

# Control/DCD<sup>TM</sup>

Control/DCD

System

For the **IBM OS** Environment

User's Manual

Control/DCD System

User's Manual

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## INTRODUCTION

Control/DCD is a maintenance tool for use in the ongoing maintenance of COBOL programs.

It contains parts of DCD IV, such as:

1. The Alternate Compile Listing with analysis on one COBOL program
2. Other COBOL reports like the COPY, CALL, and DATA Analysis reports
3. JCL Analysis reports

It contains significant new features that are designed to keep up with the way the industry is now moving.

1. It contains a new separate software package, Control/SE within Control/DCD that
  - a. Creates a digital documentation manual in PDF format
  - b. Builds a source copy of the COBOL program with additional analysis information at the end of the source code that is available to the programmer or technician while editing the source code in ISPF.
  - c. Isolate the source code without the additional analysis information for storing the source code back on its original library and available for compiling.
  - d. Contains new features such as Forward Tracing of Performed Routines.
2. It contains much needed support for moving to COBOL 5 or COBOL 6 and use beyond such as:
  - a. Invalid Numeric Display Data Analysis to eliminate any conversion problems going to newer COBOL 5 or 6.
  - b. Analysis of OCCURS/DEPENDING to insure OCCURS DEPENDING ON value is in legal range.
  - c. PERFORM ERROR Analysis for reducing COMPILE time in COBOL 5, 6, and beyond.
  - d. CALL Parameter Analysis needed to find COBOL programs that do not conform to the new standards required by COBOL 5 or 6.
3. All of Control/DCD is now controlled by totally rewritten ISPF panels.
  - a. In DCD IV, ISPF panels were not available for all features.

Control/DCD supports all ANSI standards for COBOL and supports all IBM/OS mainframe operating systems.

Release 2.1 also offers beginning support for COBOL 5.0.

Release 2.1 also offers a FIND &SQL for SQL / DB2.

Release 2.2 offers ANALYSIS in PDF format.

Release 2.3 offers Numeric DISPLAY Analysis for conversion to COBOL 5 or 6

Release 2.3 offers Analysis of OCCURS/DEPENDING to insure OCCURS DEPENDING ON value is in legal range.

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Because of work processing constraints, examples shown in this document may not be identical to actual results obtained.

MARBLE Computer, Inc. would like to thank the many people who have contributed their assistance, suggestions, and guidance in the development of Control/SE and for providing feedback for continued improvement of the software and the documentation in this manual.

Control/DCD (an enhanced software version of DCD IV) and contained software system Control/SE (has a client base of over 600 mainframe installations).

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## Control/DCD

### New Release Highlights

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New Release Highlights  
**Release 2.1 as of March 1, 2017**

Control/DCD is a new software tool containing some of the features of DCD IV and new features that provides support for the way the industry is moving.

- 1) It contains a new separate software package, **Control/SE** within Control/DCD that:
  - a. builds a source copy of the COBOL program with additional analysis information at the end of the source code that is available to the programmer or technician while editing the source code in ISPF.
  - b. isolate the source code without the additional analysis information for storing the source code back on its original library and available for compiling.
  - c. contains new features such as Forward Tracing of Performed Routines.
- 2) It contains much needed support for moving to COBOL 6 and use beyond such as:
  - a. Abend Analysis for Data Errors for finding an error before it happens or tracing the error after it is found.
  - b. PERFORM ERROR Analysis for reducing COMPILE time in COBOL 5, COBOL 6, and beyond.
  - c. CALL Parameter Analysis needed to find COBOL programs that do not conform to the new standards required by COBOL 6.
- 3) All of Control/DCD is controlled by ISPF Panels:
  - a) In DCD IV, ISPF panels were only partially available.
  - b) In Control/DCD the ISPF Panels were completely rewritten for total user-friendliness.

### **Control/SE**

Control/SE software ALLOWS the technician to edit the COBOL source in ISPF and is designed so that after the Edit File is built in Step 1, that file is editable in ISPF in Step 2, the same way a COBOL source file is edited in ISPF.

The notable difference in editing, is that in Control/SE, there are various types of ANALYSIS information that are available for doing a FIND on, that are not available in normal COBOL editing.

In Control/DCD, FIND's are done with an **&** immediately preceding the many types of Analysis information.

When the FIND is completed, the analysis information is brought up in ISPF allowing the technician to save additional analysis time locating this information within several other searches within ISPF.

After viewing the FOUND Analysis information, the user returns to her/his most recent position in ISPF to continue editing the COBOL program.

The **Types of Analysis** available in this release are as follows:

1. Data Division Field Name
2. Performed Paragraph or Section
3. CALL
4. COPY
5. CODE-NOT-USED
6. ERRORS
7. FORWARD-TRACING
8. HELP
9. OPEN
10. PERFORM-ANALYSIS
11. PERFORMED-ROUTINES
12. SQL
13. Cn (*used for doing a FIND into COPY members*)
14. n FIRST (*used for going from Narrative from one field to another*)

When editing is completed in the Source Code with the additional analysis information, is complete, the user exits this EDITFILE and runs a separate ISOLATE step to remove just the COBOL program without the additional analysis information.

The COBOL program is now saved as completed source code and ready for compilation.

Additionally, Control/SE builds by individual programs, Summary Management Reports.

### **ISPF Panels**

See the ISPF section of this manual to see some of the new ISPF panels and then see the format and new color use by using the new ISPF panels after installation.



New Release Highlights  
**Release 2.2 as of August 1, 2017**

Control/DCD has been modified with two new features in release 2.2

- 1) With this release, Control/DCD creates a Digital Documentation Manual (DDM) on a PDF for PC documentation on an individual program.
  - a. An INDEX precedes the documentation.
  - b. The manual is put in PDF format.
  
- 2) A new format has been developed to add to Control/SE of Control/DCD that is available in the new Digital Documentation Manual and in Control/Source Editor for editing and maintaining the source code on the mainframe as follows:
  - a. When doing a FIND on &data-field, added documentation has been added before the Performed Routines that show data use in each performed routine to show forward tracing (ONLY) of those performed routines where there is data use for this one field
  - b. This Forward Tracing makes it easy to see at a glance, how a data field is fully used in a program with intense review of the entire program to determine the data field's involvement.

New Release Highlights  
**Release 2.3 as of July 1, 2018**

Control/DCD has been modified with two new features in release 2.3

- 1) Identification of Invalid Numeric Display Data to eliminate any conversion problems going to newer COBOL 5 or 6.
  - Invalid DISPLAY NUMERIC DATA within an alphanumeric field that REDEFINES a DISPLAY NUMERIC field is identified
  - This includes a VALUE for the alphanumeric field
  - This includes a MOVE of a literal to an alphanumeric field
  - This includes a MOVE of another field to this field where the other field may contain INVALID data
- 2) Analysis of OCCURS/DEPENDING to insure OCCURS DEPENDING ON value is in legal range.
  - Full Data Division attributes are given for two fields as follows:
    - Each field with an OCCURS DEPENDING clause
    - Each field identified in an OCCURS DEPENDING clause
  - Full Procedure Division Narrative for each of the two fields above
- 3) The Alternate Compile Listing as of Release 2.3 as of 12/18/2018 uses the DDNAME PRINTACL in place of PRINT. Use of the PRINT DD required the use of DISP=MOD which led to user confusion in sometimes omitting the use DISP=MOD. The new DD PRINTACL does not require DISP=MOD.

# Control/DCD

## One Program Documentation

1. For building a Digital Documentation Manual in PDF format
2. For building an Editable COBOL program for Mainframe Editing

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**Control/SE**  
**One Program Documentation**  
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## Overview of One Program Documentation

This purpose of this section is to provide information on either creating a Digital Documentation Manual OR building an Editable Source File that has analysis information added to it for mainframe editing of same. This analysis information is gotten by scanning the COBOL program and all COPY members referenced by the COBOL program and then doing extensive cross-referencing to develop this information in a format for easy analysis of the COBOL program.

Once developed, this unique ANALYSIS information is used to create the DDM (Digital Documentation Manual) and put on the //ANALYSIS DD for creating a PDF from, or added to the end of the COBOL source code and made ready to be brought into ISPF for routine maintenance and analysis of the COBOL program and put into a member of the PDS specified in the //EDITFILE DD. See CSE PROC.

For mainframe editing, the programmer or technician can then access this file with COBOL and added analysis in ISPF, do maintenance, and then use the ISOLATE feature (a very simple program) in the next section of this manual to isolate just the COBOL source code to be saved from the file created using instructions in this section and edited in ISPF. Mainframe editing is only available through ISPF in release 2.2 and forward releases, and not available used CSE JCL without using ISPF.

This added ANALYSIS information is accessed quickly and easily in the DDM or in ISPF by inserting an ampersand ( **&** ) just ahead of the search operand. The example below shows an ISPF Find :

```
EDIT          USERID.CSEPDF( PROGRAMA ) -
```

```
Command ==>  F &OPEN
```

*brings into editor detail similar to the following:*

```
#OPEN REPORT          &OPEN REPORT
(0038)  &MAST-INP-FILE
C-HANDLE-MAST-REC
      OPEN Input MAST-INP-FILE (367)
(0041)  &MAST-OUTPUT-FILE
L-PUT-OUT-SELECTED-MAST-RECS
      OPEN Extend MAST-OPUTPUT-FILE (742)
End of  FD OPEN & SORT  Info
```

Note - The Performed Routine name the OPEN is in, displays ahead of the OPEN statement.

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## **Other Features Supported**

This heading provides a list of support other features supported by CSE are:

1. CICS
2. COBOL 68 and earlier
3. COBOL 74
4. COBOL 85
5. COBOL 370, COBOL for MVS & VM, COBOL 390 & Enterprise COBOL
6. DB2 (SQL)
7. DL1

### **1. CICS**

CICS is fully supported by CSE. Ideally the CICS program should be run through the CICS preprocessor before being brought into CSE. If the preprocessor step is done, both CICS commands and the CALL statements generated by CICS are documented. If the CICS program is not run through the preprocessor, then generated CALL statements are not documented by CSE.

### **2. COBOL 68 and earlier**

PARM option C68 should be used when processing COBOL 68 programs. The only other special support required for 68 and earlier versions of COBOL is when compiled and the compiler is version 3 or earlier (easily determined by the fact that the compiler does not generate compiler line numbers for SKIPs and EJECTs). When this is the case, PARM option VR3 should be included in the PARM field.

### **3. COBOL 74**

Use option NOVS2 for COBOL 74.

### **4. COBOL 85**

Include PARM option VS2 to indicate the handling of VS COBOL II or later COBOLs.

### **5. COBOL 370, COBOL for MVS & VM, COBOL 390, & Enterprise COBOL**

Include a VERSION DD to specify the correct version of COBOL used. See 'Specifying Correct version of COBOL' in this section.

## 6. **DB2**

DB2 programs contain SQL statements. Ideally, the DB2 program should run through the DB2 preprocessor before being brought into CSE. If the preprocessor step is done, then the CALL statements generated by SQL are documented. Host variables within the EXEC SQL statements (names that reference into the COBOL program Data Division) are fully documented by CSE.

## 7. **DL1**

DL1 is fully supported by CSE. Ideally the DL1 program should be run through the DL1 preprocessor before being brought into CSE. If the preprocessor step is done, both DL1 commands and the CALL statements generated by DL1 are documented. If the DL1 is not run through the preprocessor, then generated CALL statements are not documented by CSE.

## Use of CSE PROC to execute Control/SE

A PROC named CSE is provided for building this Expanded COBOL file with Analysis information. A listing of this PROC showing all every symbolic and all the JCL is available at the end of this section under the heading "CSE PROC".

A sample of JCL to execute this PROC is shown below:

```
//BUILD    EXEC    CSE
//CSE.COBLIN DD    DSN=user.cobolpds(member),DISP=SHR
//CSE.COPYLIB DD    DSN=user.copylib1,DISP=SHR
//          DD    DSN=user.copylib2,DISP=SHR
//CSE.VERSION DD    *
ENTERPRISE
//CSE.USERSEL DD    *
FORMAT 3
ADD COPY=ALL
OMIT COPY=MASTREC1
OMIT COPY=MASTREC2
ADD @
```

The input COBOL program is pointed to by the **COBLIN** DD.

COPY members are brought in via the **COPYLIB** DD.

The **VERSION** DD points to the version of COBOL being processed. See the heading "**Specifying correct VERSION of COBOL**" in this section for correctly specifying which VERSION of COBOL should be used for this program.

The **USERSEL** DD allows entering **FORMAT**, **ADD**, and **OMIT** commands for MODIFYING what the DEFAULT options used for creating ANALYSIS information provide. This ANALYSIS information is appended onto the COBOL source. See the sub-heading "**How to use //USERSEL DD to override Defaults**" in this section.

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## Specifying Correct Version of COBOL

Control/SE needs to know what version of COBOL is being processed for many reasons including knowing what sub-set of RESERVED words to check for. If running Control/DCD through ISPF panels, ignore this page, and simply choose what version of COBOL through an ISPF panel.

Use the instructions provided under this heading, for setting the correct version of COBOL.

If **older COBOL 68** is being used, use the OTHER= symbolic as shown below and comment out or remove the override DD for //CSE.VERSION as shown below:

```
//BUILD    EXEC    CSE,OTHER='C68'  
.  
.  
// * CSE.VERSION DD *
```

If **older COBOL 74** is being used, use the OTHER= symbolic as shown below and comment out or remove the override DD for //CSE.VERSION as shown below:

```
//BUILD    EXEC    CSE,OTHER='NOVS2'  
.  
.  
// * CSE.VERSION DD *
```

Note - If **1974 Version 3 COBOL or older** is used, add VR3 to the OTHER= symbolic as shown below:

```
//BUILD    EXEC    CSE,OTHER='NOVS2,VR3'
```

For all 1985 COBOL and newer versions, choose one of the following 4 options and enter in column 1 within the //VERSION DD \* as follows:

1. VS-COBOL
2. VS-COBOL-II
3. IBM-COBOL
4. ENTERPRISE

Example for VS-COBOL follows:

```
//BUILD    EXEC    CSE  
.  
.  
//CSE-VERSION DD *  
VS-COBOL
```

For other **newer** versions, substitute **VS-COBOL** with **VS-COBOL-II**, **IBM-COBOL** or **ENTERPRISE**.

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## Selecting ANALYSIS information

There are many types of analysis information available for appending to the COBOL program for providing COBOL ANALYSIS for the program when doing an ISPF edit session.

DEFAULT options are in place to provide a standard set of options. The user may modify these defaulted options by using **ADD**, **OMIT**, and **FORMAT** commands within a **//USERSEL DD**.

The **//USERSEL DD** provides a way of modifying the **type of analysis information** is provided along with other options for **modifying the way information is formatted within some types**.

See the sub-heading '**How to use //USERSEL DD to override the DEFAULTS**' at the end of this heading for rules about entering ADD, OMIT, and FORMAT commands.

## Types of analysis information available

The following are the current type of analysis that may be used in a FIND command as **operands** provided that they immediately follow an ( **&** ) character as follows:

Command ==> **F &operand**

where operand is one of the following items shown below.

### Operands available in Control/SE

- |   |   |
|---|---|
| 1. <b>Data Division Field Name</b>      | (provides total analysis for this data field) *1      |
| 2. <b>Performed Paragraph / Section</b> | (show forward tracing from this routine) *2           |
| 3. <b>CALL</b>                          | (CALL Analysis)                                       |
| 4. <b>COPY</b>                          | (COPY Member Analysis)                                |
| 5. <b>CODE-NOT-USED</b>                 | (Unused fields, Unused 01 records, and dead P-D code) |
| 6. <b>ERRORS</b>                        | (shows errors in scanning similar to Compile Errors)  |
| 7. <b>FORWARD-TRACING</b>               | (shows Forward Tracing of Performed Routines)         |
| 8. <b>HELP</b>                          | (HELP for Control/SE)                                 |
| 9. <b>INDEX</b>                         | (provides an INDEX of all reports and their size)     |
| 10. <b>OPEN</b>                         | (shows all OPENs within each Performed Routine)       |
| 11. <b>PERFORM-ANALYSIS</b>             | (shows PERFORM ERRORS in the Program)                 |
| 12. <b>PERFORMED-ROUTINES</b>           | (shows a listing of all Performed Routines)           |
| 13. <b>SQL</b>                          | (DB2 – shows SQL documentation for data-name access)  |
| 14. <b>Cn/</b>                          | (see explanation on next page) *3                     |
| 15. <b>n FIRST</b>                      | (see explanation on next page) *4                     |
| 16. <b>Copy-Member-Name</b>             | (see explanation on next page) *5                     |

*\*See Notes on operands for \*1 through \*5 on next page.*

To insure that all wanted analysis information is available later when doing editing, it is necessary to check the options wanted versus the DEFAULT options provided. Use the **//USERSEL DD** with **ADD**, **OMIT**, and **FORMAT** commands shown later in this section to make any needed changes to what is provided.

### Notes on operands:

1. When a data-name (from Data Division) is entered as in ( **FIND &USER-DATA-NAME** ), then complete Data Division & Procedure Division Narrative is available. See **Exhibit 1** in this section.
2. When a Performed-Name is entered, as in ( **FIND &G-COMPARE-TR-CODE** ), then Forward Tracing is shown from that Performed Routine forward.
3. When a reference is made to a field in a COPY Member, the sequence number shown in Data Division Narrative for that field is given in the format ( **Cn1/n2** ) where **n1** represents the sequential number of the COPY (e.g. first, second, etc.) and **n2** represents the sequential number of the line of code within this COPY member. Two examples of this narrative follow:

( **C1/14** ) **&COPY-MBR-NAME**

Move COPY-MBR-NAME **@C1/14** to NON-COPY-FIELD (512)

To use a successful find here, use either **FIND (C1/14)** (where **1** equals the number of the COPY member in the program as shown in the narrative and **14** specifies the 14th line in that COPY), or **FIND &C1/**.

When **FIND (C1/14)** format is used, note that a **begin parentheses [ ( ]** is used, **not an &**, and the COPY member does not necessarily need to be brought in.

When **FIND &C1/** is used that COPY member must have been included with one of two commands as shown below:

- a. ADD COPY=ALL or
- b. ADD COPY=member-name

Adding in a COPY member, brings the COPY member into the added ANALYSIS for viewing by the technician while maintaining the COBOL program and makes to COPY available for Finding within a FIND command.

