4F5F9 | 07 | 02 | 0F4003 | FE | BF | 56 | 297247 | 11 | 00 | YVV459 | | |
| 60 | 156 | 101902 | 00 | 024098 | 74 | 000000 | 23 | 81 | 76F0 | 0092 | E4E8E9F4F6F6 | F6 | 02 | 0F4003 | FE | BE | 56 | 297247 | 33 | 00 | UYZ466 | | |
| OTHER | | | | | | | | | | | | | | | | | | | | | | | |
| 61 | 156 | 101802 | 00 | 024080 | 74 | 000000 | 23 | FF | 85EF | 0111 | D8D5D4F5F9F9 | 07 | 02 | 0F4003 | FE | BF | 56 | 297247 | 11 | 00 | QNM599 | | |
| CPU | MODEL | SERIAL NUMBER | | | | | | | | | | | | | | | | | | | | | |
| 00 | 3090XA | 345783 | | | | | | | | | | | | | | | | | | | | | |
| 01 | 3090XA | 545783 | | | | | | | | | | | | | | | | | | | | | |
| 02 | 3090XA | 445783 | | | | | | | | | | | | | | | | | | | | | |

A05M0018

Figure 46. Tape Library Service Alert 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** The sense data from the OBR 23 log record.
- 3** The channel path ID obtained from byte 49 (or offset 49 decimal) of the OBR 23 log record.
- 4** The date obtained from bytes 8–11 of the OBR 23 log record.
- 5** The time obtained from bytes 12–15 of the OBR 23 log record.
- 6** The central processing unit obtained from bytes 20–21 of the OBR 23 log record.
- 7** The status obtained from sense bytes 0–2 of the OBR 23 log record.
- 8** The ERA obtained from sense byte 3 of the OBR 23 log record.
- 9** The channel logical block number obtained from sense bytes 4–6 of the OBR 23 log record.
- 10** The sense format obtained from sense byte 7 of the OBR 23 log record.
- 11** The library error modifier obtained from sense byte 8 of the OBR 23 log record.

- 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 Subsystem Exception

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 47 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 U | C R 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 | 60B7 | 0000 | 1 | 156/92 | 09:18:42:81 | |
| OF4003 | 0814 | 00 | D | 0 | 0 | 60B7 | 0000 | 1 | 156/92 | 09:28:03:87 | |
| OF4003 | 081A | 01 | D | 0 | 0 | 60B7 | 0000 | 1 | 156/92 | 09:15:42:58 | |
| OF4003 | 081C | 02 | D | 0 | 0 | 60B7 | 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 | | | | | | | | | |

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Figure 47. Tape Library 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** 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

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 233 |
| 2 | "TAPE Service Informational Messages (SIMs)" on page 236 <i>Informational Messages</i> help you define a problem to IBM customer service personnel. |
| 3 | "TAPE Media Informational Messages (MIMs)" on page 237 <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 OBR | Tape devices (only 3590s) ; including controllers 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 |
|---|-----------------------|
| 3592 Subsystem Exception Report Example | Figure 49 on page 234 |

```

TAPE SUBSYSTEM EXCEPTION REPORT                                REPORT DATE 080 97
                                                            PERIOD FROM 037 97
                                                            TO   079 97

*** SEQUENCE BY PROBABLE FAILING UNIT ***

PROBABLE  DEVICE                                     4  5  -----6-----
FAILING   TYPE/   FAILURE
UNIT      VOLID   AFFECT                                CPU  /CUA  SIMS  MIMS  PERM  OBR  OBR
*****
2  1  3
MEDIA
                                     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 48. 3590 Subsystem Exception Report Example

- 1 If the record is a MIM, the information appearing in this column will be the volid. 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.

TAPE Subsystem Exception

| 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/VOLID | FAILURE AFFECT | CPU | -----TOTALS----- | | | | |
|-----------------------|-------------------|----------------------------|-----|------------------|------|------|----------|----------|
| | | | | DEVNO /CUA | 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 49. 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 50. 3592 Emulated Device Summary Report

TAPE Subsystem Exception

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 51 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 51. 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 52 shows an example of the TAPE media informational messages.

```

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 52. TAPE Media Information Messages (MIMS)

TAPE Subsystem Exception

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:

- 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 350 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 71 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” |
| 34XX/3803/8809 Subsystem Summary–Volume Statistics | “34XX/3803/8809 Subsystem Summary–Volume Statistics” on page 242 |

34XX/3803/8809 Subsystem Summary

1 XXXXX 34XX/3803/8809 SUBSYSTEM SUMMARY XXXXX
 XXXXX PRIMARY DEV 0180-018F XXXXX

2 DEV STATISTICS - DEVS EQUAL TO OR EXCEEDING 001 TEMP RDS OR 001 TEMP WRTS

Threshold Summary Report

NO PERMANENT ERRORS ENCOUNTERED: 97047 TO 97058

XX

| 34XX/3803/8809 SUBSYSTEM TEMPORARY ERROR SUMMARY | | | | | | | | | | | | | | | | |
|--|-----------------|-------|---------|--------|-----------|---------------|-----------------|--------|------------------|--------|---------|----------|-----------|----------|---------|---------|
| DEV | ERRORS/100K IOS | | DATE | | TOTAL IOS | TOTAL MOUNTS. | READ STATISTICS | | WRITE STATISTICS | | ECC VRC | STRD CHK | PART RECK | OVER RUN | VEL CHG | IBG DET |
| | READ | WRITE | -FROM-- | --TO-- | | | ERRORS | CLNRAC | ERRORS | ERSGAP |  |  |  |  |  |  | ENV |
| 0571 | 0.00 | 0.00 | 05797 | 05797 | 1224 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0572 | 0.00 | 0.00 | 04797 | 04797 | 4525 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 0.00 | 0.00 | | | 5749 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

XXXXX 34XX/3803/8809 SUBSYSTEM SUMMARY XXXXX
 XXXXX PRIMARY DEV 0570-057F XXXXX
 NO DEVS EXCEEDED THRESHOLD: 97041 TO 97056

XX

PERMANENT ERROR SUMMARY

NO PERMANENT ERRORS ENCOUNTERED: 97041 TO 97056

XX

| 34XX/3803/8809 SUBSYSTEM TEMPORARY ERROR SUMMARY | | | | | | | | | | | | | | | | |
|--|-----------------|-------|---------|--------|-----------|---------------|-----------------|--------|------------------|--------|---------|----------|-----------|----------|---------|---------|
| DEV | ERRORS/100K IOS | | DATE | | TOTAL IOS | TOTAL MOUNTS. | READ STATISTICS | | WRITE STATISTICS | | ECC VRC | STRD CHK | PART RECK | OVER RUN | VEL CHG | IBG DET |
| | READ | WRITE | -FROM-- | --TO-- | | | ERRORS | CLNRAC | ERRORS | ERSGAP |  |  |  |  |  |  | ENV |
| 0570 | 0.00 | 0.00 | 05297 | 05297 | 30 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0571 | 0.00 | 0.00 | 05597 | 05697 | 4174 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0572 | 0.00 | 0.00 | 04797 | 04797 | 4525 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0574 | 0.00 | 0.00 | 05397 | 05397 | 1707 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0575 | 0.00 | 0.00 | 04597 | 04597 | 20 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0577 | 0.00 | 0.00 | 05497 | 05497 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 0.00 | 0.00 | | | 10461 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

| DEV | TU SERIAL | DATE DAY YR | VOLUME SERIAL | TIME HH MM SS | --TEMP-- RDS | IO WRTS | DEN- NRZI COUNT | R/W TRG VRC | LRC MTE | CRC EDC | ECC ENV | SKEW ERR | ERLY BOR | VEL CHG | ---CPU--- | | | HDR SERIAL | |
|------|-----------|-------------|---------------|---------------|--------------|---------|-----------------|-------------|---------|---------|---------|----------|----------|---------|-----------|--------|------|------------|------|
| | | | | | | | | | | | | | | | ID | SERIAL | SER | | |
| 0575 | N/A | 041 97 | SMP010 | 18 12 27.52 | 2 | 0 | 10 N/A | N/A | 2 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 3033 | 021928 | 5560 |
| 0571 | N/A | 041 97 | T28375 | 18 13 28.09 | 0 | 1 | 1647 N/A | N/A | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 3033 | 021928 | 3758 |
| 0578 | N/A | 046 97 | 69945 | 13 32 08.20 | 2 | 0 | 9 N/A | N/A | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3033 | 021928 | 3964 |

XX

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 | | |

...SENSE BYTES....

| DEV | SERIAL | ERR | VALID | LAST CC CA | CC CA | STATUS FL CT | US | CS | CT | SENSE BYTES | | | | | | | | | | | | | | | | | | | | | | | | |
|------|--------|-----|-------|------------|--------|--------------|------|----|----|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| | | | | | | | | | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 0 | 1 | 2 | 3 | |
| 0575 | 55560 | EC | | 1F | 000000 | 40 | 0050 | 26 | 00 | 0050 | 18 | 44 | 00 | 28 | 00 | 40 | 34 | 00 | 10 | 08 | 10 | 00 | 00 | BA | 2F | 15 | B8 | 91 | 02 | D8 | 00 | 1A | 00 | 00 |

XX

34XX/3803/8809 SUBSYSTEM TEMPORARY ERROR SUMMARY

| DEV | ERRORS/100K IOS | | DATE | | TOTAL IOS | TOTAL MOUNTS. | READ STATISTICS | | WRITE STATISTICS | | ECC VRC | STRD CHK | PART RECK | OVER RUN | VEL CHG | IBG DET |
|-------|-----------------|-------|---------|--------|-----------|---------------|-----------------|--------|------------------|--------|---------|----------|-----------|----------|---------|---------|
| | READ | WRITE | -FROM-- | --TO-- | | | ERRORS | CLNRAC | ERRORS | ERSGAP |  |  |  |  |  |  | ENV |
| 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 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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 DAY YR | VOLUME SERIAL | TIME HH MM SS | TEMP RDS | IO WRTS | COUNT | MTE | EDC | SRC | RBF | ENV | NOP | CRE | SKEW | VEL | MODEL | SERIAL | |
|-----|-------------|---------------|---------------|----------|---------|-------|-----|-----|-----|-----|-----|-----|-----|------|-----|-------|--------|------|
| | | | | | | | | | | | | | | | | | | 0BAE |