4. Using a FIND similar to following: ( **FIND &345 FIRST** ) allows using the sequence number of ANOTHER-NAME (see below **@345**) in the narrative of JUST-SELECTED-NAME to go to the narrative for ANOTHER-NAME.

**MOVE** JUST-SELECTED-NAME TO ANOTHER-NAME **@345** (2018)

To use this feature, requires generating an **@number** in the narrative and requires the use of the following **ADD @** command added within **//USERSEL DD** as follows:

**ADD @**

5. To Select on a Copy-Member-Name, one or more COPY members must be brought into the analysis information with either an ADD COPY=ALL or ADD COPY=member-name entered within **//USERSEL DD** as follows:

**ADD COPY=ALL**  
**or ADD COPY=member-name**



## DEFAULT options set by Control/SE

The following ANALYSIS reports are turned **ON** by DEFAULT

1. COBOL Source Code (Needed for editing and maintenance of the COBOL source code)
2. Data Division Field Name (This option is modified with the FORMAT command)
3. Performed Paragraph/Section (This option requires that FORWARD-TRACING be ON)
4. CALL Analysis
5. COPY Analysis
6. FORWARD-TRACING (Shows forward tracing by PERFORMed routine)
7. HELP
8. INDEX (This option is always ON)
9. OPEN Analysis
10. PERFORM-ANALYSIS (Shows Minor, Moderate, and Major PERFORM Errors)
11. SQL Analysis

Options 1, 4, 5, 6, 7, 9, 10 & 11 may be turned off using the **OMIT** commands shown in various examples that follow.

The following ANALYSIS reports are turned **OFF** by DEFAULT

1. CODE-NOT-USED provides:  
    **Unused 01 records**  
    **Unused data names** (*not in a COPY member*)  
    **& Dead Procedure Division Code**
2. ERRORS
3. PERFORMED-ROUTINES
4. SUMMARY MANAGEMENT REPORTS (See heading 'Summary Management Reports')
5. Viewing of COPY Members (See *two* ways COPY members are brought in below\*)

See the next sub-heading in this section of the manual, for how to override these DEFAULTS, except for SUMMARY MANAGEMENT REPORTs which has its own heading.

*\*The **two** different ways COPY members are brought in for viewing are shown below:*

ADD COPY=ALL                      *or*  
ADD COPY=member-name

## How to use //USERSEL DD to override DEFAULTS

There are three commands that may be entered within the //USERSEL DD. They are ADD, OMIT, and FORMAT.

These commands when used must always start in column 1 and there must be only 1 space after the ADD, OMIT, or FORMAT command before entering a valid operand to follow the command as shown in this example:

```
//USERSEL DD *  
FORMAT 3  
OMIT DD-ATTRIBUTES  
ADD ERRORS
```

The user may comment out any command at any time by putting an asterisk in column 1 as shown just below:

```
//USERSEL DD *  
FORMAT 3  
* OMIT DD-ATTRIBUTES  
* ADD ERRORS
```

If a command is in an invalid format, it will be flagged unless there is an asterisk in column 1 in which case the command will be ignored.

## Modify the Narrative created for each Data Division Field

The most **potent** and **versatile** ANALYSIS feature created by Control/SE is the Narrative created for each data field residing in the DATA DIVISION.

See the Exhibit 1 - Data Division Field Name, later in this manual, for an example of what this Narrative looks like.

This narrative in this release may not be turned off, but it may be modified from small to large in various way as shown under this sub-heading.

### FORMAT Command

The main way to modify this narrative is with the FORMAT command. There are 3 options of the FORMAT command as shown below:

**FORMAT 1** has the following defaults:

- Data Division Narrative ( DD-ATTRIBUTES ) is turned **OFF**
- Sort Sequence for Procedure Division Narrative is in **Verb** Sequence
- Performed Routine preceding the Procedure Division Narrative is **not included**

**FORMAT 2** has the following defaults:

- Data Division Narrative ( DD-ATTRIBUTES ) is turned **ON**
- Sort Sequence for Procedure Division Narrative is in **Procedure Division** Sequence
- Performed Routine preceding the Procedure Division Narrative is **not included**

**FORMAT 3** (defaulted to without a FORMAT command being present)

- Data Division Narrative ( DD-ATTRIBUTES ) is turned **ON**
- Sort Sequence for Procedure Division Narrative is in **Procedure Division** Sequence
- Performed Routine preceding the Procedure Division Narrative **is included**
- **FORWARD TRACING** of those routines used for this data field is included

Use a command like that shown below to modify the FORMAT used:

```
//USERSEL DD *
```

```
FORMAT 1
```

Use '**Other ADD & OMIT commands**' on the next page to further modify the Narrative created for each Data Division Field as shown in the description and examples that follow.

## Other ADD & OMIT Commands

### ADD OTHER-NAME Sequence Number

Using the ' **FIND &n FIRST** ' command during ISPF editing requires that an **@number** be inserted in the Procedure Division Narrative, so the number is there for the user to find. To turn this on, use an **ADD @** command as follows:

```
//USERSEL DD *  
ADD @
```

When **ADD @** is used, the narrative above will be modified by inserting an **@number** as shown below:

```
(0106) &THIS-NAME  
      MOVE THIS-NAME TO ANOTHER-NAME @234 (582,788)  
      IF THIS-NAME NOT = THIRD-NAME @305 (1124)
```

With the **@234** and **@305** being present, this allows user to use **FIND @234 FIRST** to go to narrative for **ANOTHER-NAME** and **FIND @305 FIRST** to go to narrative for **THIRD-NAME**.

### DD-ATTRIBUTES

To turn DD-ATTRIBUTES ON for **FORMAT 1** use an **ADD DD-ATTRIBUTES** command as follows:

```
//USERSEL DD *  
FORMAT 1  
ADD DD-ATTRIBUTES
```

To turn DD-ATTRIBUTES OFF for **FORMAT 2 or 3** use an **OMIT DD-ATTRIBUTES** command as follows:

```
//USERSEL DD *  
FORMAT 2 (or FORMAT 3)  
OMIT DD-ATTRIBUTES
```

**Note** - If there is every any doubt about what the default is for **DD-ATTRIBUTES** for whatever **FORMAT** is used, the user can simply add an **ADD DD-ATTRIBUTES** or an **OMIT DD-ATTRIBUTES** to indicate their preference.

## INDEXED BY

The **INDEXED BY** clause narrative is defaulted off.

To turn on, use following:

```
//USERSEL DD *  
ADD INDEXED
```

## INDIRECT REFERENCES

The **INDIRECT REFERENCES** narrative is defaulted off.

To turn on, use following:

```
//USERSEL DD *  
ADD INDIRECT
```

## REPLACE NAME with # character

To replace the data-name that the Narrative is for with a **#** character in the Procedure Division narrative as originally shown below:

```
(0106) &THIS-NAME  
      MOVE THIS-NAME TO ANOTHER-NAME (582,788)  
      IF THIS-NAME NOT = THIRD-NAME (1124)
```

use an OMIT NAME commands as follows:

```
//USERSEL DD *  
OMIT NAME
```

When **OMIT NAME** is used, the narrative above will be modified as shown below:

```
(0106) &THIS-NAME  
      MOVE # TO ANOTHER-NAME (582,788)  
      IF # NOT = THIRD-NAME (1124)
```

## Override the DEFAULTS to turn off some Analysis Information ON & OFF

### Overriding Defaults that are initially turned OFF

1. CODE-NOT-USED
2. ERRORS
3. INVALID-DATA-ERRORS Turn on ERRORS and also include INVALID DATA messages
4. PERFORMED-ROUTINES
5. n FIRST (Turned ON with **ADD @** command. When ON, it allows going from the narrative of **first** name to the narrative of **another-name** with the use of 'F &n FIRST' where n equals the number following the @ character in the narrative created for **first** name & referencing **another-name**.)
6. COPY-Member-Names (See 2nd & 3rd examples below for COPY Member Names)

To override the defaults for numbers 1-4 and turn these reports on, add any of the following ADD commands shown in Example 1 below:

#### Example 1

```
//USERSEL DD *  
ADD CODE-NOT-USED  
ADD INVALID (INVALID may be used for INVALID-DATA-ERRORS)  
ADD PERFORMED-ROUTINES  
ADD @
```

To bring in **COPY members** for viewing in ISPF, use either ADD COPY=ALL or ADD COPY=member as follows in **Example 2** below:

#### Example 2

```
//USERSEL DD *  
ADD COPY=ALL  
or  
//USERSEL DD *  
ADD COPY=MEMBER1  
ADD COPY=DIFFMEMB
```

When **ADD COPY=ALL** is used to bring in all COPY members, **OMIT COPY=member** may be used to selectively omit some copy members as shown here in **Example 3** below:

#### Example 3

```
//USERSEL DD *  
ADD COPY=ALL  
OMIT COPY=MEMBER6
```

(Continued next page)

**Overriding Defaults that are initially turned ON**

1. COBOL Source (necessary for editing)
2. Data Name Narrative (always turned on **and** modified by FORMAT command)
3. Performed Paragraph or Section  
(always turned on)
4. CALL
5. COPY
6. FORWARD-TRACING
7. HELP
8. OPEN
9. PERFORM-ANALYSIS
10. SQL
11. Cn/ (always turned on, but requires ADD COPY=**ALL** or **member**  
when using a ' F &Cn/ ' where n = sequential number (1st,  
2nd, etc.) of a COPY member in program)

To override the default and turn reports for numbers 1 and 4-10 above OFF, add any of the following OMIT commands:

```
//USERSEL DD *  
OMIT COBOL  
OMIT CALL  
OMIT COPY  
OMIT FORWARD-TRACING  
OMIT HELP  
OMIT OPEN  
OMIT PERFORM-ANALYSIS  
OMIT SQL
```

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## Build a Digital Documentation Manual (DDM) in PDF format

Building a Digital Documentation Manual (DDM) in PDF format is done under ISPF with the same run that creates the information on the ANALYSIS DD on the mainframe. Use ISPF for Control/DCD and use main Option 1 for building the DDM as a binary file and then download the file (as a BINARY file) to load the PDF file for reader by any PDF reader.

For creating the DDM outside of ISPF (**not recommended**, except for optional testing by system installer, *(AND then only after ISPF installation is complete to have all files needed in place)*) is a three-step process as follows:

1. Run Control/SE as shown in this section. The main information is created to the Partitioned Data Set specified on the //ANALYSIS DD with the member name taken from the PROGRAM-ID in the COBOL program.
2. Use JCL shown in Step 2 on next page to create an unreadable binary file in a format for downloading this member to the PC.
3. Do a binary download for the file created in Step 2, for reading by an PDF reader.

See the next two pages for JCL to use for testing this process outside of using ISPF.

*(continued next page)*

**Building a PDF outside of ISPF****Step 1 - Creating ANALYSIS information on PDS**

```
//CSESTEP EXEC CSE,PROGRAM=INVPROG3 (INVPROG3 taken from Install files)
//STEPLIB DD DSN=userid.CDCD.LOAD,DISP=SHR
//CSE.COBO LIN DD DSN=userid.CDCD.CNTL(&PROGRAM),DISP=SHR
//CSE.COPYLIB DD DSN=userid.CDCD.CNTL,DISP=SHR
//CSE.ANALYSIS DD DSN=userid.CSE.ANALYSIS(&PROGRAM),DISP=SHR
```

Note – ANALYSIS file should already be in CSE proc. It is shown above for clarification as it is referenced in Step 2. Use JCLLIB to point to modified CSE PROC set up during installation.

**Step 2 - Creating a PDF file for binary loading to PC**

```
//DELETE EXEC PGM=IEFBR14
//OUTFILE DD DSN=userid.MANUAL4.INVPROG3.PDF,
// DISP=(MOD,DELETE,DELETE),UNIT=SYSDA,SPACE=(TRK,(100,50))
//*
//TXT2PDF EXEC PGM=IKJEFT1B,TIME=1,DYNAMNBR=50,PARM=(' ')
//SYSEXEC DD DISP=SHR,DSN=XXX.XXXXXXXX (requires system file)
//STEPLIB DD DISP=SHR,DSN=userid.CDCD.LOAD (fill in CDCD load file)
//SYSPRINT DD SYSOUT=*
//SYSTSPRT DD SYSOUT=*
//INFILE DD DSN=userid.CSE.ANALYSIS(INVPROG3),DISP=SHR
//OUTFILE DD DSN=userid.MANUAL4.INVPROG3.PDF,
// DCB=(RECFM=VB,LRECL=4100,BLKSIZE=27998),
// DISP=(NEW,CATLG,DELETE),UNIT=SYSDA,
// SPACE=(TRK,(100,50),RLSE)
//SYSTSIN DD *
%txt2pdf BROWSE Y +
IN DD:INFILE +
OUT DD:OUTFILE +
CONFIRM Yes +
OUTREC 110
//
```

**Notes –**

1. ANALYSIS file under INFILE DD needs to match what is used in Step 1.
2. Use INVPROG3 from CDCD.CNTL file or change all occurrences of INVPROG3 in this JCL.
3. Fill in SYSEXEC DD, the DSN of library used in installation of Control/DCD installation for storing for REXX members (TXT2PDF and 3 similarly named members) on system SYSEXEC or SYSPROC.
4. Fill in STEPLIB of where Control/DCD is installed.
5. Fill in Control Statements beginning in Column 2, exactly as shown.

*(continued next page)*

Step 3 - Download to PC

Do a binary download to PC of userid.MANUAL4.INVPROG3.PDF file for access to this file by any PDF reader.

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## Editing in ISPF with a unique **FIND &operand**

The **&** character is seldom used within a COBOL program and when used, it is usually within an alphanumeric literal, and then may have a trailing space or ending quote after it.

Control/SE uses the **&** just before an **operand** within its FINDs to allow multitude types of FINDs to quickly bring up the necessary analysis to assist the technician in analyzing a COBOL program. In most instances, just one FIND &operand (where operand = one of Control/SE operands, including Data Division Name and Performed routine name) will go right to the ANALYSIS offered to assist the technician.

The format of the FIND with the & requires no space between the & and the operand as shown here:

**F &TR-ACCT-NAME**

### List of unique **&** type FINDs available

#### Operands available in Control/SE

- |   |  |
|---|--|
| 1. <b>Data Division Field Name</b>      | (provides total analysis for this data field) *1     |
| 2. <b>Performed Paragraph / Section</b> | (show forward tracing from this routine) *2          |
| 3. <b>CALL</b>                          | (CALL Analysis)                                      |
| 4. <b>COPY</b>                          | (COPY Member Analysis)                               |
| 5. <b>CODE-NOT-USED</b>                 | (Unused fields, 01 records, and dead P-D code)       |
| 6. <b>ERRORS</b>                        | (shows errors in scanning similar to Compile Errors) |
| 7. <b>FORWARD-TRACING</b>               | (shows Forward Tracing of Performed Routines)        |
| 8. <b>HELP</b>                          | (HELP for Control/SE)                                |
| 9. <b>INDEX</b>                         | (provides an INDEX of all reports and their size)    |
| 10. <b>OPEN</b>                         | (shows all OPENs within each Performed Routine)      |
| 11. <b>PERFORM-ANALYSIS</b>             | (shows PERFORM ERRORS in the Program)                |
| 12. <b>PERFORMED-ROUTINES</b>           | (shows a listing of all Performed Routines)          |
| 13. <b>SQL</b>                          | (shows SQL documentation for SQL data-name access)   |
| 14. <b>Cn/</b>                          | (see explanation on next page) *3                    |
| 15. <b>n FIRST</b>                      | (see explanation on next page) *4                    |
| 16. <b>Copy-Member-Name</b>             | (see explanation on next page) *5                    |

*\*See Notes on operands for \*1 through \*5 on next page.*

To ensure that all wanted analysis information you need later when doing editing, it is necessary to check the options wanted versus the DEFAULT options provided. Use the //USERSEL DD with ADD, OMIT, and FORMAT commands shown in this section in the sub-heading 'How to use //USERSEL DD to override DEFAULTS' to make any needed changes to the ANALYSIS created.

**Notes on operands:**

1. When a Data Division data-name is entered as in ( **FIND &USER-DATA-NAME** ), then complete Data Division and Procedure Division Narrative is available. See **Exhibit 1** in this section.
2. When a Performed-Name is entered, as in ( **FIND &G-COMPARE-TR-CODE** ), then Forward Tracing is shown from that Performed Routine forward. See **Exhibit 2**.
3. When a reference is made to a field in a COPY Member, the sequence number shown in Data Division Narrative for that field is given in the format ( **Cn1/n2** ) where **n1** represents the sequential number of the COPY (e.g. first, second, etc.) and **n2** represents the sequential number of the line of code within this COPY member. To use a successful FIND here on &Cn/ where **n** equals a number of the COPY member in the program as shown in the narrative, that COPY member must have been included with one of two commands as shown below:

- c. **ADD COPY=ALL** or
- d. **ADD COPY=member-name**

Adding in this COPY member, brings this COPY member into the added ANALYSIS for viewing by the technician while maintaining the COBOL program. You may also do a FIND &INDEX to see what COPY members this is for.

4. Using a FIND similar to following: ( **FIND &345 FIRST** ) allows using the sequence number of ANOTHER-NAME ( see below **@345** ) in the narrative of JUST-SELECTED-NAME to go to the narrative for ANOTHER-NAME.

**MOVE JUST-SELECTED-NAME TO ANOTHER-NAME @345 (2018)**

To use this feature, requires generating an @number in the narrative and requires the use of the following ADD command added to those commands entered within //USERSEL DD as follows:

**ADD @**

5. To Select on a Copy-Member-Name, one or more COPY members must be brought into the analysis information with either an **ADD COPY=ALL** or **ADD COPY=member-name** entered within //USERSEL DD as follows:

**ADD COPY=ALL**

or

**ADD COPY=member-name**

## Selectively limiting the CHANGE command within ISPF

Besides using the **FIND** with an **&** preceding an **operand** to provide helpful ANALYSIS information during editing within ISPF in Control/SE, there is one more helpful hint that the user of Control/SE should be aware of, and that is the use of the **CHANGE ALL** command.

A **CHANGE ALL** command if not limited within Control/SE will make the requested change not only in the COBOL program, but also within all the ANALYSIS information provided.

Depending on the user preference and on the change being made, the user **may** or **may not** want to do a Global change to include all the ANALYSIS information.

If the user does **NOT** want to do a global change there is an easy way to limit the CHANGE commands used to the range of the COBOL program beginning with 10 to 15 seconds of setup every time the Control/SE Cobol program with added analysis information is brought into the editor as shown here:

### Initial Setup after Control/SE program is loaded into editor

Do the following to get to the end of the COBOL program and beginning of Control/SE Analysis information

```
Command ==>  F  &ENDSOURCE
```

The editor window will appear similar to the following:

```
Command ==>
001024
001025  #ENDSOURCE          &ENDSOURCE
001026  #CALL REPORT        &CALL
001027  467                 PROG ENTRY &PROGNAME
001028  683                 CALL  *TRPROG2
.
.
```

Now modify the ENDSOURCE LINE going into columns 1-6 and enter as a label, the two characters ( **.E** ) anywhere in columns 1-6 as follows:

```
Command ==>
001024
0.E025  #ENDSOURCE          &ENDSOURCE
001026  #CALL REPORT        &CALL
001027  467                 PROG ENTRY &PROGNAME
001028  683                 CALL  *TRPROG2
.
.
```

This label **.E** will stay in place for the length of the ISPF EDIT session and may now be used in a range of the Change Command. See next sub-heading '**Using a range within the CHANGE ALL command**'.

### Using a range within the CHANGE ALL command

The CHANGE ALL command allows a range to be inserted after the two change operands and before the ending ALL as follows:

```
C operand-1 operand-2 range-begin range-end ALL
```

To limit the search from the beginning of the COBOL program, use the label **.ZF** as range-begin.

To limit the search to stop at the end of the COBOL program, use the label **.E** , created just after the editor was loaded as range-end.

The effective CHANGE command with range of the COBOL program is as follows, once INITIAL SETUP is done as shown in the last heading.

```
C operand-1 operand-2 .ZF .E ALL
```

An example follows:

```
C 'MAST-' 'MASTER-' .ZF .E ALL
```

The above CHANGE will limit the changing to just the range of the COBOL program.



## **Use of ISOLATE program**

Once editing of the COBOL program is finished in Control/SE, the excess ANALYSIS at the end the program needs to be removed and the resulting COBOL program needs to be stored back on a COBOL only library or PDS.

The ISOLATE program within Control/SE is used to do just that. More instructions on using this ISOLATE program with user JCL or executing an ISOLATE PROC is shown in the next section of this manual, 'Isolate Only COBOL Program'.

### **Automatic additional Backup of COBOL Source**

When the COBOL program is brought into Control/SE, a backup copy of the source code is made to the file specified under BCKUPCOB.

The CSE PROC should already be set up to point this BCKUPCOB DD file to a separate PDS.

Each time the CSE PROC is run, the most recent copy of the source code is saved on this file.

## **Availability of Alternate Compile Listing Report**

When the Control/SE source file with added ANALYSIS is created, an Alternate Compile Listing report is generated.

A description of this report that has been generated within this manual. See the section in this manual labeled 'Alternate Compile Listing Reports Description' for more on the Alternate Compile Listing.

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## Examples of ANALYSIS available through unique FINDs

Examples are given in this heading for each of the operands shown below. These work in the DDM created in PDF format or when the user issues an ISPF format: **====> F &Operand**

Note - The examples while shown in ISPF format work equally well in PDF format searches.

### Operands available in Control/SE

- |   |   |
|---|---|
| 1. <b>Data Division Field Name</b>      | (provides total analysis for this data field)         |
| 2. <b>Performed Paragraph / Section</b> | (show forward tracing from this routine)              |
| 3. <b>CALL</b>                          | (CALL Analysis)                                       |
| 4. <b>COPY</b>                          | (COPY Member Analysis)                                |
| 5. <b>CODE-NOT-USED</b>                 | (Unused fields, unused 01 records, and dead P-D code) |
| 6. <b>ERRORS</b>                        | (shows errors in scanning similar to Compile Errors)  |
| 7. <b>FORWARD-TRACING</b>               | (shows Forward Tracing of Performed Routines)         |
| 8. <b>HELP</b>                          | (HELP for Control/SE)                                 |
| 9. <b>INDEX</b>                         | (provides an INDEX of all reports and their size)     |
| 10. <b>OPEN</b>                         | (shows all OPENs within each Performed Routine)       |
| 11. <b>PERFORM-ANALYSIS</b>             | (shows PERFORM ERRORs in the Program)                 |
| 12. <b>PERFORMED-ROUTINES</b>           | (shows a listing of all Performed Routines)           |
| 13. <b>SQL</b>                          | (shows SQL documentation for SQL data-name access)    |
| 14. <b>Cn/</b>                          | (Referencing a COPY field)                            |
| 15. <b>n FIRST</b>                      | (Referencing another field)                           |
| 16. <b>Copy-Member-Name</b>             | (Viewing a COPY member)                               |

EDIT            USERID.CSEPDF (PROGRAMA) -

Command **====> F &MAST-LAST-NAME**

*brings into editor detail like the following:*

```
(0247)  &MAST-LAST-NAME
        In 32-51 of 01 MAST-RECORD
        In FILE SECTION
                PIC X(20)

01      PROGRAM-ENTRY
02      C-HANDLE-MAST-REC
02      L-PUT-OUT-SELECTED-MAST-RECS
03      P-DO-LAST-NAME-EDITING

C-HANDLE-MAST-REC
        MOVE MAST-LAST-NAME TO TRANS-LAST-NAME (367)
L-PUT-OUT-SELECTED-MAST-RECS
        IF MAST-LAST-NAME NOT = SPACES (742)
P-DO-LAST-NAME-EDITING
        MOVE SPACES TO MAST-LAST-NAME (866)
```

### Exhibit 1 - Data Division Field Name

Both Data Division and Procedure Division information is available along with Forward Tracing of the Performed Routines involved with the use of this data field.

```

EDIT          USERID.CSEPDF( PROGRAMA)  -
Command ==> F &B-PRODUCE-OUTPUT-FILE
brings into editor detail similar to the following:
  6   362          &B-PRODUCE-OUTPUT-FILE
  7   432          &B190-RETURN-NEXT-RECORD
(See #2)          FILEIO-ERROR-ROUTINE
  8   444          &B200-CHECK-FOR-A-NEW-HDR  THRU  B299-EXIT  --> (3 Performs)
  9   556          &B600-PRINT-ANY-SEQ-NBRS  THRU  B699-EXIT  --> (2 Performs)
 10   594          &B900-WRITE-OUTPUT-RECORD
(See #10)         B900-WRITE-OUTPUT-RECORD  --> (5 Performs)
 11   503          &B400-SHOW-NO-PERF-ERRS  THRU  B400-EXIT
(See #10)         B900-WRITE-OUTPUT-RECORD  --> (2 Performs)
 12   407          &B100-DO-ALL-RECORDS  THRU  B199-EXIT  --> (Perform/UNTIL)
 13   574          &B700-GET-CODE-MATCH  THRU  B799-EXIT

```

### Exhibit 2 - Performed Paragraph / Section

Forward Tracing beginning from selected routine B-PRODUCE-OUTPUT-FILE is shown

```

EDIT          USERID.CSEPDF( PROGRAMA)  -
Command ==> F &CALL
brings into editor detail similar to the following:
  #CALL REPORT          &CALL
  205          PROG ENTRY &PERF05          USING  4 PARAMETERS
  C6/56          CALL &DCDPRINT          USING  1 PARAMETER
  C6/60          CALL &DCDPRINT          USING  1 PARAMETER
  254          CALL &DOCLOSE          USING  1 PARAMETER
  316          CALL &DOCLOSE          USING  1 PARAMETER
  350          CALL &DOREAD          USING  3 PARAMETERS
  342          CALL &DOWRITE          USING  2 PARAMETERS
  229          CALL &EDITSEQ2          USING  2 PARAMETERS

```

### Exhibit 3 - CALL Analysis

Sequence Number **C6/56** shows reference to the **56th line** in the **6th COPY** member  
 See INDEX report for a listing of all COPY members in any given program

EDIT            USERID.CSEPDF( PROGRAMA ) -

Command ==> **F &COPY**

*brings into editor detail similar to the following:*

#COPY REPORT	&COPY
DATA DIVISION 183	COPY DCDLINK
DATA DIVISION 136	COPY DCDPREC
DATA DIVISION 134	COPY DDACLNBR
DATA DIVISION 178	COPY EDITSEQC
DATA DIVISION 132	COPY FILEINFO
PROCEDURE DIV 613	COPY PDERSECT

#### Exhibit 4 - COPY Analysis

EDIT            USERID.CSEPDF( PROGRAMA ) -

Command ==> **F &CODE-NOT-FOUND**

*brings into editor detail similar to the following:*

#CODE-NOT-FOUND            &CODE-NOT-FOUND

#### &Unreferenced PARAGRAPHS and SECTIONS for TESTPROG

Before removing any routine, check to be sure that FALL THRU's are not intended

#### Unused SECTIONS

Seq Number	Section/Paragraph Name	Message or Warning
554	R-CORRECT-MAST-CODE	SECTION not externally referenced

#### &Unused 01 Records and 77 Entries for Prog: TESTPROG

Seq Number	Lvl	Field Name
187	01	SN1-RECORD
		Caution: The REDEFINES record after above record is USED!
201	01	S1-RECORD

#### &Unused Data Names for Prog: TESTPROG

Seq Number	Lvl	Field Name
(65)	*****01	WS-AW-RECORD***** contains unused fields **
67	10	WS-AW-SORT-PREFIX-ID
68	10	WS-AW-SORT-POS-3
70	10	WS-AW-SORT-POSL-10

#### Exhibit 5 - Code-Not-Found Report

Three types of reports are listed in this report (Unused 01 Records, Unused Fields, & Dead Code)

EDIT            USERID.CSEPDF( PROGRAMA ) -

Command ==> **F &ERRORS**

*brings into editor detail similar to the following:*

<b>ERROR MESSAGES</b>		<b>05/27/2015 14:42</b>	<b>PAGE 02</b>
<b>SQ-NBR</b>	<b>MSG-NBR</b>	<b>DESCRIPTION</b>	
00287	CSEM5J01-W	THE NAME (TR-ACCT-NBR2 ) DOES NOT MATCH TO A DATA DIVISION NAME	
TOTAL NUMBER OF W LEVEL MESSAGES		=	1
TOTAL NUMBER OF MESSAGES		=	1

### Exhibit 6 - Errors found

EDIT USERID.CSEPDF( PROGRAMA ) -

Command ==> **F &FORWARD-TRACING**

*brings into editor detail similar to the following:*

	<b>#FORWARD TRACING</b>	<b>&amp;FORWARD-TRACING</b>
1	205	&PROGRAM-ENTRY
3	296	&A-READ-IN-PERF01-FILE
4	347	&A190-READ-NEXT-RECORD --> ( 2 Performs )
5	602	&FILEIO-ERROR-ROUTINE
6	324	&A100-DO-ALL-RECORDS THRU A199-EXIT --> ( Perform/UNTIL )
(See #5)		FILEIO-ERROR-ROUTINE --> ( 2 Performs )
7	362	&B-PRODUCE-OUTPUT-FILE
8	432	&B190-RETURN-NEXT-RECORD
(See #5)		FILEIO-ERROR-ROUTINE
9	444	&B200-CHECK-FOR-A-NEW-HDR THRU B299-EXIT --> ( 3 Performs )

### Exhibit 7 - Forward Tracing Report

Show Forward Tracing of Performed Routines from Program-Entry. Also, see Example 1 for Selected Forward Tracing for each data field.



```
EDIT          USERID.CSEPDF( PROGRAMA)  -
```

```
Command ==> F &HELP
```

*brings into editor detail similar to the following:*

```
#HELP
```

```
&HELP
```

```
HELP for Control/SE
```

```
Control/SE is software for COBOL programs. It has three parts:
```

1. An Editable Source File with viable ANALYSIS info added to it.
2. An 'Alternate Compile Listing' with special added ANALYSIS.
3. A Summary Management System maintains Analysis Info by program.

Editable Source File:

- a. See Control/SE User's Manual or Control/SE Quick Start Guide for more information on CSE JCL that creates this Editable File.
- b. After creating an Editable Source File use ISPF to edit this file rather than a traditional COBOL member. See 'ISPF Editing' below.
- c. After editing is complete, run ISOLATE JCL to isolate just source code. See Control/SE Quick Start Guide for ISOLATE JCL example.

### Exhibit 8 - HELP

```
EDIT          USERID.CSEPDF( PROGRAMA)  -
```

```
Command ==> F &INDEX
```

*brings into editor detail similar to the following:*

```
#INDEX
```

```
&INDEX
```

#COBOL PROGRAM	HAS	814 RECORDS		
#ENDSOURCE	HAS	1 RECORDS		
#HELP	HAS	18 RECORDS		
#CALL REPORT	HAS	18 RECORDS		
#COPY REPORT	HAS	7 RECORDS		
#PERFORM-ANALYSIS	HAS	24 RECORDS		
#COPY=FILEINFO	HAS	18 RECORDS	C1/..	
#COPY=DDACLNR	HAS	50 RECORDS	C2/..	
#COPY=DCDLINK	HAS	778 RECORDS	C3/..	OMITTED
#COPY=PDERSECT	HAS	70 RECORDS	C4/..	
#OPEN REPORT	HAS	6 RECORDS		
#SQL REPORT	HAS	75 RECORDS		
#NARRATIVE REPORT	HAS	2,569 RECORDS		
#FORWARD TRACING	HAS	36 RECORDS		
#CODE-NOT-FOUND	HAS	52 RECORDS		OMITTED
#ERRORS	HAS	3 RECORDS		OMITTED
#PERFORMED-ROUTINE	HAS	19 RECORDS		OMITTED

### Exhibit 9 - INDEX Report

The index report shows how many records are in each category and may be used to assist in controlling the size of the expanded COBOL Source file with added Analysis Information

```

EDIT          USERID.CSEPDF (PROGRAMA) -
Command ==> F &OPEN
brings into editor detail similar to the following:
  #OPEN REPORT          &OPEN REPORT
(0038)  &MAST-INP-FILE
      C-HANDLE-MAST-REC
      OPEN Input MAST-INP-FILE (367)
(0041)  &MAST-OUTPUT-FILE
      L-PUT-OUT-SELECTED-MAST-RECS
      OPEN Extend MAST-OPUTPUT-FILE (742)
End of  FD OPEN & SORT  Info

```

### Exhibit 10 - OPEN Analysis

All OPEN and all SORT/USING and SORT/GIVING files are shown  
The Performed Routine just ahead of the OPEN file is available

```

EDIT          USERID.CSEPDF (PROGRAMA) -
Command ==> F &PERFORM-ANALYSIS
brings into editor detail similar to the following:
  #PERFORM-ANALYSIS  &PERFORM-ANALYSIS
PERFORM Warnings & Major Errors
Count   Type & Seq Nbr(s)
  01  GO TOs leaving the range of a PERFORM          MAJOR PERFORM ERROR
    403

```

```

PERFORM & GO TO activity
Count   Type & Seq Nbr(s)
  12  PERFORM SECTIONS
    222      249      251      255      285      287      291
    301      317      345      353      438
  30  PERFORM Paragraphs
    304      307      310      376      383      386      390
    396      397      410      414      420      425      429
    550      563
  10  GO TO Paragraphs
    233      320      328      333      384      403      559
    606      C6/34      C6/40

```

### Exhibit 11 - PERFORM-ANALYSIS

Shows Minor, Moderate & Major **Perform** Errors and all **Perform** and **GO TO** activity

```

EDIT          USERID.CSEPDF( PROGRAMA ) -
Command ==> F &PERFORMED-ROUTINES
brings into editor detail similar to the following:
#PERFORMED-ROUTINES &PERFORMED-ROUTINES
SEQ#  Count  Performed Routine
205      1 PROGRAM-ENTRY PROGRAM-ENTRY
296      1 PERFORM      A-READ-IN-PERF01-FILE
324      1 PERFORM THRU  A100-DO-ALL-RECORDS      A199-EXIT
                                UNTIL=1
347      2 PERFORM      A190-READ-NEXT-RECORD
362      1 PERFORM      B-PRODUCE-OUTPUT-FILE
407      1 PERFORM THRU  B100-DO-ALL-RECORDS      B199-EXIT
                                UNTIL=1
432      1 PERFORM      B190-RETURN-NEXT-RECORD
444      4 PERFORM THRU  B200-CHECK-FOR-A-NEW-HDR  B299-EXIT

```

### Exhibit 12 - Performed Routines

```

EDIT          USERID.CSEPDF( PROGRAMA ) -
Command ==> F &SQL
brings into editor detail similar to the following:
#SQL REPORT      &SQL REPORT ( &DB2 )
(0032) &FIRSTNAME
      DECLARE-CURSOR-SELEC FIRSTNAME (71)
      A-FIRST-MAINLINE
      EXECUTE FIRSTNAME (78)
      INSERT-SELECT FIRSTNAME (86)
      B-SUB-MAINLINE-RTN
      CREATE-VIEW-SELECT FIRSTNAME (110)
(0041) &DD-2ND-ACCT
      CREATE-WHERE-SELECT DD-2ND-ACCT (67)
      A-FIRST-MAINLINE
      DELETE-WHERE DD-2ND-ACCT = (75)
      B-SUB-MAINLINE-RTN
      CREATE-WHERE-SELEC DD-2ND-ACCT = (107)
(0045) &ACCT-KEY1
      OPEN-USING ACCT-KEY1 (68)
      UPDATE-SET = ACCT-KEY1 (73)
      B-SUB-MAINLINE-RTN
      UPDATE-SET = ACCT-KEY1 (113)
      SELECT-ALL ACCT-KEY1 (115)
      SELECT-WHERE-FROM ACCT-KEY1 (115)
(0047) &ACCT-KEY3
      A-FIRST-MAINLINE
      FETCH-INTO ACCT-KEY3 (82)
End of  SQL Info

```

### Exhibit 13 – SQL report of accessed data fields

```

EDIT          USERID.CSEPDF( PROGRAMA)  -
Command ==> F &C2/
brings into editor detail similar to the following:
#COPY=DDACLNR      &DDACLNR  &C2/
  **                                COPY  DDACLNR
01  EN-ERROR-NUMBER-12-POS.
05  EN-ACL-AND-SUBSYS-AND-PROG.
    10  EN-LEADING-SPACES          PIC X(02)          VALUE SPACES.
05  EN-LOC-AND-SEV.
    10  EN-ACL-CONSTANT            PIC X(03).
    10  EN-SUBSYS-AND-PROGRAM.
        15  EN-ACL-SUB-SYSTEM      PIC X(01).
        15  EN-ACL-PROGRAM         PIC X(01).
    10  EN-PROG-3-CHARS            PIC X(03).
    10  EN-DASH-AND-SEV-LEVEL.
        15  EN-DASH                 PIC X(01).
        15  EN-SEVERITY-LEVEL      PIC X(01).