XX

PERMANENT ERROR SUMMARY

Threshold Summary Report

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------|-----|----|----|----|-------|------|-------|---|---|---|---|---|---|----|------|--|--|--|-------|----------|------|--------|-----|------|-------|
| T2DLIB | 041 | 97 | 01 | 05 | 07.33 | 0BA0 | N/A | R | | | | | | | | | | | 4096 | D8GRAS11 | 3033 | 020868 | N/A | N/A | 1 |
| T2DLIB | 041 | 97 | 01 | 30 | 02.09 | 0BA2 | N/A | R | | | | | | | | | | | 8192 | D8GRAS13 | 3033 | 020868 | N/A | N/A | 8225 |
| T2DLIB | 041 | 97 | 01 | 47 | 17.48 | 0BA3 | N/A | R | | | | | | | | | | | 12288 | D8GRAS14 | 3033 | 020868 | N/A | N/A | 16449 |
| T28375 | 041 | 97 | 18 | 13 | 28.09 | 0571 | N/A | | 0 | 0 | 0 | 1 | 0 | 1 | 1647 | | | | 0 | #IPORS2 | 3033 | 021928 | N/A | N/A | 3758 |
| T69217 | 047 | 97 | 19 | 50 | 58.03 | 0583 | N/A | | 0 | 0 | 0 | 1 | 0 | 1 | 2671 | | | | 0 | #TS0013 | 3084 | 221128 | N/A | N/A | 24793 |
| T69299 | 047 | 97 | 19 | 52 | 36.88 | 0584 | N/A | | 0 | 0 | 0 | 9 | 0 | 12 | 2609 | | | | 0 | #TS0105 | 3084 | 321128 | N/A | N/A | 53793 |
| T69299 | 057 | 97 | 19 | 52 | 36.88 | 0584 | N/A | | 0 | 0 | 0 | 9 | 0 | 12 | 2609 | | | | 0 | #TS0105 | 3084 | 021103 | N/A | N/A | 53793 |
| T75537 | 041 | 97 | 08 | 58 | 44.67 | 0BA8 | N/A | W | | | | | | | | | | | 20480 | D24WLF1M | 3033 | 020868 | N/A | N/A | 32897 |
| T77371 | 041 | 97 | 08 | 45 | 21.71 | 0BA7 | N/A | R | | | | | | | | | | | 16384 | D24WLF1L | 3033 | 020868 | N/A | N/A | 24673 |
| T81582 | 046 | 97 | 04 | 26 | 26.14 | 0572 | N/A | | 0 | 0 | 0 | 1 | 0 | 1 | 1781 | | | | 0 | D10LLC1C | 3084 | 121128 | N/A | N/A | 4201 |
| XXXXXX | 047 | 97 | 01 | 07 | 60.89 | 0180 | 59437 | | 0 | 0 | 0 | 4 | 0 | 4 | 7526 | | | | 0 | | 4331 | 013078 | 5 | 1600 | 0 |
| XXXXXX | 047 | 97 | 01 | 03 | 65.35 | 01A0 | N/A | | 0 | 0 | 0 | 5 | 0 | 5 | 7508 | | | | 0 | | 4331 | 013078 | N/A | N/A | N/A |
| ZDA12A | 041 | 97 | 11 | 42 | 45.57 | 0BA1 | N/A | W | | | | | | | | | | | 40960 | D24LAC1A | 3033 | 020868 | N/A | N/A | 65518 |
| 12121 | 041 | 97 | 11 | 41 | 09.86 | 0BA5 | 55560 | W | | | | | | | | | | | 28672 | E17JWS1A | 3033 | 020868 | 5 | 800 | 49345 |
| 12121 | 041 | 97 | 11 | 41 | 53.25 | 0BA5 | N/A | R | | | | | | | | | | | 36864 | E17JWS1A | 3033 | 020868 | N/A | N/A | 17 |
| 69945 | 046 | 97 | 13 | 32 | 08.20 | 0578 | N/A | | 0 | 0 | 2 | 0 | 0 | 0 | 9 | | | | 0 | D10LEM1B | 3033 | 021928 | N/A | N/A | 3964 |

1 The volume statistics summarize all the permanent errors presented in the preceding parts of the report.

Threshold Summary 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 246 |
| "Link Maintenance Information Detail Edit (A2) Report" on page 247 |
| "Asynchronous Notification Record Detail (A3) Report" on page 249 |
| "A3 Report for Incorrect Record" on page 249 |
| "Channel Check Handler (CCH) Detail Reports" on page 251 |
| "Channel Report Word (CRW) Detail Report" on page 257 |
| "Dynamic Device Reconfiguration (DDR) Detail Report" on page 259 |
| "Data Reduction Report" on page 260 |
| "Recovery/Termination (EOD) Detail Reports" on page 261 |
| "Machine Check Handler (MCH) Detail Reports" on page 264 |
| "Miscellaneous Data Record (MDR) Detail Reports" on page 272 |
| "Missing Interrupt Handler (MIH) Detail Reports" on page 278 |

Detail Edit and Summary Reports

| REPORT |
|---|
| "Outboard Record (OBR) Detail Edit Reports" on page 281 |
| "Software (SFT) Detail Edit Reports" on page 307 |
| "Subchannel Logout Handler (SLH) Detail Edit Reports" on page 318 |
| "Unknown Detail Edit Reports" on page 324 |

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 53 on page 247 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

DAY YEAR
 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 | 00000000 | |
| 0058 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | |
| 0078 | 00000000 | 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 53. 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 54 on page 248 contains an example of the link maintenance information detail edit (A2) report.

Detail Edit and Summary Reports

```

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

INCIDENT CODE = 03 2 DEDICATED CONNECTION INTERFACE = N/A 3
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    0000000010148  00DF

HEX DUMP OF RECORD 10
HEADER (0000) A2831800 00000000 0097043F 00123408 63330039 3090000 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 54. 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 55 contains an example of the asynchronous notification record detail (A3) report.

```
REPORTING DEVICE:    000350   REPORT: ASYNCHRONOUS           DAY YEAR
REPORTING DEVICE TYPE: 3390   REPORTING SYSTEM: VS 2 REL. 3 370XA DATE: 043 97
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 55. Asynchronous Notification Record Detail (A3) Report

A3 Report for Incorrect Record

This report is received when there is an incorrect A3 record.

Detail Edit and Summary Reports

```
.*****  
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 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 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 56. 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" |
| CCH Summary Report for 3090, Record Type 20 | Figure 57 on page 252 |
| CCH Detail Report for 3090, Record Type 21 | Figure 58 on page 253 |
| CCH Summary Report for 3090, Record Type 21 | Figure 59 on page 254 |
| CCH Detail Report for 4341 | "CCH Detail Report for 4341" on page 254 |
| CCH Summary Report for 4341 | Figure 60 on page 255 |
| CCH (Inboard) Detail Report for 9373 | "CCH (Inboard) Detail Report for 9373" on page 255 |
| CCH (Inboard) Summary Report for 9373 | Figure 61 on page 257 |

CCH Detail Report for 3090, Record Type 20

```

CPU MODEL:      3090      REPORT:  CCH EDIT      DAY YEAR      JOB IDENTITY: C078938B
CPU ID:        370150    SCP:  V370 REL.  6      DATE: 042  97      C3F0F78F9F3F8C2
                                     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          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          1
DEGRADE FAIL      0
SOFT FAIL          0
PASSED            0
    
```

I/O UNIT FOUND BUSY

CHANNEL/UNIT ADDR: 1481

CHANNEL ERROR ANALYSIS

Detail Edit and Summary Reports

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 |
| | | | TO: 042 97 |
| CHANNEL NUMBER: | 14 | | |

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 57. 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)

```

          CC DA  FL  CT
FAILING CCW 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
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
IGFCCHHEX ENTERED  0
    
```

MULTIPROCESSING INFORMATION

| | | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|--------------------|------|------------------|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|
| CPU/CHANNEL SET ID | 0000 | CHANNELS ON LINE | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| CPU/CHANNEL SET ID | 0001 | CHANNELS ON LINE | 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 58. CCH Detail Report for 3090, Record Type 21

Detail Edit and Summary Reports

```

CPU MODEL:          3090          REPORT:  CCH SUMMARY          REP ORT DATE: 073 97
CPU ID NUMBER      : 170044          PER IOD FROM: 042 97
                                TO:          042 97
CHANNEL NUMBER:    00
NUMBER OF RECORDS: 001

```

ERROR SOURCE:

```

CPU          0000
CHAN         0000
SCU          0000
SU           0000
CU           0001

```

UNIT STATUS

```

ATTENTION          0000
STATUS MODIFIER    0000
CONTROL UNIT END   0000
BUSY               0000
CHANNEL END        0000
DEVICE END         0000
UNIT CHECK         0000
UNIT EXCEPTION     0000

```

CHANNEL STATUS

```

PROGRAM CONTROLLED INTERRUPT 00 00
INCORRECT LENGTH             00 00
PROGRAM CHECK                 00 00
PROTECTION CHECK              00 00
CHANNEL DATA CHECK           00 00
CHANNEL CONTROL CHECK         00 00
INTERFACE CONTROL CHECK       00 01
CHAINING CHECK                00 00

```

SOFTWARE RECOVERY STATUS

```

HARD FAIL          0000
DEGRADE FAIL       0000
SOFT FAIL          0000
PASSED             0000

```

Figure 59. 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---

```

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

```

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
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
IGFCCHHEX 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 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 60. CCH Summary Report for 4341

CCH (Inboard) Detail Report for 9373

```

MODEL 9373 SERIAL NO. 237967
V370 REL. 06
--- RECORD SOURCE - CCH TYPE - INBOARD

```

Detail Edit and Summary Reports

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--- | | ---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 |

---LIMITED CHANNEL LOGOUT DATA EDITING---

| | | | |
|-----------------------------------|---|------------------------|---|
| ---FIELD VALIDITY FLAGS--- | | ---TERMINATION CODE--- | |
| SEQUENCE CODE STORED IS VALID | 0 | INTERFACE DISCONNECT | 0 |
| UNIT STATUS STORED IS VALID | 0 | STOP, STACK OR NORMAL | 0 |
| CCW ADDR AND KEY IN CSW ARE VALID | 0 | SELECTIVE RESET | 0 |
| CHANNEL ADDRESS STORED IS VALID | 1 | INTERFACE INOPERATIVE | 0 |
| DEVICE ADDRESS STORED IS VALID | 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 CHAN DATA CHECK 0000
STATUS MODIFIER 0000 DEVICE END 0000 INCORRECT LENGTH 0000 CHAN CTL CHECK 0002
CONTROL UNIT END 0000 UNIT CHECK 0000 PROGRAM CHECK 0000 I/F CTL CHECK 0000
BUSY 0000 UNIT EXCEPTION 0000 PROTECTION CHECK 0000 CHAINING CHECK 0000
    
```

Figure 61. 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 62 on page 258 and Figure 63 on page 259 contain examples of the channel report word (CRW) detail report.

Detail Edit and Summary Reports

```

DEVICE NUMBER: 00000      REPORT: CRW EDIT          DAY YEAR      RECORDING MODULE: IOSREIPH
                        SCP: VS 2      V2 R3          DATE: 260 04      C9D6E2D9C5C9D7C8
DEVICE TYPE: N/A          CPU MODEL: 2084          HH MM SS.TH
CHANNEL PATH ID: **      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

```

UCB LEVEL VALUE:      00
UCB LEVEL BIT MASK:   00000000
SUBCHANNEL RECOVERY ANCHOR: 00000000
  
```

CHANNEL PATH INFORMATION

```
CHANNEL PATH RECOVERY COUNT: **
```

```

-----UCB DEVICE STATUS FLAGS-----      4
-----CHPID ICHPT FLAGS-----

UCB TEMPORARILY UNUSABLE 0      INTRCEPT CNDITION EXISTS 0      CHP VALID FOR INSTLATION *
DEVICE NOT READY 0      DVICE 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 UNDRGOING CHP RCOVRY *
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 40340105 91210000
0018 C9D3E5D9 C1E2F0F4 01800001 00000000 0903001E 00000000 00000000 00000000
0038 00000000 00000000 00000000 00000000 00E00008 10182028 30380000 00000000
  
```

Figure 62. 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
                                DATE: 043  97      RECORDING MODULE: ILVRAS04
                                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
IOBKB 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

```

DEVICE IS OFFLINE          0
DEVICE ATTACHED TO SYSTEM  0
DEVICE IS NOT IN USE       0
CP VOLUME IS ATTACHED     0
DEVICE IS ATTACHED TO USER 0
DEVICE IS FOR SPOOLING     0
DEV MOUNTED, NOT ATTACHED 0
XVOLID SPECD FOR DASD/TAPE 0
    
```

ERROR RECOVERY CONTROL FLAGS

```

MSG HNDLR WAIT FOR DEV END 0
INTENSIV RECRDING MODE ACT 0
INTRVTION REQUIRED ON DEV   0
DEVICE IS BEING RESET      0
SENSE CONTINGENT CONNECTN 0
DEVICE HAS BEEN RESERVED   0
UNSOLICITED DEV END IN ERP 0
MISSING INTERRUPT MSG SENT 0
    
```

SCHIB INFORMATION

| CONTROL FLAGS | CHANNEL PATH IDS | 00 | E0 | 00 | 08 | 10 | 18 | 20 | 28 |
|----------------------------|---------------------------|----|----|----|----|----|----|----|----|
| SUBCHANNEL ENABLED | INTERRUPT REQUEST CODE | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PROG CHECK ADDR >= LIMIT | LOGICAL PATH MASK | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PROG CHECK ADDR <= LIMIT | PATH NOT OPERATIONAL MASK | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MEASUREMENTS ARE PERMITTED | LAST PATH USED MASK | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIMING IS PERMITTED | PATH INSTALLED MASK | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| DYNAMIC PATHING AVAILABLE | PATH OPERATIONAL MASK | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TIMING FACILITY AVAILABLE | PATH AVAILABLE MASK | 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 63. 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 64 on page 260 and Figure 65 on page 260 contain examples of the dynamic device reconfiguration (DDR) detail report.

Detail Edit and Summary Reports

```
--- 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 64. 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 65. 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 66 on page 261 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 66. 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:

Detail Edit and Summary Reports

| REPORT | REFER TO |
|-----------------------------------|-----------------------|
| End of Day (EOD) Detail Report | Figure 67 |
| End of Day (EOD) Summary Report | Figure 68 |
| System Termination Detail Report | Figure 69 on page 263 |
| System Termination Summary Report | Figure 70 on page 263 |

```
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 67. End of Day (EOD) Detail Report

```
SUMMARY OF EOD RECORDS
                                DAY YEAR  DAY YEAR
                                193  08   TO 193  08
DATE RANGE FROM
                                MODEL 2097
                                CPU SERIAL 0706C0

NO. OF RECORDS 001

XXXXXXX END OF EOD SUMMARY XXXXXX
```

Figure 68. 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 69. System Termination Detail Report

SUMMARY OF SYSTEM TERMINATION RECORDS

DATE RANGE FROM DAY YEAR TO DAY YEAR
046 97 TO 056 97

MODEL
CPU SERIAL 220344

NO. OF RECORDS 002

XXXXXXX END OF SYSTEM TERMINATION SUMMARY XXXXXXXX

Figure 70. 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 71 on page 264 |
| Initial Program Load (System Initialization) Summary Report (IPL) for 2084 | Figure 72 on page 264 |

Detail Edit and Summary Reports

```

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 71. 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
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 72. 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.
- 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 265 |
| Machine Check Handler (MCH) Summary Report for 2084-XA (MVS) | "Machine Check Handler (MCH) Summary Report for 2084-XA (MVS)" on page 267 |
| Machine Check handler (MCH) Detail Report for 2084-XA (VM) | "Machine Check Handler (MCH) Detail Report for 2084-XA (VM)" on page 268 |

Detail Edit and Summary Reports

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  00 00 00 00
GP REGS C-F  00 00 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
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                                   0
STORAGE RECONFIGURED,PAGE INVALID        0      RESERVED                                   0

```

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
    
```

Machine Check Handler (MCH) Summary Report for 2084-XA (MVS)

MODEL: 2084 REPORT: MACHINE CHECK SUMMARY DAY YEAR DAY YEAR
 CPU ID: 270044 DATE RANGE: 215 04 REPORT DATE: 289 04

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 |

Detail Edit and Summary Reports

| | | | |
|---------------------------------|---|---------------------------------|---|
| 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: 215 04 | REPORT DATE: 289 04 |
| CPU ID: 511353 | SCP: VM/ESA V1 R2 | HH MM SS.TH | |
| ADDRESS: 00 | | TIME: 12 07 30.59 | |
| MACHINE VERSION CODE: 00 | | | |

| | |
|------------------------|----------------------|
| 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

| | | | |
|---------------------------|---|-----------------------------|---|
| 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 |

Detail Edit and Summary Reports

```

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
    
```

Detail Edit and Summary Reports

Machine Check Handler (MCH) Summary Report for 2084-XA (VM)

MODEL: 2084 REPORT: MACHINE CHECK SUMMARY DATE RANGE: 214 04 REPORT DATE: 289 04

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
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

DAY YEAR HH MM SS
DATE - 044 97 TIME - 07 19 52

OLD MACHINE CHECK PSW SM KS CM UA IA
00 0C 30 0000 01AADC

JOB NAME=

PROGRAM NAME= CP/370

Detail Edit and Summary Reports

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 |
| FP REGS 4,6 | 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 |
| GP REGS 4-7 | 00 00 00 00 | 00 00 00 00 | 00 00 00 00 |
| GP REGS 8-B | 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 |
| CT REGS 8-B | 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 | 00000000 |
| 0030 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 070E0000 | 00000000 | 00000000 | 00000000 |
| 0060 | 00000000 | 00042000 | 040C0000 | 810B09D0 | 00000000 | 00042000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 |
| 0090 | 00000000 | 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 | 00000000 |
| 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 | 00000000 | | |

Detail Edit and Summary Reports

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
- 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 73 on page 273 |
| MDR Detail Summary Report for 3800-3-8 | Figure 74 on page 274 |
| MDR Detail Edit Report (Outboard) | Figure 75 on page 275 |
| MDR Detail Summary Report | Figure 76 on page 276 |
| MDR Detail Edit Report, BSC/SS Permanent Line Error | Figure 77 on page 277 |
| MDR Summary Report, BSC/SS Permanent Line Error | Figure 78 on page 277 |
| MDR Detail Edit Report, SDLC Link Errors | Figure 79 on page 278 |
| MDR Detail Summary Report, SDLC Link Errors | Figure 80 on page 278 |

Detail Edit and Summary Reports

```

---RECORD ENTRY TYPE - MDR          SOURCE - MISC          CPU MODEL 3084XA    SERIAL NO. 121128
VS 2 REL.      03

          DAY    YEAR          HH.MM.SS.TH          BTS COUNT (DECIMAL)  00116000
DATE - 048    97          TIME - 07 31 10 71    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  STATUS  STATUS  ----- SENSE BYTES -----
NO.    CODE    NAME          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
0038  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
0058  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
0078  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000