```

#### Exhibit 14 - Referencing a COPY field

Also, the COPY member **must have been selected** with a COPY=ALL or COPY=member in //USERSEL DD

```

EDIT          USERID.CSEPDF( PROGRAMA)  -
Command ==> F &459 FIRST
brings into editor detail similar to the following:
(0459)  &MAST-ACCT                                &459&
        In 113-121 of 01 MAST-RECORD
        In WORKING-STORAGE
                PIC X(09)
C-HANDLE-MAST-REC
        MOVE TRANS-ACCT-NBR @247 TO MAST-ACCT (1267)
D-TEST-ACCT-DIFFERENCE
        IF MAST-ACCT > 003500000 (1421)

```

See ( **MAST-ACCT @459** ) below as the basis of using ( **F &459 FIRST** ) above.

```

(0247)  &TRANS-ACCT-NBR      (user previously in narrative for this field)
        In 31-39 of 01 FD-TRANS-RECORD
        In FILE SECTION
                PIC X(09)
C-HANDLE-MAST-REC
        MOVE TRANS-ACCT-NBR TO MAST-ACCT @459 (1267)

```

\*To use this feature, requires the insertion of @number in the narrative, using the **ADD @** command within the //USERSEL DD.

#### Exhibit 15 - Referencing another field

EDIT            USERID.CSEPDF(PROGRAMA) -

Command ==> **F &DCDPREC**

*brings into editor detail similar to the following:*

```
#COPY=DCDPREC            &DCDPREC    &C3/
  **                                    COPY   DCDPREC
01  PRINT-RECORD.
    05  PRINT-CCC                      PIC X(001)    VALUE SPACES.
    05  PRINT-REST-LINE               PIC X(132)    VALUE SPACES.
    05  FILLER-TO-136                 PIC X(003)    VALUE SPACES.
    05  PRINT-PASSED-ADDRESS         PIC X(004)    VALUE SPACES.
    05  PRINT-USE-FILE-SW             PIC X(001)    VALUE SPACES.
       88  PRINT-USE-PRINT-FILE                    VALUE 'P'.
       88  PRINT-USE-SYSTRACE-FILE                VALUE 'S'.
       88  PRINT-DO-NOT-OPEN-REPORT-FILE         VALUE 'J'.
    05  PRINT-NO-ERRORS-SW            PIC X(001).
       88  PRINT-NO-ERRORS                        VALUE 'Y'.
       88  PRINT-RESET-DCDPRINT-SWITCH           VALUE 'R'.
```

### **Exhibit 16 - Viewing a COPY member**

To do a FIND by Copy Member Name, the COPY member must have been selected with a **COPY=ALL** or **COPY=member** in the **//USERSEL DD**.

## Specifying PARM Options

The Build the Editable Source File is controlled by the use of PARM options included within the PARM field. However, when using CSE PROCs to execute the Build the Editable Source File Facility, the entering of PARM fields is done by means of PROC Symbolics.

This heading lists the PARM options along with a description of the use of each option. Also, in the next heading is a list showing corresponding PROC Symbolics for PARM options.

How these PROC Symbolics are entered into the JCL is shown in many ways in the Sub-heading: “Use of CSE PROCs and Symbolics” in this section.

This heading is provided to make the user aware of the way in which PARM fields are used to specify options for CSE. For a complete list of the options available and more information on executing the Alternate Compile Facility: finish reviewing this heading, review the heading on “Use of CSE PROCs and Symbolics,” then consult the Table of Contents and go to the beginning headings in this section.

Options to control execution are provided through the use of PARM fields. The user provides control information and uses the PARM field as the means to pass this information through to the CSE program.

Two types of control fields may be entered via the PARM field.

1. Keyword options which consist of:
  - a. A leftmost identifying field
  - b. An equals (=) sign
  - c. A value field following the equal sign
2. Non-keyword options which consist of:
  - a. A leftmost identifying field (with or without the two letters NO ahead of it)

Keyword options should be enclosed in single apostrophes as shown here:

`'LNCNT=60'`

There is no reason to enclose non-keyword options in single apostrophes.

The following shows the PARM field for indicating the printing of the Source Listing Report both with and without the prefix NO ahead of it:

`SOURCE`  
`NOSOURCE`

When NO precedes the PARM field specified, the option is turned off. When the PARM option is specified without the NO prefix, the option is turned on.

For both non-keyword and keyword PARM fields, the following information applies:

1. Most of the PARM fields are of the non-keyword type.
2. For non-keyword PARM fields and for the leftmost identifying field in a keyword PARM field, the field may be abbreviated to the first 3 characters.  
The following examples are provided:

```
'LNC=60'  
SOU  
NOSOU
```

3. When the PARM option is not specified in the PARM field, then an internally specified default is used. This default is provided for every non-keyword and for every keyword option in this manual by the use of an underline. Two examples are provided:

```
LNCNT=nn  
LNCNT=60
```

```
SOURCE  
NOSOURCE
```

The above two examples indicate that the default is to print 60 lines per page and that unless otherwise specified, the Source Listing Report is to be printed.

4. PARM fields must be separated by commas. Also, the entire PARM field should be enclosed by parentheses. An example follows:

```
PARM=(SOU,NOCALL,NOCOPY,'LNCNT=58',LIT)
```

5. PARM fields may be placed in any order within the parentheses.

The PARM field itself is a keyword parameter which follows the PGM=keyword on the JCL EXEC statement. An example follows:

```
//STEP1 EXEC PGM=CSE,REGION=8192K,  
// PARM=(SOU,CAL,NOLIT,'SOR=800000')
```

The users may execute CSE programs by providing their own JCL or they may use PROCs (catalogued JCL) which are listed in this manual and should be available for use at your installation.

Sample JCL for invoking CSE without the use of a PROC is provided in this manual. However, all the examples used in this manual are provided with the assumption that the user is using standard PROCs provided with this software package.

When using CSE PROCs, PARM fields are entered through the use of PROC Symbolics. Entering the PARM fields through the use of symbolics is done in a different manner from what has been shown here for entering the PARM fields. The use of these symbolics is discussed in the next heading, "Use of CSE PROCs and Symbolics."

### **PARM Options**

<u>ASKIP</u> NOASKIP	Account for SKIP1, SKIP2, and SKIP3 lines in the CSE Source Listing Report.
<u>CALL</u> NOCALL	Produce the CALL Statements Report.
<u>DYCALLS</u> NODYC	Add Dynamic CALL information to the CALL report.
CICS	This option is always turned on. However, for CICS COBOL programs, the CICS program should be run through the CICS pre-processor prior to being run through Control/SE.
<u>COF</u> <u>NOCOF</u>	Forces an older compiler standard where COPY statements on the same line with an 01 record with a different 01 record name in the COPY member will use the 01 name within the COPY rather than the 01 record preceding it.
<u>COPY</u> NOCOPY	Produce the COPY Statements Report. For CICS, DL1, or DB2 programs also produce a separate INCLUDE report if INCLUDEs are found.
C68	Use when COBOL 68 is used.
<u>DDC</u> NODDC	Produce the Data Division Condensed Cross Reference Report.
DL1	This option is always turned on. However, for DL1 COBOL programs, the DL1 Programs should be run through the DL1 pre-processor prior to being run through CSE.
<u>DNF</u> NODNF	Print a warning message for data names not found in the Data Division when resolving Procedure Division statements.
<u>ERRORS</u> NOERRORS	NOERRORS may be used to omit the printing of errors. A summary count of all errors is still provided. This does not affect the return code produced by CSE.
<u>FGCONSTS</u> NOFGCONSTS	Produce the Figurative Constants Report.
<u>FTB</u> FTO NOFTO F16	This option is for printing FROM-TO field positions relative to the 01 record that the field belongs to. FTB prints the FROM-TO field positions in columns 73-80 if these columns are not already used. FTO forces the FROM-TO in 73-80 positions. This option will insert the FROM Field position in columns 1 through 6.
HFT	Use HEXADECIMAL rather than DECIMAL FROM-TO positions in 73-80.



<u>IDDLITS</u> <u>NOIDDLITS</u>	Include Data Division Literals in the LITERALS report.
<u>IEJECT</u> <u>NOIEJECT</u>	Ignore EJECT lines when creating the CSE Source Listing Report.
<u>INVALID</u> <u>NOINVALID</u>	Insure ERROR messages are on and produce additional messages showing possible INVALID DISPLAY NUMERIC errors with invalid literal or MOVE to redefined Alphanumeric field.
<u>IREFS</u> <u>NOIREFS</u>	This option produces Indirect References showing where verb activity resides In REDEFINES, overlapping field positions and group fields for this field.
IRn    ( n=1–6 )	Use IR1 to IR6 to limit Indirect References to following: IR1 (Indirect Changed), IR2 (Indirect Used), IR3 (Indirect Tested), IR4 (Indirect Changed & Used), IR5 (Indirect Used & Tested), IR6 (Indirect Changed & Tested).
IRN	Force Indirect Narrative even if there is no direct narrative.
IRX	Keep Indirect References in main report, eliminating overflow report.
<u>LITERALS</u> <u>NOLITERALS</u>	Produce the Literals Report.
LNCNT=nnn <u>LNCNT=60</u>	Sets the maximum lines per page for all CSE reports. Up to three digits may be Used in specifying LNCNT.
NIS	Re-arrange the SORT sequence of the COBOL narrative produced by DCD into Primary sequence by compiler sequence number rather than a verb name.
<u>NRSPACE</u> <u>NONRSPACE</u>	Inserts a blank line in the Data Division of the Source Listing Report between the last line of narrative for one data name and the next data name line in those cases where the next data name line also has narrative associated with it.
NUC	Convert all NARRATIVE produced by CSE to UPPER Case Characters.
<u>PDC</u> <u>NOPDC</u>	Produce the Procedure Division Condensed Cross Reference Report. If SECTIONs are present, also produce a just SECTIONs report.
<u>RESOLVE</u> <u>NORESOLVE</u>	Expand COPYs encountered in the source program. If COPY members are not resolved numerous warnings may appear for missing data names.
<u>SRESOLVE</u> <u>NOSRESOLVE</u>	Expand COPY ... SUPPRESS statements.
<u>SRESOLVE</u> <u>NOSRESOLVE</u>	Expand COPY ... SUPPRESS statements.
<u>SORTREG=nnnnnnn</u> <u>SORTREG=0810000</u>	Indicates the SORT region size in bytes. If encountering problems with SORT REGION, increase this amount slightly as needed and ensure that the number in DCB=BUFNO=nn on DCD work files is kept to 5 or smaller. REGION must be more than SORTREG. Keep SORTREG at 0810000.

<u>SOURCE</u> NOSOURCE	Print or suppress the Source Listing Report. While running in Compile Mode if NOSOURCE is specified, the compiler source listing is printed.
<u>SPREGS</u> NOSPREGS	Produce the Special Registers Report.
<u>U01</u> NOU01 UNUSED	Produce a report at the end of the Alternate Compile Listing showing all unused 01records. See Heading 'Unused 01 Records and Unused Data Names'. Use option UNU to turn off all three unused reports (U01,UDN,UPARAS).
<u>UDN</u> NOUDN UNUSED	Produce a report at the end of the Alternate Compile Listing showing all unused data names. See Heading 'Unused 01 Records and Unused Data Names'. Use option UNU to turn off all three unused reports (U01,UDN,UPARAS). This report will be turned off, if there are no data names or if NOIREF is specified.
<u>UPARAS</u> NOUPARAS	Produce a report at the end of the Alternate Compile Listing showing all unused Paragraphs & Sections. See Heading 'Unused Paragraph and Section Names'.
<u>UPIGNORE</u> NOUPIGNORE	The default UPI option IGNORES reporting unused Paragraphs or Sections that are in the range of a PERFORM or PERFORM THRU. Use NOUPI to report these routines as unused. Use option UNU to turn off all three unused reports (U01,UDN,UPARAS).
<u>UNREF</u> NOUNREF	Print or suppress un-referenced data names and paragraph names in the Data Division and Procedure Division Condensed Cross Reference Reports.
<u>VERB</u> NOVERB	Produce Condensed VERB Report.
VR3 <u>NOVR3</u>	Emulate 1974 Version 3 COBOL (and earlier versions), in which compiler line numbers are not generated for SKIPs and EJECTs. For use in Compile Mode.
<u>VS2</u> NOVS2	Use NOVS2 for COBOL older programs prior to the 1985 COBOL standard. When VS2 is used, RESERVED WORDS for the latest release of COBOL (ENTERPRISE COBOL) are checked for. To force using a different release, such as IBM-COBOL, insert a //DCD.VERSION DD to check for a different version of COBOL. See page F-8, item number 5 of this manual for instructions on use of the VERSION DD.

## Corresponding PROC Symbolics

<b><u>PARM Option</u></b>	<b><u>Corresponding PROC Symbolic</u></b>	<b><u>PARM Option</u></b>	<b><u>Corresponding PROC Symbolic</u></b>
ASKIP	default	LNCNT=nnn	LINECNT=nnn,
NOASKIP	OTHER='NOASK,'	NIS	OTHER='NIS,'
CALL	CALL=,	NUC	OTHER='NUC,'
NOCALL	CALL=NO,	NRSPACE	OTHER='NRS,'
DYCALLS	default	PDC	CPROC DV=,
NODYCL	OTHER='NODYC,'	NOPDC	CPROC DV=NO,
CICS	always on	PMO	default
COPY	COPY=,	NOPMO	OTHER='NOPMO,'
NOCOPY	COPY=NO,	QUOTE	OTHER='QUO,'
C68	OTHER='C68,'	NOQUOTE	default
DDC	CDATADV=,	DETERMINE	OTHER='DET,'
NODCC	CDATADV=NO,	RESOLVE	default
ERRORS	default	NORESOLVE	RESOLVE=NO,
NOERRORS	OTHER='NOERR,'	SRESOLVE	default
FGCONSTS	FIGCON=,	NORESOLVE	OTHER='NOSRE,'
NOFGCONSTS	FIGCON=NO,	SORTREG=nnnnnnnn	SORTREG=nnnnnnnn,
FTB	default	SOURCE	SOURCE=,
FTO	OTHER='FTO,'	NOSOURCE	SOURCE=NO,
NOFTO	OTHER='NOFTO,'	SPREGS	default
HFT	OTHER='HFT,'	NOSPREGS	SPREGS=NO,
IDDLITS	OTHER='IDD,'	UNREF	UNREF=,
NOIDDLITS	default	NOUNREF	UNREF=NO,
IEJECT	OTHER='IEJ,'	U01, UDN, UPA, UPI	default
NOIEJECT	default	NOU01	OTHER='NOU01'
INVALID	OTHER='INV,'	NOUDN	OTHER='NOUDN,'
NOINVALID	default	NOUPA and/or NOUP I	OTHER='NOUPA,NOUPI,'
IREFS	default	VERB	default
NOIREFS	OTHER='NOIRE,'	NOVERB	OTHER='NOVER,'
IR1-IR6, IRN, IRX	OTHER='IRx,' x=1-6,N,X	VR3	OTHER='VR3,'
LITERALS	LITERAL=,	NOVR3	default
NOLITERALS	LITERAL=NO,	VS2	default
		NOVS2	OTHER='NOVS2,'

Note: The PROC symbolic **OTHER** is used to enter PARM options for which there are no corresponding symbolics. When multiple PARM options are entered they are separated by commas. (e.g. - **OTHER='NOASK,NOVS2'**)

## Use of CSE PROCs and Symbolics

The execution of CSE, as with other software, is made easier using cataloged JCL (PROCs).

This heading provides general information about using PROCs to execute CSE. It also provides general information about the use of PROCs and specifically symbolic parameters.

### USE OF SYMBOLICS

The use of symbolics when used in a PROC, is an easy way of providing a substitute value within the cataloged JCL just prior to execution of that JCL.

When a symbolic is used in the JCL, it must be preceded by an ampersand (&). An example follows:

```
//CSEWK01 DD UNIT=&WORK, SPACE= (CYL, (2,2) ), DCB=BUFNO=&BUF
```

The two symbolics are &WORK and &BUF. Prior to execution, these symbolics must be replaced with valid or real values.

Typically, default values for these symbolics are provided within and at the top of the PROC as shown here:

```
//DCDACL PROC WORK=SYSDA, BUF=5
```

The ampersand (&) is not used when listed at the top of the PROC. It is only used when embedded within the actual JCL where the substitution value will be placed.

See the 'CSE PROC' heading to identify the use of symbolic parameters within that PROC.

To use symbolics during the execution of the PROC to override the default defined within the PROC, just add the symbolic in the following format after the EXEC procname. An example follows:

```
//STEP1 EXEC CSE,WORK=DISK,BUF=4
```

Look again at the CSE PROC and look at the use of symbolics within the PARM field and also at the corresponding symbolic at the top of the PROC. The following symbolics are listed below:

```
//CSE PROC SOURCE=,  
// CALL=,  
.  
.  
// PARM=(&SOURCE.SOU,&CALL.CAL,...)
```

Notice that SOURCE= and CALL= have no value associated with them. When the symbolics &SOURCE along with the terminating period and &CALL along with the terminating period are removed and replaced with no value, the substitution JCL looks as follows:

```
//  PARM=(SOU,CAL,
```

which matches the manner in which PARM fields were shown in the previous heading. To turn an option off with the DCDACL PROC, use a symbolic=NO on the EXEC line. An example follows:

```
//STEP1 EXEC DCDACL,SOURCE=NO
```

The resulting PARM field after replacement of &SOURCE will look like this:

```
//  PARM=(NOSOU,CAL,
```

Most of the options are turned on or off within CSE PROCs by either providing no value after the symbolic or by using symbolic=NO on the EXEC PROC JCL. An example follows:

```
//CSE EXEC    CSE,SOURCE=,  
//           CALL=NO,  
//           COPY=,  
//           FIGCON=NO
```

In the above JCL, the Source Listing Report and COPY Statements Report will be produced while the CALL Statements and Figurative Constants Reports will not be produced.

It is important to note that the symbolic used within the PROC and the PARM option are not always the same. For example:

PARM field: FGCONSTS  
Symbolic: FIGCON

Also, the PARM field FGCONSTS may be abbreviated to 3 characters, while the symbolic may not be abbreviated and must be used as shown.

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## CSE PROC

```

//CSE      PROC SOURCE=,          * PRODUCE SOURCE REPORT
//          CALL=,                * PRODUCE CALL REPORT
//          COPY=,                 * PRODUCE COPY REPORT
//          FIGCON=,               * PRODUCE FIGURATIVE CONSTANT REPORT
//          LITERAL=,              * PRODUCE LITERAL REPORT
//          SPREGS=,               * PRODUCE SPECIAL REGISTER REPORT
//          CDATADV=,              * PRODUCE CONDENSED DATA DIV REPORT
//          CPROCDV=,              * PRODUCE CONDENSED PROC DIV REPORT
//          RESOLVE=,              * RESOLVE COPY MEMBERS WHEN FOUND
//          UNREF=,                 * INCLUDE UNREF NAMES IN CROSS REFERENCE
// * USE NAME=NO TO TURN OFF REPORT (E.G. COPY=NO TO OMIT COPY REPORT)
//          OTHER=' ',             * USED TO ENTER OTHER PARM OPTIONS
//          LINECNT=60,             * NUMBER OF LINES TO PRINT PER PAGE
//          BUF=5,                  * USE TO CHANGE NUMBER OF BUFFERS
//          PRINT='*',              * SEND PRINTER OUTPUT TO MSGCLASS
//          PROGRAM=' ',           PROGRAM= REQUIRED
//          REG=08196K,             * REGION SIZE
//          SORTREG=0810000,        * USE 0810000 OR (1024000 AND REG=12288K)
//          WORK=SYSDA              * UNIT=SYSDA,DISK OR OTHER
// * MARBLE COMPUTER, INC. 1-800-252-1400 PROC=CSE RELEASE 2.2
// *                               LM080117

//CSE      EXEC PGM=CSEMAIN,REGION=&REG,
//          PARM=( &SOURCE.SOU,&CALL.CAL,&COPY.COP,&FIGCON.FGC,
//                &LITERAL.LIT,&SPREGS.SPR,&CDATADV.DDC,&CPROCDV.PDC,
//                &RESOLVE.RES,&UNREF.UNR,&OTHER,
//                'SOR=&SORTREG','LNC=&LINECNT')
// * INSERT STEPLIB HERE IF NECESSARY
// * ANALYSIS DD DSN=PREFIX.CSE.ANALYSIS(&PROGRAM),DISP=SHR
// * BCKUPCOB DD DSN=PREFIX.CSE.BCKUPCOB(&PROGRAM),DISP=SHR
//CLEANUP DD DUMMY,DCB=(LRECL=80,BLKSIZE=3120)
//COBOLIN DD DSN=PREFIX.PROD.COBOL(&PROGRAM),DISP=SHR
//CONTROL DD DSN=PREFIX.CDCD.CNTL(DCDCNTRL),DISP=SHR
// * INSERT COPYLIB HERE IF NECESSARY
//CSEANAL DD DUMMY,DCB=BLKSIZE=3120
//CSEWK01 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//CSEWK02 DD UNIT=&WORK,SPACE=(CYL,(2,3)),DCB=BUFNO=&BUF
//CSEWK03 DD UNIT=&WORK,SPACE=(CYL,(1,1)),DCB=BUFNO=&BUF
//CSEWK04 DD UNIT=&WORK,SPACE=(CYL,(1,1)),DCB=BUFNO=&BUF
//CSEWK05 DD UNIT=&WORK,SPACE=(CYL,(1,2)),DCB=BUFNO=&BUF
//CSEWK06 DD UNIT=&WORK,SPACE=(CYL,(1,2)),DCB=BUFNO=&BUF
//CSEWK07 DD UNIT=&WORK,SPACE=(CYL,(2,3)),DCB=BUFNO=&BUF
//CSEWK08 DD UNIT=&WORK,SPACE=(CYL,(1,2)),DCB=BUFNO=&BUF
//CSEWK09 DD UNIT=&WORK,SPACE=(CYL,(2,3)),DCB=BUFNO=&BUF
//CSEWK10 DD UNIT=&WORK,SPACE=(CYL,(2,3)),DCB=BUFNO=&BUF
//CSEWK11 DD UNIT=&WORK,SPACE=(CYL,(1,1)),DCB=BUFNO=&BUF
//CSEWK12 DD UNIT=&WORK,SPACE=(CYL,(1,1)),DCB=BUFNO=&BUF
//CSEWK13 DD UNIT=&WORK,SPACE=(CYL,(1,1)),DCB=BUFNO=&BUF
//CSEWK14 DD UNIT=&WORK,SPACE=(CYL,(1,1)),DCB=BUFNO=&BUF
//CSEWK15 DD UNIT=&WORK,SPACE=(CYL,(2,4)),DCB=BUFNO=&BUF
//CSEWK16 DD UNIT=&WORK,SPACE=(CYL,(1,1)),DCB=BUFNO=&BUF
//CSEWK17 DD UNIT=&WORK,SPACE=(CYL,(1,2)),DCB=BUFNO=&BUF
//CSEWK18 DD UNIT=&WORK,SPACE=(CYL,(1,1)),DCB=BUFNO=&BUF
//CSEWK19 DD UNIT=&WORK,SPACE=(CYL,(1,1)),DCB=BUFNO=&BUF
//CSEWK20 DD UNIT=&WORK,SPACE=(CYL,(1,1)),DCB=BUFNO=&BUF

```

*(continued next page)*

```
//CSEERROR DD UNIT=&WORK,SPACE=(CYL,(1,1)),DCB=BUFNO=&BUF
//CSORTIN DD UNIT=&WORK,SPACE=(CYL,(3,5)),DCB=BUFNO=&BUF
//CSORTOUT DD UNIT=&WORK,SPACE=(CYL,(3,5)),DCB=BUFNO=&BUF
//CSEDEBUG DD DUMMY,DCB=(BLKSIZE=6120,LRECL=90)
//CSEWK110 DD UNIT=&WORK,SPACE=(CYL,(3,5)),DCB=BUFNO=&BUF
//DDMHELP DD DSN=PREFIX.CDCD.CNTL(DDMHELP),DISP=SHR
//DEBUGFOR DD DUMMY,DCB=BLKSIZE=130
//* EDITFILE DD DSN=PREFIX.CSE.EDITFILE(&PROGRAM),DISP=SHR
//ERRORFL DD SYSOUT=*
//FORTRACE DD UNIT=&WORK,SPACE=(CYL,(1,2)),DCB=BUFNO=&BUF
//FORWORK DD UNIT=&WORK,SPACE=(CYL,(1,2)),DCB=BUFNO=&BUF
//HELP DD DSN=PREFIX.CDCD.CNTL(CSEHELP),DISP=SHR
//PRINT DD DSN=&TPRINT,DISP=(MOD,PASS),SPACE=(CYL,(3,30)),
// DCB=(RECFM=FBA,LRECL=133,BLKSIZE=1330),UNIT=&WORK
//PRINTACL DD SYSOUT=*
//SORTLIB DD DSN=SYS1.SORTLIB,DISP=SHR
//SORTMESS DD DUMMY,DCB=BLKSIZE=133
//SORTWK01 DD UNIT=&WORK,SPACE=(TRK,(100),,CONTIG)
//SORTWK02 DD UNIT=&WORK,SPACE=(TRK,(100),,CONTIG)
//SORTWK03 DD UNIT=&WORK,SPACE=(TRK,(100),,CONTIG)
//SYSOUT DD SYSOUT=&PRINT,DCB=BLKSIZE=121
//SYSTRACE DD DUMMY,DCB=BLKSIZE=133
//* SUMMARY DD DSN=PREFIX.CSE.SUMMARY,DISP=SHR
//* * SUMMARY DD DO NOT ADD (&PROGRAM) AFTER DSN=FILE
//* VERSION DD DSN=PREFIX.CDCD.VERSION,DISP=SHR
```

CSE PROC *(continued from previous page)*



## Summary Management System

The Summary Management System in Control/SE allows keeping the most recent information stored in a very easy to get to format on a Partitioned Data Set by program member name for the following topics:

1. Unused 01 Records
2. Unused Data Names (not in a COPY Member)
3. Dead Procedure Division Code
4. Perform Errors (Major, Moderate, AND Minor)
5. Performed Routines
6. Program CALLs
7. Program COPYs
8. Forward Tracing
9. Program OPENs
10. Program SQL data-name access

To turn this feature on, an ADD SUMMARY command, must be included within the //USERSEL DD. See the example just below for including this command.

```
//USERSEL DD *
ADD SUMMARY
FORMAT 3
ADD CODE-NOT-USED
ADD PERFORMED-ROUTINES
```

Besides including the ADD SUMMARY command, it is recommended to use FORMAT 3 (the default, rather than FORMAT 2 or 1), and to also turn on the CODE-NOT-USED feature along with the PERFORMED-ROUTINES feature to fully populate all Summary Records.

The PDS file holding these summary records may be found within the CSE PROC under the //SUMMARY DD. After running Control/SE on a program, go to that created member name under the Summary PDS and go into BROWSE mode of ISPF and see the Summary information provided there like what is shown in the example below:

### Sample Output for the Summary Management System BY PROGRAM

#### SUMMARY MANAGEMENT REPORT FOR (PROGRAM CALLs)

231	PROG ENTRY	TESTPROG			
298	CALL	DOCLOSE	USING	1	PARAMETER
326	CALL	DOCLOSE	USING	1	PARAMETER
439	CALL	DOWRITE	USING	2	PARAMETERS
320	CALL	OPINPUT	USING	1	PARAMETER
292	CALL	OPOUTPUT	USING	1	PARAMETER
318	CALL	SHELL208			
315	CALL	SORTR208			
C3/7	CALL	TESTCNBR	USING	2	PARAMETERS

#### SUMMARY MANAGEMENT REPORT FOR (PROGRAM COPYs)

DATA DIVISION 201	COPY	DATADIV2
DATA DIVISION 185	COPY	FILEINFO
PROCEDURE DIV 451	COPY	PRDIV2
PROCEDURE DIV 247	COPY	PROC DIV1

#### SUMMARY MANAGEMENT REPORT FOR (PERFORM ERRORS)



### **Special Notes when using ISPF**

1. In this version of Control/SE, when one or more ENTRY verbs are used, Forward Tracing may in some instances not include the performed routines accessed from PERFORMs right after an ENTRY verb, but where there is no direct link to the ENTRY via forward tracing from the beginning of the Procedure Division.
  - a. Marble will work with any users wishing to report instances where they are not handled correctly.

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## JCL Examples using CSE PROC

### Minimum JCL to execute Control/SE

```
//CSESTEP EXEC CSE,PROGRAM=UserProg
```

In this example VERSION defaults to ENTERPRISE COBOL.

The COBOLIN for input program DSN and needed COPYLIB DSNs are set in the CSE PROC.

Also, in this example, FORMAT 3 Narrative and other defaults are in place.

### Modifying VERSION of COBOL & specifying INPUT & COPYLIBs

```
//CSESTEP EXEC CSE,PROGRAM=UserProg
//CSE.COBOLIN DD DSN=userid.cobolPDS(&PROGRAM),DISP=SHR
//CSE.COPYLIB DD DSN=userid.COPYLIB,DISP=SHR
//CSE.VERSION DD *
VS-COBOL-II
```

In this example VERSION is set to VS-COBOL-II and the user is responsible for specifying the correct COBOL Program DSN and appropriate COPYLIBs

Also, in this example, FORMAT 3 Narrative and other defaults are in place.

### Modifying FORMAT from default Format 3 to FORMAT 1

```
//CSESTEP EXEC CSE,PROGRAM=UserProg
//CSE.COBOLIN DD DSN=userid.cobolPDS(&PROGRAM),DISP=SHR
//CSE.COPYLIB DD DSN=userid.COPYLIB,DISP=SHR
//CSE.USERSEL DD *
FORMAT 1
```

In this example VERSION defaults to ENTERPRISE COBOL.

Also, in this example, FORMAT 1 Narrative is used with Narrative in Verb Sequence and with NO included Performed Routine Names.

### Bringing in ALL COPY members, except member MAINMAST

```
//CSESTEP EXEC CSE,PROGRAM=UserProg
//CSE.COBOLIN DD DSN=userid.cobolPDS(&PROGRAM),DISP=SHR
//CSE.COPYLIB DD DSN=userid.COPYLIB,DISP=SHR
//CSE.USERSEL DD *
ADD COPY=ALL
OMIT COPY=MAINMAST
```

In this example ALL copy members are brought in for viewing, except member MAINMAST.

*(continued next page)*

**Bringing in COPY member TRAN101 and MAST100**

```
//CSESTEP EXEC CSE,PROGRAM=UserProg
//CSE.COBO LIN DD DSN=userid.cobolPDS(&PROGRAM),DISP=SHR
//CSE.COPYLIB DD DSN=userid.COPYLIB,DISP=SHR
//CSE.USERSEL DD *
ADD COPY=TRAN101
ADD COPY=MAST100
```

In this example TWO selected copy members are brought in for viewing.

**Including Code not used**

```
//CSESTEP EXEC CSE,PROGRAM=UserProg
//CSE.COBO LIN DD DSN=userid.cobolPDS(&PROGRAM),DISP=SHR
//CSE.COPYLIB DD DSN=userid.COPYLIB,DISP=SHR
//CSE.USERSEL DD *
ADD CODE-NOT-USED
```

In this example Data Division Unused Records, Unused (non-COPY) data fields and Unused Procedure Division code report are included.

**Using FORMAT 2 Narrative and modifying how it is presented**

```
//CSESTEP EXEC CSE,PROGRAM=UserProg
//CSE.COBO LIN DD DSN=userid.cobolPDS(&PROGRAM),DISP=SHR
//CSE.COPYLIB DD DSN=userid.COPYLIB,DISP=SHR
//CSE.USERSEL DD *
FORMAT 2
OMIT DD-ATTRIBUTES
ADD INDEXED
ADD INDIRECT
```

In this example Narrative is presented in Procedure Division sequence **without** including Performed Routine name ahead of the Procedure Division verb. Additionally, DD-ATTRIBUTES are turned off, but INDEXED BY clause and INDIRECT references are added.

*(continued next page)*

**Using FORMAT 3 Narrative and modifying how it is presented**

```
//CSESTEP EXEC CSE,PROGRAM=UserProg
//CSE.COBLIN DD DSN=userid.cobolPDS(&PROGRAM),DISP=SHR
//CSE.COPYLIB DD DSN=userid.COPYLIB,DISP=SHR
//CSE.USERSEL DD *
ADD @
```

In this example FORMAT 3 Narrative is defaulted to and presented in Procedure Division sequence with included Performed Routine name ahead of the Procedure Division verb.

Additionally, within the Narrative generated, other names in the narrative will have an **@number** clause (see below **@573**) added after the name to allow doing a

```
( FIND &number FIRST )
```

to find to the other name in the verb. An example of **@number** is shown below:

```
MOVE THIS-NAME TO OTHER-NAME @573 (1102,1364)
```

**Using FORMAT 1 Narrative and modifying how it is presented**

```
//CSESTEP EXEC CSE,PROGRAM=UserProg
//CSE.COBLIN DD DSN=userid.cobolPDS(&PROGRAM),DISP=SHR
//CSE.COPYLIB DD DSN=userid.COPYLIB,DISP=SHR
//CSE.USERSEL DD *
FORMAT 1
ADD DD-ATTRIBUTES
OMIT NAME
```

In this example FORMAT 1 Narrative is used to present narrative in Verb sequence without including Performed Routine name ahead of the Procedure Division verb.

Additionally, within the Narrative generated, DD-ATTRIBUTES are added.

Also, with the use of OMIT NAME, the **#** character will be used to replace the data name this narrative is for in all the Procedure Division verbs present in the narrative. See example below where **#** replaces name **TR-ACCT-NAME** in two MOVEs and an IF:

```
(0134) &TR-ACCT-NAME
MOVE # TO MAST-ACCT-NAME (581)
MOVE # TO WS-ACCT-NAME-HOLD (682)
IF WS-ACCT-NAME-HOLD = # (719)
```

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Release 2.3

Control/DCD

Isolate Just the COBOL program

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**Control/DCD**

**Isolate Just the COBOL Program**

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## **Introduction to the Isolate Just the COBOL Program**

CSE is designed to allow editing of a COBOL file that has additional analysis information added to the source file to assist the COBOL technician in doing the maintenance.

After the editing is finished, the Control/SE COBOL file is complete, with the addition of additional analysis information that needs to be removed to complete the process of maintaining a COBOL program for compiling and permanent saving.

The ISOLATE facility here provides JCL and an optional PROC for isolating the COBOL program from the expanded source COBOL file with added analysis information.

The input to this step must be the COBOL file with analysis information created using the 'Build Alternate Source File' facility feature of CSE. This is found in the `//EDITFILE DD` in the CSE PROC.

The output from this step should be the COBOL library (Production or other) where the technician goes to access the COBOL program.

The JCL necessary to execute this step follows next in this section of the manual.

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### **JCL needed to run ISOLATE program**

The following JCL is needed to run the ISOLATE program. This JCL and program it invokes should only be run after running STEP 1 to build an editable COBOL file with analysis information and then ISPF editing changes made to that file is completed, requiring a need to run this JCL to isolate the COBOL source for compiling and permanent saving.

Provide a correct `userid` in the JCL as needed.

Change the names of the `LOADLIB`, `CSE.COBOLE`, and `PROD.COBOLE` as needed for your installation.

Change `programe`, used twice, to the name of the COBOL program being accessed.

```
//JOBNAME JOB ...
//JOBLIB DD DSN=userid.CSE.LOADLIB,DISP=SHR
//STEP1 EXEC PGM=ISOLATE,REG=2048K
//SYSOUT DD SYSOUT=*
//EDITFILE DD DSN=userid.CSE.COBOLE(programe),DISP=SHR
//OUTCOBOLE DD DSN=userid.PROD.COBOLE(programe),DISP=SHR
```

### **PROC provided with the Isolate Only COBOL program**

This PROC is available if the user prefers to use this rather than the JCL on the previous page.