```

Figure 73. MDR Detail Edit Report for 3800-3-8

Detail Edit and Summary Reports

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 SDR COUNTERS | | | | 2 LONG OBR DATA | | | | 3 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 UNDETECTED | 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 OVRD | 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 |
| | | 63 VACUUM SYS CK | 0000 | 7D S/B OVER-RUN | 0000 | A4 MIRROR MTR TH | 0000 | BC FILE READ CK | 0000 |
| 21 FSR 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 |
| 22 PLATN TEMP CK | 0000 | 65 CLNR BRUSH CK | 0000 | 7F CG CS CMLPT CK | 0000 | A6 CYC BLWR MT TH | 0000 | BF DISK DAMAGED | 0000 |
| 23 FSR BUR NCLOS | 0000 | 66 ERASE LAMP CK | 0000 | 80 RETRY G LOG FL | 0000 | A7 DEV MOTOR THRM | 0000 | D0 EXGRF-CGEN CK | 0000 |
| 24 FSR BUR NOPEN | 0000 | 67 MARK SENSOR CK | 0000 | 89 PERM IEU PE | 0000 | A8 CLNR BR MTR TH | 0000 | D1 X/G CPS CHECK | 0000 |
| 25 FSR PRT ALGNMT | 0000 | 68 DRUM SLOW | 0000 | 8B SUBSYS CLK CK | 0000 | A9 CTL ASM GT TH | 0000 | D2 X/G RD WR CK | 0000 |
| 26 FSR WIDTH CK | 0000 | 69 DRUM FAST | 0000 | 8D SUC PRT RSTART | 0000 | | | D3 EXGRF-DECOMP | CK0000 |
| 27 FSR MTR OVRD | 0000 | 6A DRUM MTR OVLD | 0000 | 8E SUBSYS RUN RST | 0000 | AB FSR SCFF MT TH | 0000 | D4 CPS ER-DECOMP | 0000 |
| 28 FSR PAPER SKEW | 0000 | 6C TONER OVRFEED | 0000 | 8F CHAN SEL RESET | 0000 | AC CFS ELEV MT TH | 0000 | D8 ACCUMULATOR | CK 0000 |
| 2A X/F SHORT LOOP | 0000 | 6D TONER LOOP OPN | 0000 | 90 PROC CLOCK CK | 0000 | AD CFS MOTOR THRM | 0000 | D9 ACCUM STRG CK | 0000 |
| 2B X/F LONG LOOP | 0000 | 70 CGEN INTRF CK | 0000 | 91 CHARGE CRNA CK | 0000 | AE MUL THRM SW CK | 0000 | DA ACCUM/SB CK | 0000 |
| 2E FSR ROLL WRAP | 0000 | 71 CGEN CNTRL CK | 0000 | 92 XFR CORONA CK | 0000 | AF FSR THERM CHK | 0000 | DB NO RSP TIMEOUT | 0000 |
| | | 72 RPG CHECK | 0000 | 93 PRCLN CRNA CK | 0000 | B1 BTS CAM MT TH | 0000 | DD CPS RD/WR CK | 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 CMLPT 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 | | |
| | | | | | | | | | |
| 71 CGEN CNTRL 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 74. 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.

Detail Edit and Summary Reports

```

---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 75. MDR Detail Edit Report (Outboard)

Detail Edit and Summary Reports

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 READ | TOTAL DATA CHECKS | GIGABYTES READ/ERROR | -----ERROR DESCRIPTION----- | | | |
|----------|-------------------------|----------------------|-------------------------|-----------------------------|----------|-------------|-----------|
| | | | | 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 | BYTE | -----ERROR NAME---- | QTY |
|------|---------------------|-----|------|---------------------|-----|------|---------------------|-----|------|---------------------|-----|
| 16 | MODEL 1/MODEL 2 | | 17 | MODEL 1/MODEL 2 | | 18 | MODEL 1/MODEL 2 | | 19 | MODEL 1/MODEL 2 | |
| 0 | XOVERSKEW/SD PAR | 000 | 0 | SD PAR 0/IW PAR | 000 | 0 | DR+BR P0/DRV SEL | 000 | 0 | DRV SEL / | 000 |
| 1 | XOVERRUN/OVERRUNX | 000 | 1 | SD PAR 1/DR+BR CHK | 000 | 1 | DR+BR P1/INV TAG | 000 | 1 | 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 | 2 | DEV CK / | 000 |
| 3 | FETCH CT/CBO PAR | 000 | 3 | IW REG 1/MISS PLO | 000 | 3 | 3PLO CK P0+1/TA REG | 000 | 3 | TA REG / | 000 |
| 4 | ECC CK 1/ECC CK A | 000 | 4 | IR REG 0/VFO PHSE | 000 | 4 | ECC DEC /CUDI REG | 000 | 4 | CUDI REG/ | 000 |
| 5 | ECC CK 2/ECC CK B | 000 | 5 | IR REG 1/CHAN CK | 000 | 5 | CHAN CK /TD REG | 000 | 5 | TD REG / | 000 |
| 6 | ECC INPT/ECC INPT | 000 | 6 | SKBO 0 /DATA ERR | 000 | 6 | XDATA ERR/SRCH COM | 000 | 6 | SRCH COM/ | 000 |
| 7 | BYTE CTR/BYTE CTR | 000 | 7 | SKBO 1 /CUDI CK | 000 | 7 | CUDI CK /ECC CHK | 000 | 7 | | 000 |

----- SUMMARY OF EQUIPMENT CHECKS FOR MODULE 1 -----

| BYTE | -----ERROR NAME---- | QTY | BYTE | -----ERROR NAME---- | QTY | BYTE | -----ERROR NAME---- | QTY | BYTE | -----ERROR NAME---- | QTY |
|------|---------------------|-----|------|---------------------|-----|------|---------------------|-----|------|---------------------|-----|
| 20 | | | 21 | | | 22 | | | 23 | | |
| 0 | INOPERATIVE | 000 | 0 | BUS OUT PAR | 000 | 0 | CLIP ERROR | 000 | 0 | WRT XITION | 000 |
| 1 | DISK SPEED | 000 | 1 | | 000 | 1 | ADDRESS REG | 000 | 1 | | 000 |
| 2 | APC FAILURE | 000 | 2 | | 000 | 2 | WRT IX(MOD 1) | 000 | 2 | WRT DRIVER | 000 |
| 3 | APC SYNC | 000 | 3 | BUS IN PAR | 000 | 3 | RD SEQ FAIL | 000 | 3 | I SOURCE | 000 |
| 4 | 378 JUMP | 000 | 4 | BOTH PATHS(MOD 1) | 000 | 4 | | 000 | 4 | HI I SOURCE | 000 |
| 5 | 378 SEQUENCE | 000 | 5 | | 000 | 5 | WRT SEQ FAIL | 000 | 5 | SLIDER SEL | 000 |
| 6 | 378 ILLEGAL | 000 | 6 | | 000 | 6 | SIMULT R/W | 000 | 6 | READ BIAS | 000 |
| 7 | PLO SYNC | 000 | 7 | PATH 1(MOD 1) | 000 | 7 | I SINK ON | 000 | 7 | | 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 | SPARE | SIDE | COL | CARD | X | SLDR | DISK ELE | DISK HALF | CORRECTABLE | CU RETRY | RETRY INHIB | PERMANENT |
| CYL HEAD | | | | | | | | (MOD 1) | | (RETRY NO) | | |
| 213 195 | 1 | A | 1 | 1 | 0 | 5 | 3 | | | 22 | | |
| 000 000 | 1 | A | 0 | 0 | 0 | 0 | 0 | | | 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 | SPARE | SIDE | COL | CARD | X | SLDR | DISK ELE | DISK HALF | CORRECTABLE | CU RETRY | RETRY INHIB | PERMANENT |
| CYL HEAD | | | | | | | | (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

Detail Edit and Summary Reports

```

DEVICE NUMBER: 06FF      REPORT:  MISCELLANEOUS DATA EDIT
                      SCP:      VS 2  REL. 3
                      DATE:    070  97      REPORT DATE: 071
97
DEVICE TYPE:   3705

                      MODEL : 3033
                      CPU ID: 021929
                      HH MM SS.TH
                      TIME: 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 77. MDR Detail Edit Report, BSC/SS Permanent Line Error

```

DEVICE NUMBER: 06FF      REPORT:  MISCELLANEOUS DATA SUMMARY
                      DATE RANGE: DAY YEAR - DAY YEAR
                      DATE RANGE: 070  97  TO 071  97      REPORT DATE: DAY YEAR
                      DATE RANGE: 080  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/INTFC
NTVLN0A2  D877 00A2 00000000 00000 00001 %% 00000 0 0001 00000 00 000 00000 00000 00000
  
```

Figure 78. MDR Detail Summary Report, BSC/SS Permanent Line Error

Detail Edit and Summary Reports

```

DEVICE NUMBER: 06FF      REPORT: MISCELLANEOUS DATA EDIT      DAY   YEAR
                    SCP: VS 2 REL. 3                DATE: 070 97      REPORT DATE: 071
97
DEVICE TYPE: 3705

                    MODEL : 3033                      HH MM SS.TH
                    CPU ID: 021929                   TIME: 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 79. MDR Detail Report, SDLC Link Errors

```

DEVICE NUMBER: 06FF      REPORT: MISCELLANEOUS DATA SUMMARY

                    DAY   YEAR - DAY   YEAR
DEVICE TYPE: 3705      DATE RANGE: 048 97 TO 049 97      REPORT DATE: 071 97

TOTAL NUMBER OF RECORDS: 00001

                - - - - - PERMANENT ERROR TYPES - - - - -
TERM NAME  RID  LIA  # I/O OPS  TEMP  PERM  HDWR  TM OUT  DATA CK  RCV  ITV RQD  MISC  MODEM/
                ERRORS  ERRORS  %    %    %    %    %    %    %    %    %    %    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 80. 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 81 on page 279 |
| MIH (370) Detail Summary Report | Figure 82 on page 279 |
| MIH (370XA) Detail Edit Report | Figure 83 on page 280 |
| MIH (370XA) Detail Summary Report | Figure 84 on page 280 |
| MIH (370XA) Detail Edit Report for zHPF | Figure 85 on page 281 |

```

--- 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

HH MM SS.TH
TIME INTERVAL 00 00 15.00

VOLUME SERIAL NUMBER VMRESA

HEX DUMP OF RECORD
HEADER 70660800 C0000000 0097043F 01081232 10234567 93750000
0000 E2E8E2E3 C5D44040 000C4000 0C40E5D4 D9C5E2C1 00002107 F0F0F0F0 F1F5F0F0
0020 00000000
  
```

Figure 81. MIH (370) Detail Edit Report

```

SUMMARY OF MIH RECORDS CUA 000C40

RECORD DATE RANGE DAY YEAR DAY YEAR
043 97 043 97

MODEL - 9375 SERIAL NO - 234567

TOTAL NUMBER OF RECORDS=0001
  
```

Figure 82. 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
                                                           UCB LEVEL BYTE: 01
                        HH MM SS.TH
TIME INTERVAL: 00 00 15.00

```

RECOVERY ACTIONS PERFORMED BY 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 83. MIH (370XA) Detail Edit Report

1 The hexadecimal value in the byte is shown in Figure 83; the bit settings are shown in Figure 84.