The file names in EDITFILE and OUTCOBOL DD's needed to be appropriately modified.

```
//ISOLATE  PROC  PROGRAM=' '  
//STEP1    EXEC  PGM=ISOLATE,REGION=2048K  
// * STEPLIB      DD  DSN=USERID.CSE.LOAD,DISP=SHR  
//SYSOUT     DD  SYSOUT=*  
//EDITFILE    DD  DSN=USERID.CSE.EDITFILE(&PROGRAM),DISP=SHR  
// *          USER MAY NEED TO SPECIFY      //STEP1.OUTCOBOL DD  
// *          SIMILAR TO FOLLOWING WITH CORRECT DSN=XX(&PROGRAM)  
// * OUTCOBOL DD  DSN=USERID.USER.COBOLE(&PROGRAM),DISP=SHR  
//
```

To execute this PROC, use the JCL, similar to the following:

```
//JOBNAME  JOB   ...  
//STEP1    EXEC  ISOLATE,PROGRAM=programe  
//OUTCOBOL DD  DSN=USERID.PROD.COBOLE(&PROGRAM),DISP=SHR
```



Release 2.3

## Control/DCD

### Alternate Compile Listing Description

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**Control/DCD**

**Alternate Compile Listing Description**

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## Introduction to the Alternate Compile Listing Description

The Alternate Compile Listing Facility of CSE is in the same format as the Alternate Compile Listing of Control/DCD. Control/DCD provides additional information to Control/SE for Management Summary Reports while Control/SE's primary function is to create an editable COBOL file with analysis information for editing. During this process, the Alternate Compile Listing is generated and may be used as separate documentation or for viewing by the user. This listing is described in this section of the manual and provides an alternative listing from the one produced by the COBOL compiler with information provided in a way, which will reduce substantially the time spent in maintaining a COBOL program.

For changes in turning reports on or off or changing options that affect this report, see the first section in this manual, One Program Documentation.

The following CSE reports are available through the Alternate Compile Listing Facility of CSE for replacing significant parts of the COBOL compiler listings:

1. Source Listing (Replaces compiler source listing)
2. Condensed VERB Report
3. CALL Statements
4. COPY Statements
5. Figurative Constants
6. Literals
7. Special Registers
8. Data Division Condensed Cross Reference  
(Replaces compiler data name cross reference)
9. Procedure Division Condensed Cross Reference  
(Replaces compiler procedure name cross reference)
10. Unused Paragraphs and Sections
11. Unused 01 Records
12. Unused Data Names
13. Overflow report for Indirect References  
(Only exists for fields with multiple lines of Indirect References – Most Indirect References are shown in the Data Divisions)

Samples of the reports produced by the Alternate Compile Listing Facility along with a description of each are provided in this section. See “Overview of Alternate Compile Listing Reports”.

The output reports for the Alternate Compile Listing Facility are reported on the PRINTACL DD in the CSE PROC.

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## Overview of Alternate Compile Listing Reports

### 1. Source Listing

The Alternate Compile Listing Source Listing is the main report. While other CSE and compiler cross reference reports center around the Source Listing Report, most maintenance of the COBOL program in CSE is done without consulting cross-reference reports.

Besides holding a listing of the COBOL program, the CSE Source Listing Report also contains uniquely formatted cross-reference information. The formation of this information is done in one format for the Data Division and is done in another format for the Procedure Division.

#### DATA DIVISION

In the Data Division part of the listing, formatting is done as follows:

1. A Procedure Division look-alike statement is generated.
2. The data name from the left-hand side of the listing is represented by an # on the right hand side of the listing.
3. The compiler sequence number of the Procedure Division Statement(s) is put in parentheses.

For example, the statement:

```
05 WS-NEXT-COLUMN PIC S9 (4) COMP VALUE ZERO.    > Add 1 to # (1019)
```

indicates that a Procedure Division statement ADD 1 TO WS-NEXT-COLUMN will be found at compiler line number 1019 within the program.

If another data name is involved in the associated Procedure Division statement, then the compiler (or Control/SE) sequence number of that data name is given following an @ character.

For example:

```
05 WS-NEXT-COLUMN PIC S9(4) COMP VALUE ZERO.    > If # = WS-MAX-COLUMN @321 (1005)
```

If the same Procedure Division statement is used more than once, then multiply sequence numbers are provided. For example:

```
05 WS-NUMBER-TIMES PIC S9(3) COMP-3 VALUE ZERO.  > Move WS-MAX-PD-DIGITS @322 to # (939,962,1017)
```

In some instances, only a part of the Procedure Division statement is provided. For example:

```
05 WS-NUMBER-TIMES PIC S9(3) COMP-3 VALUE ZERO.  > Perform-Until # = ZERO (951,974,1031)
```

Most instances, however, have the entire COBOL statement from the Procedure Division shown. For example:

## Control/DCD – Alternate Compile Listing Description

05 WS-NUMBER-TIMES PIC S9 (3) COMP-3 VALUE ZERO. > Subtract 1 from # (1040)

In many cases, where the Procedure Division statements are similar, but relate to different operands, the narrative will not reprint the left most part of the Procedure Division statement that is unchanged between the similar statements. For example:

05 WS-MAX-PD-DIGITS PIC S9 (3) COMP-3 VALUE +5. > If # = 3 (942,965,1022,1050), 4 (945, 968,1025, 1064)  
(501) Move 03 to # (497), 04 to #

When no narrative appears along side a Data Division name, this indicates that the data name is unreferenced.

When narrative is present, Indirect References will also be shown for procedure division Activity that is present for redefined fields of this field and other group field and any field that has overlapping field positions of this field. See bolded line just below.

\* \* \*

SQ-NBR	1----6	PROGRAM-ID	DCDLOGIC	01/01/01	14:56	PAGE	09	73----80	#	REFERS TO DATA-NAME AT THIS SQ-NBR
320	014000	05	WS-NEXT-COLUMN	PIC	S9 (4)	COMP	VALUE ZERO.	>		Add 1 to # (1019) If # > WS-MAX-COLUMN @321 (1005) Move 02 to # (1008) Set # to W34-INDEX @276 (1041) Set W34-INDEX @276 TO # (1020) <b>Indirectly Changed @ 318</b>
321	014100	05	WS-MAX-COLUMN	PIC	S9 (4)	COMP	VALUE +34	>		If WS-NEXT-COLUMN @320 > # (1005) If WS-MAX-PD-DIGITS @322 > # (1007) Move 34 to # (893) Indirectly Changed @ 318
322	014200	05	WS-MAX-PD-DIGITS	PIC	S9 (3)	COMP-3	VALUE +5.			If # = 3 (942,965,1022,1050), 4 (945,968, 1025,1064) > If # > WS-MAX COLUMN @321 (1007) Move # to WS-NUMBER-TIMES @324 (939, 962, 1017) Indirectly Changed @ 318
323	014300	05	WS-NARR-CODE-INC	PIC	S9 (3)	COMP-3	VALUE ZERO.	>		Compute S-WORK-NARRATIVE-CODE @299 = # (682, 694, 705) Move 03 to # (674) , 06 to # (678) , ZERO to # (670) Indirectly Changed @ 318
324	014400	05	WS-NUMBER-TIMES	PIC	S9 (3)	COMP-3	VALUE ZERO.	>		Move WS-MAX-PD-DIGITS @322 to # (939, 962, 1017) Perform-Until # = ZERO (951, 974, 1031) Subtract 1 from # (1040) Indirectly Changed @ 318
325	014500	05	WS-RECORDS-TO-SORT	PIC	S9 (9)	COMP	VALUE ZERO.			

### Exhibit 1

#### Source Listing Report - Data Division



**PROCEDURE DIVISION**

The cross-reference information for the Procedure Division accommodates two types of information.

**a. SQ-NBR=S**

The first type references back to the Data Division (Procedure Division statements such as MOVE or ADD referencing a data name which resides in the Data Division). For these, CSE provides a sequence number referencing the line where the data name resides in the Data Division. For example:

```
1017      MOVE WS-MAX-PD-DIGITS  TO  WS-NUMBER-TIMES.      322 324
```

The first data name, WS-MAX-PD-DIGITS, is documented by the first number on the right, 322, which points to the Data Division sequence number where WS-MAX-PD-DIGITS resides. The second number, 324, references the Data Division sequence number where WS-NUMBER-TIMES resides. See Exhibit 8.

**b. LOGIC FLOW**

The second type, references transfer of control statements such as GO TO or PERFORM, with references to or from another area of the program or statements, which reference an external program. CSE handles these by providing appropriate narrative on the right and (if not external to the program) by providing a sequence number of where the transfer of control is going to or coming from. An example of a GO TO is provided here:

```
1028      GO TO B999-EXIT.                                GO TO 1044
1044      B999-EXIT.                                       COMES FROM GO TO 1028
```

If the transfer of control statement is conditional on the action of an IF, AT END, or other conditional statement, then the four letters COND will precede the generated narrative. See the GO TO in Exhibit 8.

PERFORMS are handled in the following manner:

1030	PERFORM B500-FLOAT-FL2-IN THRU B599-EXIT.	PERFORM 1036 THRU 1042
	.	
1036	B500-FLOAT-FL2-IN.	PERFORMED BY 1030
	.	
1042	B599-EXIT. EXIT.	RETURN TO PERFORM AT 1030

Statements that transfer control to or from another program are documented accordingly with statements such as:

PROCEDURE DIVISION.	BEGIN OF PROGRAM
CALL 'DCDPRINT'.	CALL TO EXTERNAL PROGRAM
GOBACK.	GOBACK

\* \* \*

SQ-NBR	1-----6	PROGRAM-ID	DCDLOGIC	01/01/2001	14:56	PAGE 23	73-----80	SQ-NBR=S	LOGIC FLOW
1017	033400	MOVE	WS-MAX-PD-DIGITS TO	WS-NUMBER-TIMES.			322	324	
1018	033500								
1019	033600	ADD	1	TO	WS-NEXT-COLUMN.		320		
1020	033700	SET	W34-INDEX	TO	WS-NEXT-COLUMN.		276	320	
1021	033800								
1022	033900	IF	WS-MAX-PD-DIGITS =	3			322		
1023	034000		SET FL2-INDEX TO	3			292		
1024	034100	ELSE							
1025	034200	IF	WS-MAX-PD-DIGITS =	4			322		
1026	034300		SET FL2-INDEX TO	2			292		
1027	034400	ELSE							
1028	034500		GO TO B999-EXIT.						COND GO TO 1044
1029	034600								
1030	034700	PERFORM	B500-FLOAT-FL2-IN THRU	B599-EXIT					PERFORM 1036 THRU 1042
1031	034800	UNTIL		WS-NUMBER-TIMES = ZERO.			324		
1032	034900								
1033	035000	B299-EXIT. EXIT.							RETURN TO PERFORM AT 880
1034	035100								
1035	035200								
1036	035300	B500-FLOAT-FL2-IN.							PERFORMED BY 950 973 1030
1037	035400	MOVE	FL2-ALPHA-POS (FL2-INDEX) TO	W34-POS (W34-INDEX).			291	292	275 276
1038	035500	SET	FL2-INDEX	UP BY 1.			292		
1039	035600	SET	W34-INDEX	UP BY 1.			276		
1040	035700	SUBTRACT	1	FROM	WS-NUMBER-TIMES.		324		
1041	035800	SET	WS-NEXT-COLUMN	TO	W34-INDEX.		320	276	
1042	035900	B599-EXIT. EXIT.							RETURN TO PERFORM AT 973 1030
1043	036000								
1044	036100	B999-EXIT.							COMES FROM GO TO 1028
1045	036200	EXIT.							END OF OUTPUT PROCEDURE FROM 511

## Exhibit 2

### Source Listing Report - Procedure Division

## 2. Condensed VERB Report

The Condensed VERB Report shows all references for each VERB in the Procedure Division. Some verbs such as PERFORM are broken up into two categories (e.g. PERFORM & PERFORM THRU)

The Verb sequence numbers are listed in a string of numbers at the right of VERB.

The following sequence is used for this report:

1. VERB
2. Sequence Number

See Exhibit 9 below for an example of the Condensed VERB Report.

VERB REPORT FOR PROG103										
ACCEPT	1203	1569	2045							
ADD	982	995	1256	1290	1337	1498	1499	1503	1602	
CLOSE	1572									
COMPUTE	1545	1547	1549	1551	1623	1625	1627	1629	1660	1783
DISPLAY	2041	2042	2043	2163						
.										
.										
.										
STRING	1802									
SUBTRACT	961	984								
WRITE	1337	1924	1927	2011	2013					

### Exhibit 3

#### Condensed VERB Report

### 3. CALL Statements

The CALL Statement Report shows all ENTRYs into a program and CALLs out of a program in a concise report provided for quick and easy analysis of CALL activity.

For Dynamic CALL names, up to two extra lines may precede the documentation for this line show any Data Division literal and any immediate 'MOVE literal to Dynamic-Call-Name'.

Each ENTRY or CALL is listed on one line. The number of parameters associated with that ENTRY or CALL is also listed on the same line along with a sequence number for finding the ENTRY or CALL within the program.

*The following sequence is used for this report:*

1. CALL name (or ENTRY name)
2. Sequence number in the Procedure Division of where the CALL or ENTRY is found.

### 4. COPY Statements

The COPY Statements Report gives a listing of all COPY members used within the program and for CICS, DL1 & DB2 programs gives a listing of all INCLUDE members.

Each COPY statement is listed on one line. Additional information associated with the COPY statement such as SUPPRESS, the REPLACING clause and the clause OF LIBRARY-NAME have their presence indicated as shown in Exhibit 10. The division where the COPY statement resides is also shown, as is the sequence number of where the COPY statement may be found.

*The following sequences are used for this report:*

1. COPY text-name
2. Sequence number of where the COPY statement resides

See Exhibit 10 below for an example of CALL & COPY statement formatting.

#### CALL STATEMENTS

478	PROGRAM	ENTRY	DCDLOGIC	USING	1	PARAMETER
482		CALL	DCDPRINT	USING	2	PARAMETERS
653		CALL	DCDPRINT	USING	2	PARAMETERS
702		CALL	DCDPRINT			
552		CALL	DCDSTAMP			

#### COPY STATEMENTS

DATA DIVISION	344	COPY	DCDLINK	SUPPRESS		OF LIBRNAME
DATA DIVISION	105	COPY	PARATYP2		REPLACING	
DATA DIVISION	204	COPY	PDNARTBL			

#### INCLUDE STATEMENTS

DATA DIVISION	356	INCLUDE	PDINCLUD
DATA DIVISION	219	INCLUDE	SALESTB3

### Exhibit 4 CALL and COPY Statements Reports

## 5. Figurative Constants

The Figurative Constants Report lists occurrences of each Figurative Constant by sequence number of where they occur in the program.

Figurative Constants include the following: ZERO(S) (ES), SPACE(S), HIGH-VALUE(S), LOW-VALUE(S), QUOTE(S) and ALL literal.

For purposes of listing the Figurative Constants, the plural and single form of the word are treated and listed as one. For example, ZERO, ZEROS and ZEROES are listed as ZERO(S) on the report.

ALL literals are listed in the Literals Report, not in the Figurative Constants Report. The

Literals Report directly follows the Figurative Constants Report. Any occurrences of the ALL literal are listed first within the Literals Report. See Exhibit 12.

The following sequence is used for this report:

1. Figurative Constants in alphabetic order
2. Sequence number of where the Figurative Constant is used.

See Exhibit 11 for an example of formatting of the Figurative Constants Report.

\* \* \*

### FIGURATIVE CONSTANTS

LOW-VALUE(S)	095	097	486	493										
SPACE(S)	098	099	328	330	322	334	336	394	487	494	568	633	645	662
	711	722	759	771	783	800	833	886	1018					
ZERO(S)	101	171	172	173	316	317	318	319	320	323	324	325	630	638
	667	671	681	704	708	715	719	764	776	780	797	830	943	962

## Exhibit 5

### Figurative Constants Report

## 6. Literals

The literals Report lists all occurrences of ALL literal, nonnumeric literals within quotes and numeric literals by sequence number of where they occur in the program.

ALL literal items are listed first, putting them closer to the Figurative Constants Report just above or ahead of this report.

Thirty characters are provided for listing the non-numeric literal including the quotes that surround them. If the literal is not over 28 characters, then the entire non-numeric literal is shown. If the literal is over 28 characters, then only the first 26 characters are shown, followed by two periods and the ending quote. See Exhibit 12 for two examples of a literal over 28 characters long.

The following sequence is used for this report:

1. ALL literals are placed ahead of other literals
2. Literal value (for non-numeric literals, the surrounding quotes also figure in the sorting sequence)
3. Sequence number of where the literal is used

See Exhibit 12 for an example of the Literals Report.

* * *											
LITERALS											
ALL'9'	849	850	858	864	1007						
+34	321										
+5	322										
'PF2'	486										
'PF3'	493										
'000       UNUSED       ..'	254	256									
'0726 ALTER NNNN TO PROCED..'	1082										
'1'	369	397									
'2'	370										
'3'	371										
'A'	398										
'COND'	1098										
'DCDLOGIC END WS DCDLOGIC'	340										
'E'	457										
'I'	424										
'N'	383	502	871	888	892						
'O'	460										
'Y'	144	147	329	331	333	335	337	353	356	358	361
	375	378	382	386	389	393	404	407	410	419	426
	442	445	472	537	619	742	851	859	893	906	932
01	178	627	896								
1	959	982	1030	1039	1049	1050	1051				
2	957	980	1037								
	953	954	976	977	1033	1034	1061				

### Exhibit 6

#### Literals Report

## 7. Special Registers

The Special Registers Report lists all occurrences of Special Registers.

Special Registers refer to compiler generated areas that may be used in conjunction with specific COBOL features. The following are examples of Special Registers:

1. CURRENT-DATE
2. DATE
3. DEBUG-ITEM
4. DEBUG-SUB-1
5. LINAGE-COUNTER
6. RETURN-CODE
7. SORT-RETURN
8. TALLY
9. TIME

Only those Special Registers found within the program will be listed in this report. If no Special Registers are used, the report will not appear.

The following sequence is used for this report:

1. Special Registers
2. Sequence number of where the Special Register is used.

See Exhibit 13 for an example of the Special Registers Report.

\* \* \*

### SPECIAL REGISTERS

CURRENT-DATE	744
RETURN-CODE	604 843 849 1283
TIME-OF-DAY	746

## Exhibit 7

### Special Registers Report

## 8. Data Division Condensed Cross Reference

The Data Division Condensed Cross Reference Report provides an alphabetic listing of the data names within the Data Division.