```

DEVICE NUMBER: 02300      REPORT: MIH SUMMARY          REPORT DATE: 289 04
                        CPU MODEL: 2084          PERIOD FROM: 260 04
DEVICE TYPE: 3390        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 84. MIH (370XA) 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 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
UCB LEVEL BYTE: 01
HH MM SS.TH
TIME INTERVAL: 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 85. 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 282 for a description of each form.

Detail Edit and Summary Reports

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> |
| 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 86 on page 283 |
| OBR (Short) Detail Edit Report, Device Type 3800 | Figure 87 on page 283 |
| OBR (Short) Detail Edit Report, Device Type 3791, VTAM | Figure 88 on page 284 |
| OBR (Short) Unit Check | Figure 89 on page 285 |
| OBR (Long) Detail Edit Report, Device Type AFP1 | Figure 90 on page 286 |
| OBR (Long) Summary Report, Device Type AFP1 | Figure 91 on page 287 |
| OBR (Long) Detail Edit Report, Device Type CTCA | Figure 92 on page 288 |
| OBR (Long) Detail Edit Report, Device Type 3277 | Figure 93 on page 289 |
| OBR (Long) Detail Edit Report, Device Type 3380 | Figure 95 on page 291 |
| OBR (Long) Detail Edit Report, Device Type 3390 | Figure 97 on page 293 |
| OBR (Long) Detail Edit Report, Device Type 3480 | Figure 98 on page 294 |
| OBR (Long) Detail Edit Report, Device Type 3490 | Figure 99 on page 295 |
| OBR (Long) Detail Edit Report, Device Type 3590 | Figure 100 on page 296 |
| OBR (Long) Detail Edit Report, Device Type 3800 | Figure 101 on page 297 |
| OBR (Long) Detail Edit Report, Autochanger Device Type 3995 | Figure 103 on page 299 |
| OBR Record (Long) Detail Edit Report, Device Type 9347 | Figure 103 on page 299 |
| OBR (Long) Detail Edit Report, Device Type 3380, DPA | Figure 106 on page 302 |
| OBR (Long) Detail Edit Report, Device Type 3590, DPA | Figure 107 on page 303 |

Detail Edit and Summary Reports

| REPORT | REFER TO |
|--|------------------------|
| OBR (Long) Dynamic Pathing Validation Analysis Detail Edit Report | Figure 108 on page 304 |
| OBR (Long) Dynamic Pathing Validation Analysis Summary Report | Figure 109 on page 304 |
| OBR (Long) Dynamic Pathing Validation Analysis Detail Edit Report, Device Type 3390 | Figure 110 on page 305 |
| OBR (Long) Detail Edit Report for zHPF | Figure 112 on page 306 |
| OBR (Long) Detail Edit Report for Extended Address Volume (EAV) | Figure 113 on page 307 |
| OBR (Long) Detail Edit Report for zHPF | Figure 112 on page 306 |

```

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 86. 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              TIME: HH MM SS.TH
CPU ID: 221128          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 87. OBR (Short) Detail Edit Report, Device Type 3800

Detail Edit and Summary Reports

```

---RECORD ENTRY TYPE - UNIT CHECK    SOURCE    VTAM OUTBOARD    MODEL- 3084    SERIAL NO. 021220
VS 2  REL. 3
                                DAY YEAR
                                DATE- 044  97
                                HH MM SS.TH
                                TIME 16 14 53 08
                                JOB IDENTITY
                                000000000000000000
  
```

```

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 00000000 02000902 500040F1
0038 0A000902 00000000 FFFF0000 00004000 E9D3F9F0 F2404040 00000000 00000000
0058 00000000 00006000 40170095 C8D08D00 01730000 0000
  
```

Figure 88. 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

| | | | | | | | | | | | |
|-------------|----|--------|----|----|------|-----|----|--------|----|----|------|
| FAILING CCW | CC | CA | US | CT | | K | CA | US | CS | CT | |
| | 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 | UNASSIGN 0 | ----- 1 | UNASSIGN 0 | | UNASSIGN 0 | | UNASSIGN 0 | |
| INTV REQ 0 | PRINT CHK 1 | CAR MO CK 0 | UNASSIGN 0 | UNASSIGN 0 | HEX CODE 0 | UNASSIGN 0 | | UNASSIGN 0 | | UNASSIGN 0 | |
| BUSOUT CK 0 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | 84 EQUALS 0 | UNASSIGN 0 | | UNASSIGN 0 | | UNASSIGN 0 | |
| EQUIP CHK 0 | LINE POS 0 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | A 3262 0 | UNASSIGN 0 | | UNASSIGN 0 | | UNASSIGN 0 | |
| DATA CHK 1 | FORMS CHK 0 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | PRINTER 0 | UNASSIGN 0 | | UNASSIGN 0 | | UNASSIGN 0 | |
| BUFPAR CK 0 | CMD SUPP 0 | FORMS JAM 0 | UNASSIGN 0 | UNASSIGN 0 | ----- 1 | UNASSIGN 0 | | UNASSIGN 0 | | UNASSIGN 0 | |
| LOAD CHK 0 | CTRLR CK 0 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | 0 | UNASSIGN 0 | | UNASSIGN 0 | | UNASSIGN 0 | |
| CHAN 9 0 | UNASSIGN 0 | BLT VELOC 0 | UNASSIGN 0 | UNASSIGN 0 | ----- 0 | UNASSIGN 0 | | UNASSIGN 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 | UNASSIGN 0 | UNASSIGN 0 | ----- 0 | UNASSIGN 0 | | UNASSIGN 0 | |
| STATUS 0 | UNASSIGN 0 | ----- 1 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | MODEL 0 | UNASSIGN 0 | | UNASSIGN 0 | |
| OR 0 | UNASSIGN 0 | 00 = 3262 1 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | ID. 1 | UNASSIGN 0 | | UNASSIGN 0 | |
| COMMUNI- 0 | UNASSIGN 0 | MODEL 1 1 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | HEX 22 0 | UNASSIGN 0 | | UNASSIGN 0 | |
| CATION 1 | UNASSIGN 0 | ----- 1 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | FOR 0 | UNASSIGN 0 | | UNASSIGN 0 | |
| CODES 1 | UNASSIGN 0 | 55 = 3262 1 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | 3262 0 | UNASSIGN 0 | | UNASSIGN 0 | |
| 0 | UNASSIGN 0 | MODEL 5 1 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | ----- 1 | UNASSIGN 0 | | UNASSIGN 0 | |
| ----- 1 | UNASSIGN 0 | ----- 1 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | UNASSIGN 0 | ----- 0 | UNASSIGN 0 | | UNASSIGN 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 89. OBR (Short) Unit Check

Detail Edit and Summary Reports

```

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
FADING 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 90. OBR (Long) Detail Edit Report, Device Type AFP1

Detail Edit and Summary Reports

PRIMARY CUA: 000493 REPORT: OUTBOARD SUMMARY REPORT DATE: 071 97
DEVICE TYPE: AFP1 MODEL: 4381 PERIOD FROM: 042 97
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 | 0 |
| | | LAST | 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 91. 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:
                        SCP:  VS 2 REL.  3    DATE: 068  97    0000000000000000
DEVICE TYPE:    CACA
ERROR PATH:    55-0CEB      MODEL:  3084            HH MM SS.TH
                        CPU ID: 121128      TIME: 04 41 57.73
RECORD IS:     PERMANENT
MODE IS:       370XA
FADING 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  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

```

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 92. 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.

Detail Edit and Summary Reports

```

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

FADING CCW:    CC  CA  FL  CT
                05 258F5D 20 00 0009

SCSW:         K  FLAGS  CA  US  SS  CT
                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:         READ DC 00  WRITE DC 00  INTV RQD 00  BUS 0 CK 00  EQUIP CK 00  NOT USED 00  CNTRL CK 00  NOT USED 00
                NOT USED 00  NOT USED 00  NOT USED 00  DC US  01  NOT USED 00  IR,EC,US 00  EC,US  00  CHANL DC 00
    
```

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 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 93. 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
ERROR PATH:    03-0361    MODEL:  3084        HH MM SS.TH
                        CPU ID: 121128    TIME: 23 52 49.53
RECORD IS:    PERMANENT
MODE IS:      370XA
Failing CCW:   CC  CA  FL  CT
                4B 000000 40 00 0001
SCSW:         K  FLAGS  CA  US  SS  CT
                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
INTRVNTN REQ'D  00  BUS OUT PAR CHK  00
EQUIPMENT CHECK  00  NOT USED          00
CNTROLLER 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
INTRVNTN 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
CNTROLLER 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 94. OBR (Long) Detail Edit Report, Device Type 3277 Part 2

Detail Edit and Summary Reports

```

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                CTR  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 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 95. OBR (Long) Detail Edit Report, Device Type 3380 Part 1

Detail Edit and Summary Reports

```

DEVICE NUMBER: 000A82          REPORT: OUTBOARD (LONG)    DAY YEAR    JOB IDENTITY: VARY
                        SCP:   VS 2 REL. 3    DATE: 042 97                E5C1D9E840404040
DEVICE TYPE:    3380
ERROR PATH:    40-0000        MODEL:   3084                HH MM SS.TH
                        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 96. OBR (Long) Detail Edit Report, Device Type 3380 Part 12

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
ERROR PATH:   0239          MODEL:   3084          HH MM SS.TH
                CPU ID:  020060          TIME:  02 31 48.38

RECORD IS:    TEMPORARY
MODE IS:      370

                CC  CA  FL  CT
FAILING CCW:  07 DFA1E8 40 00 0006

                K   CA  US CS CT
CSW:          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 97. OBR (Long) Detail Edit Report, Device Type 3390

Detail Edit and Summary Reports

```

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 000000
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
|
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 98. 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

FAILING CCW:   CC  CA  FL  CT
                4B 000000 40 00 0001

SCSW:         K  FLAGS  CA  US SS CT
                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 99. OBR (Long) Detail Edit Report, Device Type 3490

Detail Edit and Summary Reports

```

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
Failing DCW: CC FL RS CD DATA CNT
                01 A4 F8 00 00FFA108    RESIDUAL COUNT: 11111111
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

```

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 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 100. OBR (Long) Detail Edit Report, Device Type 3590

Detail Edit and Summary Reports

```

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

Failing CCW:    CC  CA  FL  CT
                4B 000000 40 00 0001

SCSW:          K  FLAGS  CA  US  SS  CT
                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  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----00
COMMAND REJECT  0  NOT READY  0  FORM HOLD INTRLK 0  PRINTER READY  0  ----- 1 ----- 0
INTRVNTN REQ'D  0  OPERATION CHECK 1  TRANSFER CHECK  0  PAGE BUFFR EMPTY 1  ----- 0 ----- 0
BUS OUT PAR CHK  0  TONER COLL. FULL 0  FUSER CHECK  0  BACK DATA CHECK 1  DIAGNOSTIC  0  DIAGNOSTIC  0
EQUIPMENT CHECK  0  TONER READY  0  CPS CHECK  0  PAPR THREAD STCK 0  STATUS  0  ERROR DEPEND- 0
DATA CHECK      0  DEV REPLACE REQ 0  PROCESS CHECK  0  SYS RESTRT REQD 1  CODES  1  DENT DATA  0
BIT 6 NOT USED  0  END OF FORMS  0  BURST/TRIM CHECK 0  PHOTO CON ADV EN 1  ----- 1 ----- 0
LOAD CHECK      0  OUTPUT FULL  0  BIT 6 NOT USED  0  BIT 6 NOT USED  0  ----- 1 ----- 0
                        BIT 7 NOT USED  0  LINE OVERRUN  0  BIT 7 NOT USED  0  ----- 0 ----- 0
    
```

Figure 101. OBR (Long) Detail Edit Report, Device Type 3800 Part 1

Detail Edit and Summary Reports

```

-----BYTE06----00  -----BYTE07----F9  -----BYTE08----00  -----BYTE09----02  -----BYTE10----00  -----BYTE11----0C
-----          1  -----          0  -----          0  -----          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 DATA 1  ERROR DEPEND DATA 0  ERROR DEPEND DATA 0  ERROR DEPEND DATA 0  ERROR DEPEND DATA 0  ERROR DEPEND DATA 1
          1          0          0          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          0          0
MODULO 256 0  MODULO 256 0  FUSER PAGE 0  FUSER PAGE 0  PAPER COUNT 0  PAPER COUNT 0
XFER 2 PPI 0  FUSER 8-16 0  COUNT 0  COUNT 0  COUNT 0  COUNT 1
COUNT 1  PPI COUNT 0  COUNT 0  COUNT 0  COUNT 0  COUNT 1
          1          0          0          0          0          0          0          1
          1          0  BYTE 1 OF 2 1  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          0          1          1          1
          0          0          0          0          0          1          1          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          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 00004040 006C8300 00000013 000C0B0B
0058 0F4C0158 06CF001F FEDF1100 4007102C 40A80200 00700000 0000

```

Figure 102. OBR (Long) Detail Edit Report, Device Type 3800 Part 12

```

1
DEVICE NUMBER: 000280          REPORT:  OUTBOARD (LONG)      DAY YEAR      JOB IDENTITY: OAM
                               SCP:    VS 2 REL.  3          DATE: 117  97          D6C1D44040404040
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
              CC  CA  FL  CT
FAILING CCW:  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  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  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 103. 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
ERROR PATH:    0C70          MODEL:  9375          HH MM SS.TH
                        CPU ID: 234567    TIME: 10 14 52.90
RECORD IS:    PERMANENT
MODE IS:      370XA
Failing CCW:   CC  CA  FL  CT
                01 3838E3 20 80 0055
CSW:          K   CA  US  SS  CT
                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 ERROR 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 CENTERED 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 104. OBR Record (Long) Detail Edit Report, Device Type 9347 Part 1

Detail Edit and Summary Reports

```

-----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  CONDITION        0  DIAGNOSTIC      0  NOT USED         0
5TH LVL IND BIT5 0  6TH LVL IND BIT5 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
NOT USED         0  NOT USED         0  NOT USED         0  -----          0  -----          0  NOT USED         0

-----BYTE30----20  -----BYTE31----03
-----          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  01000C70  00008009
0038  00000C70  00000020  40404040  40400000  0844000F  10100010  38300000  00200000
0058  80000400  00000000  00000000  00002003  00000000  00000000  00000000  00000000
0078  00000000  00000000  00000000

```

Figure 105. OBR Record (Long) Detail Edit Report, Device Type 9347 Part 2

Detail Edit and Summary Reports

```

DEVICE NUMBER: 000A82          REPORT: OUTBOARD (LONG)      DAY YEAR      JOB IDENTITY: VARY
SCP: VS 2          REL. 3      DATE: 046 97          E5C1D9E840404040
DEVICE TYPE: 3380
ERROR PATH: 56-0000          MODEL: 3084          HH MM SS.TH
CPU ID: 321128          TIME: 04 11 55.73
RECORD IS: PERM PATH
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 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 1 PRIMARY STATUS 1
UNIT CHECK   0 I/F CTL CHECK  0 EXTENDED CONTROL 0 HALT PENDING  0 SECONDARY STATUS 1
UNIT EXCEPTION 0 CHAINING CHECK 0 PATH NOT OPER  1 CLEAR PENDING 0 STATUS PENDING 1

```

```

SPID: 000002112830849718CEF0  FUNCTION CONTROL BYTE: 80
SNID: 000000000000000000000000  PATH STATE BYTE: 00

```

HEX DUMP OF RECORD

```

HEADER 3A891810 40000000 0097046F 04115573 26321128 30840000
0018 E5C1D9E8 40404040 AF00000C 0303A058 00000000 00000000 04560000 3030200E
0038 00000A82 00000000 80000002 11283084 9718CEF0 00000000 00000000 00000000
0058 00000000 00000000 03814407 01A16058 0000000C 00000000 00000000 00000000
0078 00000000 00000000 00000000

```

Figure 106. 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

                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
  
```

```

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 107. OBR (Long) Detail Edit Report, Device Type 3590, DPA

Detail Edit and Summary Reports

```

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  00000000  00000000  00000000
  
```

Figure 108. 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 109. OBR (Long) Dynamic Pathing Validation Analysis Summary Report

Detail Edit and Summary Reports

DPS VALIDATION REPORT

DEVICE NUMBER: 0018C SCP: VS 2 REL. 3 DATE: 213 07 RECORD DESCRIPTION: IOSVVARY C9D6E2E5E5C1D9E8
CPU MODEL: 2094 HH MM SS.TH
DEVICE TYPE: 3390 CPU SERIAL: 0F9950 TIME: 14 30 32.75
DEVICE NED: 002105.000.IBM.75.000000012252.0615

----- RETURN CODES -----
DPTH 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 110. 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 801B2024 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 111. 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
ERROR PATH:    50-06C9        MODEL:  2066                HH MM SS.TH
                                CPU ID:  0D644A            TIME: 02 21 17.75
RECORD IS:    TEMPORARY
MODE IS:      370XA

FADING CCW:    CC FL RS CD DATA CNT
                AF 00 00 0C 03BE46D8      RESIDUAL COUNT: 0000

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 00800000 00000000 00000000 00000000
    
```

Figure 112. OBR (Long) Detail Edit Report for zHPF

Detail Edit and Summary Reports

```

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

Failing CCW:      CC CA FL CT
                1E E76072 60 00 0000

SCSW:      K FLAGS      CA US SS CT
          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 113. 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 308 |

Detail Edit and Summary Reports

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 30810000A..

JOBNAME
 +000 D1C5E2F2 40404040 JES2

SDWA BASE
 +000 0064C998 80351000 FF04000D 5004DDE2 ..IQ.....S
 +010 FF140051 60146AA6 80000000 80106000W.....
 +020 A00E6170 00042320 00646840 0064C880 ./.....H.
 +030 7004DCC6 00623518 00642A88 FF9B2698 ...F-.W...H.)Q
 +040 0000000E 0063A000 0064D968 00000106R.....
 +050 0064C8F1 0000000E 0064C880 00000000 ..H1.....H....
 +060 00000000 00000000 070C1000 0004DD32S
 +070 0002000D 00000000 075C1000 00CF4C10*.....<
 +080 00020008 00000000 FF9CE21C 00631DA8S...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 C9C7C3F0IGC0
 +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

| DUMP FLAGS | | SDATA OPTIONS | | PDATA OPTIONS | | DUMP RANGES AREA | |
|-----------------------|---|-------------------------|---|--------------------------|---|------------------|-------------------|
| | | | | | | 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 | | |

Detail Edit and Summary Reports

```

HEX DUMP OF RECORD
HEADER  40830820  00000088  0097060F  03135139      23020447  30810000  D1C5E2F2  40404040

0000  00000008  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
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  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