What is unique about this report is that no references are given to the Procedure Division statements that reference the data name. The only sequence number given points to the field's location within the Data Division. The cross reference given at that location within the Source

Listing Report gives in COBOL everything that happens to this field.

Besides listing the data name and the sequence number of its location, four characters are reserved alongside the listing to provide the following information about the data field:

1. The level number (01-49, etc.) associated with this field
2. The letter G for those fields which are GROUP items
3. The letter's INDX for index items
4. The letter's FILE for file names

It is recommended that this report be used in place of the compiler cross reference when using the CSE Source Listing Report for the following reasons:

1. The Cross Reference Report is a much less used report when using the CSE Source Listing Report.
2. The narrative alongside each field in the Data Division provides a complete cross reference for that field.
3. The Condensed Cross Reference saves approximately 70% of the paper generated by a compiler cross reference.

The following sequence is used for this report:

1. Data name
2. Sequence number of the data name

See Exhibit 8 for an example of this report.



## Control/DCD – Alternate Compile Listing Description

01/01/2001 15:26		DATA DIVISION CONDENSED CROSS REFERENCE FOR DCDLOGIC						PAGE 27		
05	0316	AL-ALTER-CMPLR-NBR	:	88	0370	LINK-PRINT-JCL-DSNAME	:	88	0120	PAR-2-LAST-TOKEN-IN-
PROG										
05	0317	AL-ALTER-COLUMN-NBR	:	88	0375	LINK-PRINT-LAYOUTS	:	88	0147	PAR-2-MULTIPLE-OPER...
05	0318	AL-GO-TO-CMPLR-NBR	:	20	0374	LINK-PRINT-LAYOUTS-SW	:	05	0146	PAR-2-MULTIPLE-OPERAND
05	0319	AL-PARA-CMPLR-NBR	:	88	0378	LINK-PRINT-RECORDS05	:	05	0150	PAR-2-NAME-COLUMN-NU
G 01	0092	CAFE-DATA-ENVIRON-NAME	:	20	0377	LINK-PRINT-RECORDS-SW	:	05	0149	PAR-2-NAME-EXP-LINE-
NUMBR										
01	0089	DCDLOGIC-BEGINS-HERE	:	88	0382	LINK-PRINT-SOURCE-LISTING	:	88	0129	PAR-2-OUTPUT-PROCEDURE
01	0339	DCDLOGIC-ENDS-HERE	:	20	0381	LINK-PRINT-SOURCE-LISTING-SW	:	88	0130	PAR-2-OUTPUT-
PROCEDURE-TH										
10	0282	FL-ALPHA-POS	:	88	0386	LINK-PRINT-SYS-REC-ANAL	:	05	0112	PAR-2-PARA-OR-SECT
INDX	0283	FL-INDEX	:	20	0385	LINK-PRINT-SYS-REC-ANAL-SW	:	88	0117	PARA-2-PARAGRAPH-NAME
G 05	0281	FL-NUMBER-ALPHA	:	88	0393	LINK-PRINT-UNREF	:	88	0125	PAR-2-PERFORM
05	0280	FL-NUMBER-NUMERIC	:	88	0389	LINK-PRINT-VERB-ANALYSIS	:	88	0126	PAR-2-PERFORM-THRU
G 01	0279	FL2-NUMBER-RECORD	:	20	0388	LINK-PRINT-VERB-ANALYSIS-SW	:	88	0119	PAR-2-PRIOR-TOKEN-OF-
PARA-S										
10	0291	FL2-ALPHA-POS	:	05	0419	LINK-PROGRAM-NAME	:	88	0138	PAR-2-PROGRAM-ENTRY
INDX	0292	FL2-INDEX	:	05	0458	LINK-QUOTE-VALUE	:	G 01	0106	PAR-2-RANGES-FOR-PARAS
G 05	0290	FL2-NUMBER-ALPHA	:	G 01	0345	LINK-RECORD	:	05	0114	PAR-2-RELEVANT-SECTION
05	0287	FL2-NUMBER-NUMERIC	:	G 05	0438	LINK-RELEASE-DATE	:	88	0118	PAR-2-SECTION-NAME
G 01	0286	FL2-NUMBER-RECORD	:	10	0439	LINK-RELEASE-MONTH	:	05	0152	PAR-2-SOURCE-BEGIN-NBR
05	0288	FL2-NUMBER-ZZ-999	:	10	0441	LINK-RELEASE-YEAR	:	05	0155	PAR-2-SOURCE-END-NBR
10	0348	LINK-100	:	G 15	0350	LINK-REPORT-OPTIONS-1-25'	:	05	0108	PAR-2-SOURCE-LINE-
NUMBER										
G 10	0349	LINK-100-R1	:	05	0423	LINK-RETURN-CODE	:	88	0134	PAR-2-STOP-RUN
G 10	0404	LINK-100-R2	:	05	0427	LINK-SORT-REGION	:	05	0110	PAR-2-TOKEN-COLUMN-
NBR										
05	0445	LINK-ADDR-OF-DCDPRTLN	:	88	0398	LINK-SYS-REC-REC-ANAL-ALL	:	05	0116	PAR-2-VERB-CODE
88	0417	LINK-BASIS	:	88	0400	LINK-SYS-REC-ANAL-DIR-INDIR	:	05	0162	PAR-3-EXPANDED-LINE-
NUMBE										
05	0416	LINK-BASIS-SW	:	88	0397	LINK-SYS-REC-ANAL-ONLY-01	:	05	0166	PAR-3-FILLER
88	0414	LINK-COMPILE-MODE	:	88	0401	LINK-SYS-REC-ANAL-ONLY-DIR	:	05	0164	PAR-3-NARRATIVE
05	0413	LINK-COMPILE-MODE-SW	:	20	0396	LINK-SYS-REC-ANAL-SW	:	G 01	0160	PAR-3-NARRATIVE-FOR-SR-
LST										
88	0456	LINK-COPY-REPLACE-FOUND	:	88	0430	LINK-SYSTEM-EXPIRED	:	FILE	0056	PARA-FILE-2
05	0455	LINK-COPY-REPLACE-FOUND-SW	:	05	0429	LINK-SYSTEM-EXPIRED-SW	:	FILE	0065	PARA-FILE-3
88	0383	LINK-DO-NOT-PRINT-SRC-LIST	:	05	0443	LINK-TIME-OF-DAY	:	01	0098	PARA2-NAME
88	0394	LINK-DO-NOT-PRINT-UNREF	:	88	0433	LINK-TRIAL-TAPE-EXPIRED	:	01	0099	PARA3-NAME

### Exhibit 8

### Data Division Condensed Cross Reference

## 9. Procedure Division Condensed Cross Reference

The Procedure Division Condensed Cross Reference Report provides an alphabetic listing of the paragraph/section names within the Procedure Division. If sections are also used, a separate report shows just SECTIONS and is shown at the end of the Paragraph/Section report.

This report is similar in nature to the Data Division Condensed Cross Reference Report in that no references are given to Procedure Division statements which reference the paragraph or section. The only sequence number given points to its location within the Procedure Division. If the paragraph or section is referenced by other Procedure Division statements such as GO TO or PERFORM, narrative will appear alongside the line in the Source Listing Report where the paragraph or section resides. See Exhibit 8 examples of the narrative that appears alongside the Procedure Division lines that contain a paragraph or section (i.e., lines 1033, 1036, 1042, and 1044).

The format of this report, like the Data Division report, has four characters to provide additional information as follows:

1. For paragraph names, these four characters are blank
2. For section names, these four characters contain the letters- SECT

Like the previous report, it is recommended that this report be used over the compiler procedure name report for the same reasons given there, among them a 70% savings in paper.

*The following sequence is used for this report:*

1. Paragraph/section name
2. Sequence number of the procedure name

See Exhibit 9 for an example of this report.

## Control/DCD – Alternate Compile Listing Description

01/01/2001	15:26	PROCEDURE DIVISION CONDENSED CROSS REFERENCE FOR DCDLOGIC					PAGE	29
	0470	003-BUILD-ASSIGN-NAMES	:	0640	A300-GO-TO-DEPENDING	:	0930	B140-TEST-FOR-NUM-1-
FLOAT								
	0494	010-REBUILD-PDNARTBL-COPY	:	0666	A399-EXIT	:	0953	B150-TEST-FOR-NUM-2-
FLOAT	0504	020-SORT-DATA-NAMES	:	0668	A400-PERFORM-TYPE	:	0976	B170-MOVE-IN-
NARRATIVE								
	0514	090-GOBACK	:	0714	A499-EXIT	:	0983	B180-WRITE-NARR-
RECORD								
SECT	0517	A-BUILD-WORK-RECORDS	:	0717	A500-ALTER-PARA	:	0987	B1980-RETURN-NEXT-
RECD								
	0518	A 010-OPEN-PARA-FILE-2	:	0775	A599-EXIT	:	0999	B199-EXIT
	0522	A020-READ-FIRST-RECORD	:	0778	A600-CANCEL-PROGRAM	:	1003	B200-FLOAT-IN-NEXT-
NUMB								
	0528	A030-BUILD-WORK-RECORDS	:	0792	A699-EXIT	:	1011	B210-SET-UP-FOR-FLOAT
	0533	A040-CLOSE-PARA-FILE-2	:	0794	A700-ALL-OTHERS	:	1033	B299-EXIT
	0537	A050-END-OF-INPUT-PROCEDURE	:	0825	A799-EXIT	:	1036	500-FLOAT-FL2-IN
	0543	A100-BUILD-WORK-RECORDS	:	0827	A999-EXIT	:	1042	B599-EXIT
	0544	A110-GO-TO	:SECT	0828	B-BUILD-NARRATIVE-RECORDS	:	1044	B999-EXIT
	0561	A120-GO-TO-DEPENDING-ON	:	0830	B010-OPEN-FILE-A	:SECT	1047	C-REBUILD-PDNARTBL-
COPY								
	0567	A130-PERFORM-TYPE	:	0834	B020-RETURN-FIRST-SORT-REC	:	1048	C010-TEST-MAX-OF-3
	0578	A140-ALTER-PARA	:	0850	B030-PROCESS-ALL-RECORDS	:	1062	C020-TEST-MAX-OF-4
	0584	A160-CANCEL-PROGRAM	:	0843	B030-RETURN-SECOND-SORT-REC	:	1076	C999-EXIT
	0590	A170-ALL-OTHERS	:	0862	B040-CLOSE-FILE-3	:SECT	1078	D-CHECK-FOR-INSERT-
COND								
	0601	A190-READ-NEXT-RECORD	:	0866	B050-END-OUTPUT-PROCEDURE	:	1079	D010-CHECK-LENGTH
	0610	A199-EXIT	:	0870	B100-PROCESS-ALL-RECS	:	1084	D020-INSERT-COND
	0613	A200-GO-TO	:	0907	B120-CHECK-MATCH-TO-PREV-REC	:	1097	D999-EXIT
	0637	A299-EXIT	:	0926	B130-SET-UP-EXP-LINE-NBR	:		

01/01/2001	15:26	SECTIONS ONLY REPORT FOR DCDLOGIC			PAGE	30
SECT	0517	A-BUILD-WORK-RECORDS	:	SECT	1047	C-REBUILD-PDNARTBL-COPY
SECT	0828	B-BUILD-NARRATIVE-RECORDS	:	SECT	1078	D-CHECK-FOR-INSERT-COND

### Exhibit 9

## Procedure Division Condensed Cross Reference

01/01/2001	15:26	INDIRECT REFERENCES (See ACL Report for fields not shown here)		PAGE	31
	DATA-NAME	SEQ-#	INDIRECT ACCESS FOR THIS FIELD		
LINE-28		00025	Indirectly changed@40,60,80,102,103,104,106,107,108,109,111,117,121,125,129,13,133,134,137,138 Tested @ 105,111, Used @ 110,111,117,121,135,129,130,133,137,138		

### Exhibit 10

## Overflow Report to Indirect References

### Unused 01 Records Report

01 Records that are completely unused are listed in this report along with unused 77 level entries.

Redefined 01 records are shown independently from the 01 record that it redefines.

Sometimes a beginning 01 record is not referenced and is used for setting up VALUEs for a redefined 01 record that follows it. If the first 01 record is not referenced and the next redefined 01 record is referenced, the first 01 record is shown as not referenced and then a CAUTION line is printed showing that the next 01 record is used! Conversely, it is possible to have unused 01 records follow to add space to a previous table. These records should normally not be deleted.

If the first FD 01 record is not unused, including having no OPEN, READ, CLOSE, etc. to the associated FILE name with the FD, then the 01 record is shown as unused, otherwise it will be treated as used. A second, third or more FD 01 record for the same FD will be shown as unused if none of the fields in the respective record including that 01 are unused.

01 records are shown as unused whether or not they reside in a COPY member.

```
09/01/2012      Unused 01 Records and 77 Entries for Prog: ANAR      PAGE  31

Prog#    Edit#    Lvl    Field Name
00092    00092     01    WS-BEGINS-HERE
00216    COPY      01    PRINT-PASSED-RECORD
```

### Exhibit 11

### Unused 01 Records Report

Note – These 3 new Unused reports are also available on a separate //CLEANUP DD with a LRECL of 80 characters and a BLKSIZE of 3120.

## Unused Data Names

Only unused 02-49 level entries are shown in this report. 01 record names, 77 level entries, and 88 level entries are not shown. FILLERS are not shown as unused. 02-49 level entries underneath a 66 level RENAME clause are shown. If the entire 01 record was shown above as unused, then individual 02-49 entries are not shown.

Also, 02-49 level entries within a COPY member are not shown as unused, as it is expected that most names in a COPY are not necessarily used in any one program. To clean up COPY book records use the SRA report in the Analysis on Multiple COBOL Programs Section.

When all of the fields within a GROUP field are unused, then the GROUP field will be shown as unused and the individual fields will not be listed. The only time the group field will not be shown is when a larger group field containing this group field is unused.

Caution must be used before removing a field that is shown as unused. The field may be named for documentation where a FILLER could be used and the field could be necessary to proper running of the program. To prevent against removing a field that should be left in place, Indirect References are shown after each field that is shown as unused. The line numbers of where the other fields are that have overlapping field positions to this field are listed. If no Indirect References are listed then the field may be removed. If Indirect References are shown, then they must be examined carefully before removing the listed field.

The 01 record associated for each field shows its line number to assist in examining a field.

```
09/01/2012                Unused Data Names for Prog: ANAR                PAGE  32

  Prog#    Edit#    Lvl    Field Name
  -----
00054**** 00054 01  NR-RECORD***** contains unused fields **
00058      00058 10  NR-REST-OF-NARR
                   Indirectly Changed @54 Used @54          <
00060      00060 05  NR-COUNT-OF-INDIRECTS
                   Indirectly Changed @54 Used @54          <

00068**** 00068 01  N4-RECORD***** contains unused fields **
00069      00069 05  N4-CMPLR-NBR
                   Indirectly Changed @68                    <
00070      00070 05  N4-NARRATIVE
                   Indirectly Changed @68                    <
00074      00074 05  N4-INDIRECTS-FIELD-NOT-USED
                   Indirectly Changed @68                    <

00082**** 00082 01  WK-RECORD***** contains unused fields **
00086      00086 10  WK-REST-OF-NARR
                   Indirectly Changed @82 Used @82          <

00113**** 00113 01  WS-COUNTS***** contains unused fields **
00115      00115 05  WS-SUB-8
```

## Exhibit 12 Unused Data Names Report

Note – These 3 new Unused reports are also available on a separate //CLEANUP DD with a LRECL of 80 characters and a BLKSIZE of 3120.

## Unused Paragraphs and Sections

Un-referenced Paragraphs and Sections are shown for the entire program, except for those within a DECLARATIVES SECTION. All paragraphs and sections that are present in any Declaratives code are accepted as used and will never be reported as being unused.

The first tag (beyond any Declaratives Section, if present) whether it is a SECTION or a PARAGRAPH name is treated as an implied fall through and is never treated as un-referenced. If the first tag in the program is a SECTION then all paragraphs in that SECTION are treated as a fall through up until the first found STOP RUN, GOBACK, or EXIT, following a coded period within that section. If the first tag in the program is a paragraph name, then all paragraphs are treated as a fall through up until the first found STOP RUN, GOBACK, or EXIT following a coded period or the first found SECTION.

When option UPI (the default) is used to print this report, all paragraphs or sections within a PERFORM range whether it is a perform of a section or a range of paragraphs or sections will not be listed as unused, but will be treated as being used in the range of the PERFORM. To show these paragraphs or sections, use the option NOUPI.

SECTIONS if present and found to be not used, are listed in their own report ahead of PARAGRAPHS.

When a section is shown as being un-referenced, all paragraphs within this section will also be shown as un-referenced within the Paragraph report.

If a SECTION is otherwise un-referenced, but there is either an ENTRY verb into the section or there is a reference to a paragraph within the SECTION, then the SECTION will be listed as un-referenced and an additional line will immediately follow to show the presence of one or more ENTRY verbs and/or the presence of paragraphs being referenced.

If a PARAGRAPH is un-referenced, but there are one or more ENTRY verbs within the paragraph, that the paragraph will be shown as un-referenced, and an additional line will immediately follow to show the presence or one or more ENTRY verbs being present.

Before removing any SECTIONS or PARAGRAPHS, it is up to the user to insure that a fall through does not exist or perhaps the routine's access is commented out and needs to be kept.

### **If a fall through exists:**

If it is intended, then it is recommended that this logic be well documented as to why. If it was not intended, there is the possibility of an existing PERFORM Error and the code should be looked at closely. If the user is unsure whether or not a fall through may exist within the logic, one suggestion is to test for it by adding an additional un-referenced paragraph with a single DISPLAY just ahead of the paragraph or section that shows as being un-referenced. If the DISPLAY is invoked, during any test or production running of the program, then that is proof that a fall through exists and the user is cautioned to look more seriously at why this exists.