Detail Edit and Summary Reports

| | | | |
|-------|----------|-------------------|---------|
| +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 | |
| +032C | 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  MODEL: 3081  HH:MM:SS.TH
      SERIAL: 020447  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

| 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

Detail Edit and Summary Reports

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 | .BO..... |
| +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 | ..%.0.....\ |
| +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..TO |
| +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 | IRARMENS 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                               RRP A

+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    4000F11     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 FLAGS | | | | SDATA OPTIONS | | PDATA OPTIONS | | DUMP RANGES AREA | |
|-----------------------|---|-------------------------|---|--------------------------|---|---------------|----------|------------------|----|
| | | | | | | | | 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  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
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    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

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    00FF3A90    0002C9CC
0058  00F7F930    00F6B820    0006F090    0001F240    00FF7AF0    009436A8    00FFB40    4780F0A4
0078  00000000    00000000    00000000    00000000    040C3000    0080F0A4    00020011    0080F0A4
    
```

Detail Edit and Summary Reports

| | | | | | | | | |
|------|----------|----------|----------|----------|----------|----------|----------|----------|
| 0098 | 040C0000 | 0002FC54 | 00020011 | 0080F0A4 | 2EA80047 | 00FFB770 | 00FF0F6C | 00FFBB40 |
| 00B8 | 400301F0 | 0002C290 | 00000D48 | 000037D8 | 0002D290 | 0002E290 | 2EA70046 | 00000C00 |
| 00D8 | 00000D40 | 00FF7AF0 | 9002EF4A | 00071B28 | 00000000 | 00000000 | 00000000 | 00000000 |
| 00F8 | 00000000 | 00000000 | 00000000 | 00000000 | 40030801 | 00000040 | 0002C5C4 | 00FFB904 |
| 0118 | 00000000 | 048800C0 | 00000000 | 000039D0 | 0001F0C8 | 00000000 | 00000000 | 00000000 |
| 0138 | 00000000 | 00000000 | 000101D1 | C9C5C3C9 | D6E2C1D4 | C9C5C3C9 | D6E2C3D5 | C9C5C3C6 |
| 0158 | D9D94040 | 00FFB880 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 |
| 0178 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | FFFF0001 | 00FFBA48 | 80000001 |
| 0198 | 00010001 | 00000000 | 00000000 | 00000000 | 00000000 | 000247A8 | 00FF0038 | C0000000 |
| 01B8 | FFFFFFFF | 403CFF80 | 00FF0F6C | 00000040 | 00FF3AA4 | 0000FF82 | 03D10000 | 70010500 |
| 01D8 | 00F3C4F1 | 12501009 | 00011C2C | 40E4E9F6 | F1F1F8F0 | E2C3F1C3 | F3000000 | 00000000 |
| 01F8 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 |
| 0218 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 01D10040 | 00010002 | 47A8 |

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 | CALLLED | RTM | DATE | TIME | CPU | CPU |
|-----|--------|-------|--------|----|----------|-----|------|-----|---------|-----|--------|------|-----|-----|
| | | | | | | | | | | | DAY | MM | SS | TH |
| | 047 | 97 | 10 | 39 | 39 | 87 | | | | | 270044 | 3090 | | |

VS 2 REL. 3

ERRORID=SEQ00030 CPU0041 ASID0001 TIME10.39.38.9

| JOBNAME | *MASTER* | BC | MODE | PSW | AT | TIME | OF | ERROR | BC | MODE | PSW | OF | LAST | RB |
|-----------------------------|----------|----------|------|-----|----|------|----|-------|----------|------|-----|----|------|----|
| ABENDING PROGRAM NAME | N/A | | | | | | | | | | | | | |
| NAME OF MODULE INVOLVED | IEAVEDSO | | | | | | | | | | | | | |
| NAME OF CSECT INVOLVED | IEAVEDSO | 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: | INST LENGTH CODE | INTERRUPT CODE | VIRT ADDR OF TRANS EXCEP |
|------------------|------------------|----------------|--------------------------|
| | 00 | 0000 | 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) |
| MCK RECORD NOT RECORDED | 0 REGISTERS UNPREDICTABLE | 0 CHANGE INDICATOR ON | 0 INTERCEPT |
| TIME STAMP IS VALID | 1 PSW UNPREDICTABLE | | 0 STORAGE ERROR PERMANENT |
| STORAGE IS RECONFIGURED | 0 STORAGE DATA CHECK | | 0 PERMANENT RES. STORAGE |
| RECONFIGURE STATUS AVAIL | 0 ACR REQUEST | | 0 FRAME IN SQA |
| 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 |

| BEGINNING VIRT ADDR OF STORAGE CHECK | 00000000 | DATE | TIME |
|--------------------------------------|----------|------|------|
| ENDING VIRT ADDR OF STORAGE CHECK | 00000000 | DAY | YR |
| 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 PREV ABEND | 0 |

Detail Edit and Summary Reports

| | | | | | | | |
|--------------------------|---|--------------------|---|------------------------|---|--------------------------|---|
| 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 | | | | | | |

| | | | |
|----------------------|------|-----------------------|---|
| MEMORY ASID | 0000 | CURRENT I/O STATUS | |
| RECOVERY RETURN CODE | 04 | I/O IS RESTORABLE | 0 |
| | | 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 | IOSCAT LOCKWORD | 00000000 |
| FREE RTCA BEFORE RETRY | 0 | IOSUCB LOCK | IOSUCB LOCKWORD | 00000000 |
| | | IOSLCH LOCK | IOSLCH LOCKWORD | 00000000 |
| | | IOSYNCH LOCK | IOSYNCH LOCKWORD | 00000000 |
| | | NCB LOCK | NCB LOCKWORD | 00000000 |
| | | DNCB LOCK | DNCB LOCKWORD | 00000000 |
| | | ACBDEBS LOCK | ACBDEBS LOCKWORD | 00000000 |
| | | ASMPAT LOCK | ASMPAT LOCKWORD | 00000000 |
| | | SALLOC LOCK | ASID CURRENT | 0001 |
| | | CMS LOCK | | 0 |
| | | LOCAL LOCK | | 0 |

DUMP CHARACTERISTICS

| | | | | | | | |
|-----------------------|---|-------------------------|---|--------------------------|---|------------------|-------------------|
| DUMP FLAGS | | SDATA OPTIONS | | PDATA OPTIONS | | DUMP RANGES AREA | |
| SNAP DUMP REQUEST | 0 | DISPLAY NUCLEUS | 0 | DISPLAY SAVE AREAS | 0 | RANGE 1 | FROM TO |
| 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 | 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 | 00154FE0 | 040C0000 | 0005B5E0 |
| 0080 | 00000000 | 00154FE0 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 |
| 00A0 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 |
| 00C0 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 20680001 | 00000000 | 00000000 |
| 00E0 | 9885057F | 10393900 | 80020001 | 00000041 | 00096212 | 00FF6AE4 | 00000000 | 04880000 |
| 0100 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 |
| 0120 | 0001001E | C9C5C1E5 | C5C4E2F0 | C9C5C1E5 | C5C4E2F0 | C9C5C1E5 | C5C4E2D9 | 00FF6A90 |
| 0140 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 | 00000000 |
| 0160 | 00000000 | 00000000 | 00000000 | FFFF0001 | 00FF6C28 | 00000000 | 00000000 | 00000000 |
| 0180 | 00000000 | 00000000 | 00000000 | 0005DB2D | 00FFA0D2 | 1106C9C8 | C1D7E2C1 | 15020224 |
| 01A0 | 12040002 | 40B81502 | 021C1204 | 00000000 | 150202EC | 12040000 | 00001502 | 049C1204 |
| 01C0 | 00000008 | 1107C9C8 | C1C1E2C3 | C2150200 | 80120400 | 00000015 | 0200E812 | 04000000 |
| 01E0 | 00150200 | EC120400 | 00000015 | 0200B412 | 04000000 | 00150201 | 3C120400 | 00000015 |
| 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 - | 047 | 97 TO 047 | 97 | MODEL- | 3090 | SERIAL NO. | 270044 |
|-----------------------|-----|-----------|----|--------|------|------------|--------|

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 |
|--------------|------------|----------------|--------------|------------|----------------|--------------|------------|----------------|--------------|------------|----------------|

IEAVESD0 IEAVESD0 001

Detail Edit and Summary Reports

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

```

          DAY YEAR  DAY YEAR      MODEL- 4341      SERIAL NO. 015058
SOFTWARE DATE RANGE - 070 97 TO 071 97
    
```

SUMMARY OF SOFTWARE ENVIRONMENT RECORDS

TOTAL NUMBER OF RECORDS 0006

```

ROUTINE CSECT NUMBER  ROUTINE CSECT NUMBER  ROUTINE CSECT NUMBER  ROUTINE CSECT NUMBER
NAME    NAME  ENTRIES  NAME    NAME  ENTRIES  NAME    NAME  ENTRIES  NAME    NAME  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 319 |
| SLH Detail Edit Report, Device Type FCTC | "Subchannel Logout Handler (SLH) Detail Edit Report, FCTC" on page 320 |
| SLH Detail Summary Report | "Subchannel Logout Handler Summary Report" on page 322 |

| REPORT | REFER TO |
|------------------------------------|---|
| SLH Detail Edit Report for zHPF | "Subchannel Logout Handler (SLH) Detail Edit Report for zHPF" on page 322 |
| SLH Detail Summary Report for zHPF | "Subchannel Logout Handler Summary Report for zHPF" on page 324 |

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   HH MM SS.TH
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 |
| | 84 024017 0032F0F8 00 04 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 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                                **                                01                                25
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)
A0                                C1                                00                                D0
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

```


Detail Edit and Summary Reports

```

CC CA FL CT
Failing CCW E3 680000 00 00 0000
VOLUME SERIAL N/A
SUBCHANNEL ID NUMBER 00010B50
ERROR TYPE OTHER
SCSW K FLAGS CA US SS CT
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: 00000000 34
LOSS OF SIGNAL COUNT: 00049A8E PRIMITIVE SEG PROTOCOL ERROR: 0000001F 34
INVALID TRANSMISSION WORD: 0C000000 INVALID CRC COUNT: 9000AB00 34

FABRIC ENTRY PORT LINK ERROR STATUS
LINK FAILURE COUNT: 00000000 LOSS OF SYNCHRONIZATION COUNT: 0C200000 34
LOSS OF SIGNAL COUNT: 00049A8E PRIMITIVE SEG PROTOCOL ERROR: 00617B13 34
INVALID TRANSMISSION WORD: 0C000000 INVALID CRC COUNT: 10000800 34
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
  
```

CONTROL UNIT LOGOUT DATA

```

N-PORT LINK ERROR STATUS BLOCK
LINK FAILURE COUNT: 00000000 LOSS OF SYNCHRONIZATION COUNT: 00000000 34
LOSS OF SIGNAL COUNT: 00000000 PRIMITIVE SEG PROTOCOL ERROR: 00000000 34
INVALID TRANSMISSION WORD: 00000000 INVALID CRC COUNT: 00000000 34

FABRIC ENTRY PORT LINK ERROR STATUS
LINK FAILURE COUNT: 00000000 LOSS OF SYNCHRONIZATION COUNT: 00000000 34
LOSS OF SIGNAL COUNT: 00000000 PRIMITIVE SEG PROTOCOL ERROR: 00000000 34
INVALID TRANSMISSION WORD: 00000000 INVALID CRC COUNT: 00000000 34
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
  
```

HEX DUMP OF RECORD

```

HEADER 23831800 00030000 0006104F 22380543 0012AA0A 20848000
0018 E7C3C6C1 D9404040 E3680000 00000000 00004120 00000000 40806780 0C024017
  
```

Detail Edit and Summary Reports

```

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      N/A
                  SUBCHANNEL ID NUMBER  00010B50
SCSW             K  FLAGS  TA   US SS FX ES  ERROR TYPE         OTHER
0C 424017 5B791860 00 02 00 00
    
```

```

---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 ---              SSCH FUNCTION    1 DEVICE ACTIVE   0
CONTROL UNIT END 0 PROGRAM CHECK  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 | | | | | |

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 | | | | | |

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 |

Detail Edit and Summary Reports

```

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
                                PERIOD FROM:  104 06
                                TO:           104 06

NUMBER OF RECORDS: 0001      CPU MODEL:  2084XA
                                CPU ID   :  12AA0A

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 114 through Figure 117 on page 325 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 114. Unknown or Unsupported Record Detail Edit Report, Record Type E1

Detail Edit and Summary Reports

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 329 |
| Chapter 15, "Card Readers and Punches," on page 333 |
| Chapter 16, "Consoles and Displays," on page 335 |
| Chapter 17, "Direct-Access Storage Devices (DASD)," on page 337 |
| Chapter 18, "Diskette Unit," on page 347 |
| Chapter 19, "Magnetic Tape Devices," on page 349 |
| Chapter 20, "OCR/MICR Devices," on page 357 |
| Chapter 21, "Optical Devices," on page 359 |
| Chapter 22, "Printers," on page 361 |
| Chapter 23, "Processors (CPUs)," on page 365 |
| Chapter 24, "Punched Tape Devices," on page 369 |
| Chapter 25, "Teleprocessing (TP) Devices," on page 371 |
| Chapter 26, "Other Devices," on page 373 |

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 | 3278 | Consoles and Displays |
| 2596 | Card Readers and Punches | 3279 | 3279 terminals are processed as 3277 records |
| 2671 | Punched Tape Devices | 3284 | Printers |
| 2701 | TP Devices | 3286 | Printers |
| 2702 | TP Devices | 3287 | Printers |
| 2703 | TP Devices | 3288 | Printers |
| 2715 | TP Devices | 3289 | Printers |
| 2740 | TP Devices | 3310 | DASD |
| 2741 | TP Devices | 3330 | DASD |
| 2760 | TP Devices | 3340 | DASD |
| 2770 | TP Devices | 3344 | DASD |
| 2780 | TP Devices | 3350 | DASD |
| 2790 | TP Devices | 3370 | DASD |
| 2930 | Other Devices | 3375 | DASD |
| 2947 | TP Devices | 3380 | DASD |
| 2955 | Other Devices | 3390 | DASD |
| 2956 | Other Devices | 3400 | Magnetic Tape Devices |
| 2970 | TP Devices | 3410 | Magnetic Tape Devices |
| 2972 | TP Devices | 3420 | Magnetic Tape Devices |
| 3031 | Processors | 3422 | Magnetic Tape Devices |
| 3032 | Processors | 3430 | Magnetic Tape Devices |
| 3033 | Processors | 3480 | Magnetic Tape Devices |
| 3036 | Consoles and Displays | 3490 | Magnetic Tape Devices |
| 3052 | Processors | 3490E | Magnetic Tape Devices |
| 3062 | Processors | 3494 | Magnetic Tape Devices |
| 3066 | Consoles and Displays | 3495 | Magnetic Tape Devices |
| 3138 | Consoles and Displays | 3504 | Card Readers and Punches |
| 3148 | Consoles and Displays | 3505 | Card Readers and Punches |
| 3158 | Consoles and Displays | 3525 | Card Readers and Punches |
| 3168 | Consoles and Displays | 3540 | Diskette Units |
| 3203 | Printers | 3590 | Magnetic Tape Devices |
| 3210 | Consoles and Displays | 3591 | Magnetic Tape Devices |
| 3211 | Printers | 3670 | TP Devices |
| 3213 | Consoles and Displays | 3700 | TP Devices |
| 3215 | Consoles and Displays | 3704 | TP Devices |
| 3262 | Printers | 3705 | TP Devices |
| 3277 | Consoles and Displays | 3720 | TP Devices |

| | | | |
|------|---------------------------------|-------------|-----------------------|
| 3725 | TP Devices | 8809 | Magnetic Tape Devices |
| 3735 | TP Devices | 9021 | Processors |
| 3745 | TP Devices | 9034 | Other Devices |
| 3791 | TP Devices | 9037 | Other Devices |
| 3800 | Printers | 9081 | Processors |
| 3820 | Printers | 9083 | Processors |
| 3825 | Printers | 9121 | Processors |
| 3827 | Printers | 9190 | Processors |
| 3835 | Printers | 9221 | Processors |
| 3838 | Other Devices | 9246 | Optical Devices |
| 3848 | Other Devices | 9247 | Optical Devices |
| 3850 | DASD | 9313 | DASD |
| 3851 | DASD | 9332 | DASD |
| 3886 | OCR/MICR | 9335 | DASD |
| 3890 | OCR/MICR | 9336 | DASD |
| 3895 | OCR/MICR | 9345 | DASD |
| 3900 | Printers | 9347 | Magnetic Tape Devices |
| 3945 | TP Devices | 9348 | Magnetic Tape Devices |
| 3968 | TP Devices | 9371 | TP Devices |
| 3995 | Optical Devices | 9373 | Processors |
| 4245 | Printers | 9375 | Processors |
| 4248 | Printers | 9377 | Processors |
| 4321 | Processors | 9392 | DASD |
| 4331 | Processors | 9395 | DASD |
| 4341 | Processors | 9696 (IDSK) | |
| 4361 | Processors | | Other Devices |
| 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 | | |

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 |

Card Readers and Punches

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 |
| 3168 | console |
| 3210 | console printer/keyboard |
| 3213 | console printer |
| 3215 | console printer/keyboard |
| 3277 | display station (terminal) |

Consoles and Displays

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 338 |
| "9392 DASD" on page 339 |
| "9395 DASD" on page 339 |
| "9345 DASD" on page 340 |
| "3380 DASD" on page 341 |
| "3370 DASD" on page 342 |
| "33XX DASD" on page 342 |

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
- 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

Direct-Access Storage Devices (DASD)

- 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 |
| 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 114.

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 111.

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 114.

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 111.

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 114.

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 111.

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 375 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 114. | |

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. |
| 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). |

3380 DASD

| OBR CODE | DESCRIPTION |
|------------------------------------|-------------|
| Note: See "OBR Codes" on page 111. | |

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 <i>PCUA</i> 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 58 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 58.

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 |
| 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

Diskette 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" |
| "34XX Tape Devices" |
| "3480, 3490, and 3490E Tape Subsystems" on page 353 |
| "9347 and 9348 Subsystem Exception Report" on page 354 |
| "35XX Tape Devices" on page 355 |

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 of 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 242 in the <i>EREP User's Guide</i> 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 354 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:

Magnetic Tape Devices

| 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 |

| Hardware / Volume | R/W | Errors |
|--|-----|--------|
| 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 349 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

xtape=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 351 to gain an understanding of how the temporary error limit works. To meet the conditions in "Temporary Error Limits" on page 351, 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 351 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 232.

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" |
| "AFP1 Printers" on page 362 |
| "3820 Printer" on page 363 |
| "4248 Printer" on page 363 |
| "6262 Printer" on page 363 |

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

3286 printer

3287 printer

Printers

| | |
|------|-----------------------------------|
| 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” |
| “LIMIT Control Statement” |
| “PR/SM Feature” on page 367 |

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

Processors (CPUs)

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= <i>nn</i> |
| | Hardware instruction retry | HIRS= <i>nn</i> |
| | Buffer error | BUFE= <i>nn</i> |
| Channel | Channel error | CHAN= <i>nn</i> |
| | Storage error | STOR= <i>nn</i> |
| | Director error | DRCT= <i>nn</i> |
| | Control unit error | CTRL= <i>nn</i> |

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 150 and “Channel Subsystem Exception” on page 152

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

Punched Tape Devices

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.

Teleprocessing (TP) Devices

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 |
| 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)

Other Devices

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:

Other Devices

- Incident node type, model, interface
- Attached node type, model, interface
- 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.

Part 4. Appendixes

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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.

RCSVRYXIT 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.

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VSE Virtual Storage Extended.

VSE/AF

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