**If a fall through does not exist**, then the paragraph or section with all code may be removed!

09/01/2012 14:27 Unreferenced PARAGRAPHS and SECTIONS for DEMOPGM Page 25

Before removing any routine, check to be sure that FALL THRU's are not intended

Unused SECTIONS

Prog#	Edit#	Section/Paragraph Name	Message or Warning
-------	-------	------------------------	--------------------

00560	00506	H-ROUTINE-TO-TEST-BACKUP	SECTION not externally referenced
-------	-------	--------------------------	-----------------------------------

09/01/2012 14:27 Unreferenced PARAGRAPHS and SECTIONS for DEMOPGM Page 26

Before removing any routine, check to be sure that FALL THRU's are not intended

Unused PARAGRAPHS

Prog#	Edit#	Section/Paragraph Name	Message or Warning
-------	-------	------------------------	--------------------

00561	00507	H010-ROUTINE-TO-SHOW-CURRENT	PARAGRAPH not externally referenced
-------	-------	------------------------------	-------------------------------------

00567	00513	H999-EXIT	PARAGRAPH not externally referenced
-------	-------	-----------	-------------------------------------

09/01/2012 Unused 01 Records and 77 Entries for Prog: DEMOPGM PAGE 27

## Exhibit 13

### Unused Paragraphs and Sections Report

Note – These 3 new Unused reports are also available on a separate //CLEANUP DD with a LRECL of 80 characters and a BLKSIZE of 3120.

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Release 2.3

Control/DCD

Analysis on Multiple COBOL Programs

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## CONTROL/DCD

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## Use of This Section

This section is designed for Abend Analysis and use in producing other COBOL reports from one or more COBOL programs at one time. Topics that are initially necessary when first starting to use the CONTROL/DCD software package are shown below and will be in the middle of this section or in another section. Topics that are designed to be referenced quickly in everyday use are found in the beginning of this section for quick reference.

### **When using this manual for the first time, read the following topics first:**

1. Overview of CONTROL/DCD COBOL Reports
2. Use of CONTROL/DCD PARM Options (in Section A)
3. Use of CONTROL/DCD PROCs and Symbolics (in Section A)

The second and third topics are covered in the section “Alternate Compile Listing Facility”. These topics were also topics necessary for using the Alternate Compile Listing Facility part of the CONTROL/DCD software system.

After reading and reviewing the above topics, continue using this section starting at the top of the Table of Contents.

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### Choice of CONTROL/DCD Reports

The following is a list and brief description of the COBOL reports and one file which are available by using the PROCs and PARM options shown in this section. All of the reports listed below are available for one or multiple COBOL programs. A more detailed description with sample reports is available in the “**Overview of All Reports**”, later in this section.

1. **CALL** Analysis Report - a listing of CALLs and ENTRYs in two report sequences.
2. **CALL Hierarchy** Report - shows the organization of CALLs in a system.
3. **CALL PARAMETERS Analysis** – Analyzes Call Parameters from program to program looking for errors in parameter sequence & parameter length.
4. **COPY** Analysis Report - a listing of COPY member usage in two report sequences.
5. System **Data Name Cross-Reference** - an expanded cross reference of Data Division names.
6. **Data Dictionary** Interface File - a file containing useful information for interfacing with a Dictionary or other engineering projects. See the heading, “**Data Dictionary Interface File**”.
7. System Cross Reference for **Figurative Constants** - a listing of the use of figurative constants.
8. **Layout** Report - automatic generation of layouts with several options for **custom building**.
9. System Cross Reference for **Literals** - (Also, see “**Tracing of Possible Literals**” below.)
10. System **Paragraph** Cross Reference - a cross reference listing of paragraph names.
11. **01 Record** Report - a cross reference of 01 records with their computed record length in two report sequences.
12. System Cross Reference for **Special Registers** - a listing of the use of Special Registers.
13. **System Record Analysis** Report - a listing on one or more selected records with flags showing direct or indirect data movement or comparison on every name within the record.
14. **Tracing of Possible Literals by Field** - three different reports showing possible literals and paths used to move a literal to one field – Limited to **one program** at a time.
15. **Abend Analysis** – does tracing to find every involved name for selected names. A report is produced showing the original field selected, all overlapping fields which REDEFINE the field, all traced fields (infinite levels), and all Procedure Division references for all fields shown in DCD narrative format. – Limited to **one program** at a time.
16. **Verb Analysis** Report - a listing of the use of Procedure Division verbs with a summary page.

### Choice of CONTROL/DCD PROCs

The three PROCs listed below are available to choose from when invoking Other COBOL Reports. A brief description is given on this page of using these 3 PROCs along with the DCDFETCH PROC. More examples are given on the next two pages and under the heading “JCL Examples”, in this section.

1. LIBCOBOL
2. PANCOBOL
3. DCDCOBOL

#### LIBCOBOL & PANCOBOL

The first and second PROC may be used when the COBOL source code resides on Librarian or Panvalet files respectively.

#### DCDCOBOL

The third PROC is to be used when the COBOL source code resides as member (or members) on a partitioned data set (PDS) or other non-Librarian or non-Panvalet file.

An example is given here using the DCDCOBOL PROC:

```
//STEP1 EXEC DCDCOBOL,COPY=,DATA=,PARA=
//COBOLIN DD DSN=USER.COBOL.LIB(PROG01),DISP=SHR
//          DD DSN=USER.COBOL.LIB(PROG02),DISP=SHR
//COPYLIB DD DSN=USER.COPY.LIB,DISP=SHR
```

The COBOL source code is brought in through the COBOLIN DD statement. Note that two programs were brought in. A different way of bringing in COBOL programs is through the member fetcher procedure DCDFETCH which is explained below.

COPY members are resolved by pointing the COPYLIB DD statement to the PDS(s) that contain the COPY members. The PDS(s) specified here should be the same PDS(s) specified in the SYSLIB DD in your installation's COBOL compile PROC.

Symbolic parameters are used to specify options, such as specifying the reports desired.

#### DCDFETCH

A fourth PROC is available for bringing in multiple programs at once from partitioned data sets. This PROC is:

4. DCDFETCH

When this PROC is used, the DCDCOBOL PROC is also used and follows the DCDFETCH PROC.

## Inputting COBOL Programs and COPY Records

Several methods may be used for providing input into CONTROL/DCD. These methods are described below.

The main input to CONTROL/DCD when producing the reports mentioned in this section is provided through the COBOLIN DD statement. An example follows:

```
//STEP1      EXEC      DCDCOBOL,DATA=,RESOLVE=NO
//DCD.COBLINDD DSN=USER.COBOL.PDS(PROGRAM1),DISP=SHR
//           DD DSN=USER.COBOL.PDS(PROGRAM2),DISP=SHR
//           DD DSN=USER.COBOL.PDS(PROGRAM3),DISP=SHR
```

In the above example, three COBOL programs are entered through the use of the COBOLIN DD.

When Layout Reports are being produced on just COPY records through the use of the CONTROL/DCD PARM option (LOR), then the COBOLIN DD statement is used to enter the COPY records. An example follows:

```
//STEP2      EXEC      DCDCOBOL,LAYOUT=,OTHER=LOR
//DCD.COBLINDD DSN=USER.COPY.LIBRARY(RECORD1),DISP=SHR
//           DD DSN=USER.COPY.LIBRARY(RECORD2),DISP=SHR
```

If COPY members are present when handling COBOL programs, they are resolved by pointing CONTROL/DCD to user's COBOL COPY libraries. These are the same library (or libraries) pointed to in the SYSLIB DD statement of the user's COBOL compile PROCs. An example follows:

```
//STEP3      EXEC      DCDCOBOL,DATA=
//DCD.COBLINDD DSN=USER.COBOL.PDS(PROGRAM1),DISP=SHR
//           DD DSN=USER.COBOL.PDS(PROGRAM2),DISP=SHR
//           DD DSN=USER.COBOL.PDS(PROGRAM3),DISP=SHR
//DCD.COPYLIBDD DSN=USER.COPY.LIBRARY,DISP=SHR
```

When the COBOL input is coming from Librarian or Panvalet, then the PROCs LIBCOBOL or PANCOBOL should be used and the COBOLIN DD should be omitted. An example follows:

```
//STEP4      EXEC      PANCOBOL,DATA=
//PAN.SYSIN   DD *
++WRITE     WORK,PROGRAM1
++WRITE     WORK,PROGRAM2
++WRITE     WORK,PROGRAM3
/*
//DCD.COPYLIBDD DSN=USER.COPY.LIBRARY,DISP=SHR
```

The previous example assumes that there are COBOL COPY members in addition to, or in place of Panvalet (or Librarian) INCLUDEs present in the COBOL source by the use of the COPYLIB statement.

When multiple COBOL programs (or in a separate run, multiple COBOL COPY records) are brought into CONTROL/DCD from partitioned data sets, a CONTROL/DCD partitioned data set member fetcher utility may be used ahead of the DCDCOBOL PROC to simplify the process of entering the COBOL programs. Two examples follow:

```
//STEP5      EXEC   DCDFETCH
//PDS.OUTPUT  DD    DCB=(LRECL=80,BLKSIZE=3120)
//PDS.CTLINFO DD    *
PDS=USERNAME=COBOL=MR
//PDS.USERNAME DD    DSN=USER.COBOLE.PDS,DISP=SHR
//STEP5A      EXEC   DCDCOBOL,DATA=
//DCD.COBOLE  DD    DSN=USER.COBOLE.PASSFILE,DISP=(OLD,PASS)
//DCD.COPYLIB DD    DSN=USER.COPY.LIBRARY,DISP=SHR
```

The above example pulls off all members that are specifically COBOL programs and specifically whose member name starts with the two characters (MR) and passes these COBOL programs to the DCDCOBOL PROC.

```
//STEP6      EXEC   DCDFETCH
//PDS.OUTPUT  DD    DCB=(LRECL=80,BLKSIZE=3120)
//PDS.CTLINFO DD    *
PDS=USERNAME=COBRECS=TER
//PDS.USERNAME DD    DSN=USER.COPY.LIBRARY,DISP=SHR
//STEP6A      EXEC   DCDCOBOL,LAYOUT=,OTHER=LOR
//DCD.COBOLE  DD    DSN=USER.COBOLE.PASSFILE,DISP=(OLD,PASS)
```

The above example pulls off all members that are specifically COBOL records that begin with a valid COBOL level number and specifically whose member name starts with the three characters (TER) and passes these COBOL records into CONTROL/DCD for producing Layout Reports on these records.

Further information on the member fetcher PROC is provided under the heading, “DCDFETCH - Newer Software to replace MBRFETCH”.



## Other Features Supported

This heading provides a list of support for those other features both inside and outside of the standard support for the COBOL compiler that the user may have a need for. Those features supported by CONTROL/DCD in this section are:

1. CICS
2. COBOL 68 and earlier
3. COBOL 74
4. COBOL 85
5. COBOL 370, COBOL for MVS & VM, COBOL 390, ENTERPRISE & Z/OS
6. DB2 / SQL
7. DL1
8. Librarian
9. Panvalet

### 1. CICS

CICS is fully supported by CONTROL/DCD. Ideally, the CICS program should be run through the CICS pre-processor before being brought into CONTROL/DCD. If the pre-processor step is done, both CICS commands and the CALL statements generated by CICS are documented. If the CICS program is not run through the pre-processor, then generated CALL statements are not documented by CONTROL/DCD.

### 2. COBOL 68 and earlier

PARM option C68 is recommended when all programs being processed are COBOL 68.

### 3. COBOL 74

Include PARM option NOVS2 for COBOL 74.

### 4. COBOL 85

Include default PARM option VS2 to indicate the handling of VS COBOL II.

### 5. COBOL 370, COBOL for MVS & VM, COBOL 390, ENTERPRISE & Z/OS

Include default PARM option VS2, the same as for COBOL 85. When using the ISPF ignore 2. thru 5. here and simply specify the version of COBOL within an ISPF panel.

## 6. DB2

DB2 programs contain SQL statements. Ideally, the DB2 program should be run through the DB2 pre-processor before being brought into CONTROL/DCD. If the pre-processor step is done, the CALL statements generated by SQL are documented. Narrative created by the use of Host variables in SQL statements are listed in the System Data Name Cross Reference and the Layout Reports when the LNR option is used.

## 7. DL1

DL1 is fully supported by CONTROL/DCD. Ideally the DL1 program should be run through the DL1 pre-processor before being brought into CONTROL/DCD. If the pre-processor step is done, both DL1 commands and the CALL statements generated by DL1 are documented. If the DL1 program is not run through the pre-processor, then generated CALL statements are not documented by CONTROL/DCD.

## 8. Librarian

When INCLUDEs are used (as opposed to COPY statements), they are resolved when the COBOL source code is brought from Librarian. They are *not* listed within the COPY Analysis Report.

The PROC LIBCOBOL, which contains a Librarian step ahead of the CONTROL/DCD step for pulling the COBOL programs off of the Librarian Data File, should be used. See Example 2 under the heading, “Examples”, in this section for assistance in using the LIBCOBOL PROC.

## 9. Panvalet

When INCLUDEs are used (as opposed to COPY statements), they are resolved when the COBOL source code is brought from Panvalet. They are *not* listed within the COPY Analysis Report.

The PROC PANCOBOL, which contains a Panvalet step ahead of the CONTROL/DCD step for pulling the COBOL programs off of the Panvalet Data File, should be used. See Example 1 under the heading “Examples”, in this section for assistance in using the PANCOBOL PROC.

## **Specifying PARM Options**

CONTROL/DCD is controlled by the use of PARM options included within the PARM field. However, when using CONTROL/DCD PROCs, the entering of PARM fields is done by the means of PROC Symbolics.

The heading, “PARM Options”, on the next page lists the PARM options along with a description of the use of each option. Also, in the following heading is a list showing corresponding PROC Symbolics for PARM options.

How these PROC Symbolics are entered into the JCL is shown in many ways within the “Examples” heading.

A more detailed explanation on the use of options is found in the two headings shown below within the Alternate Compile Listing Facility section.

1. Use of CONTROL/DCD PARM Options
2. Use of CONTROL/DCD PROCs and Symbolics

## PARM Options

<u>BEGIN</u> CONT	Options used in conjunction with WRITPDS & READPDS options. CONT option will not initialize internal work files and is used for the 2 <sup>nd</sup> , 3 <sup>rd</sup> , or later runs using WRITPDS option.
CAHIER <u>NOCAHIER</u>	Produce the CALL Hierarchy Report. See the heading “ <b>Control Statements for CALL Hierarchy</b> ” within this section.
CALL <u>NOCALL</u> CAP / CAC	Produce the CALL Analysis Report. Two sequences will be produced. The first sequence is Program/CALL sequence. The second is CALL/Program sequence. Use <b>CAP</b> to produce only Program/CALL sequence. Use <b>CAC</b> to produce only CALL/Program sequence.
CICS	This option is always turned on. However, for CICS COBOL programs, the CICS program should be run through the CICS pre-processor prior to being run through CONTROL/DCD.
COPY <u>NOCOPY</u> COQ / COR	Produce the COPY Analysis Report. Two sequences are produced. The first is Program sequence. The second is Member sequence. Use <b>COQ</b> to produce only Program sequence. Use <b>COR</b> to produce only Member sequence.
COF <u>NOCOF</u>	Forces an older compiler standard where COPY statements on the same line with an 01 record with A different 01 record name in the COPY member will use the 01 name within the COPY rather than the 01 record name preceding it.
CPA NOCPA	Produce a CALL Parameter Analysis report to show errors in parameter sequence and parameter length.
C68	Use when COBOL 68 is used. Ignore if using ISPF panels.
DATA <u>NODATA</u>	Produce the System Data Name Cross Reference. Individual options shown below may be used to enhance the DATA report.
DASELECT	When invoked, the control statements used for the System Record Analysis will also be used to limit the DATA Analysis Report. (See Control Statements for System Record Analysis). When used without producing the System Record Analysis Report, record names in the control statements may instead be just a group or elementary name.
<u>D88</u> NOD88	This option may be used to individually list out all of the multiple 88 values for each 88 level, when multiple values (e.g. VALUES ARE) are used.
DA1 to DA5	When used, any numeric digits (up to the number specified in this option) which immediately precedes a Data Division name will not be sorted when producing the Data Analysis Report. (As an example, 20ACCT-NAME and 32ACCT-NAME will sort together when option DA2, DA3, DA4 or DA5 is used.) Use only 1 of these options during one run.
<u>DAL</u> NODAL	This option is only effective when one of the options (DA1 to DA5) is used. NODAL removes the leading NODAL selected digits from the data name in the report, while DAL leaves the digits in front of the data name.
DICT	Produce an Interface File for any desired use- including interfacing with a commercial Data Dictionary. (This option has the same effect as invoking the SRA option, i.e. – control statements are required) . The output file is on DD DCDDICT and at job end has a record length of 120 and a block size of 3120. See <u>both</u> “Data Dictionary Interface File” and “Control Statements for System Record Analysis” in this section.
<u>DDF</u> CDD	Option DDF is default and OPENS the DCDDICT file as OUTPUT to clear the file for each run. Option CDD does not clear the file for each run.
DIT DRL, DRF or <u>DRC</u>	Produce Direct Tracing of Literals. See “Control Statements for Literal Tracing” in this section for overview of report and for individual reports. Three reports are available. Sub-option <u>DRC</u> is the default and is for printing all three reports.

DL1	This option is always turned on. However, for DL1 COBOL programs, the DL1 programs should be run through the DL1 pre-processor prior to being run through CONTROL/DCD.
<u>DNB</u> NODNB	Flag a warning message for //BYPASS DD entered names used that do not match to a data name in the COBOL program during running the 'Abend Analysis' report.
<u>DNF</u> NODNF	Print a warning message for data names not found in the Data Division when resolving Procedure Division statements.
EIB	This option may be used to insert COPY member DFHEIBLK into the COBOL program for cross referencing CICS names EIBDATE, EIBTIME and other EIB fields from that COPY.
<u>ERRORS</u> NOERRORS	NOERRORS may be used to omit the printing of all errors.
FGCONSTS <u>NOFGCONSTS</u>	Produce the System Cross Reference for Figurative Constants.
LAYOUTS <u>NOLAYOUTS</u>	Produce Layout Reports on Data Division records. See the several options that follow for user customizing Layout Reports and see the heading " <b>Control Statements for Layouts</b> ".

**The following options affect the LAYOUT reports:**

LFD	Using this option ensures that Layout Reports will be produced on all records within the File Section. This option overrides the default option NOLS1 for records in the File Section. Using this option will automatically invoke or turn on the LAYOUTS option.
LHX	Using this option indicates that in addition to decimal from and to record positions, that hexadecimal from and to record positions will be produced underneath the decimal positions. Using this option automatically turns on the LAYOUTS option.
LHR	Using this option turns on the LHX option. However, the hexadecimal locations will be printed on the right hand side of the Layout Report rather than underneath the decimal locations. If LNR is used as an option, this option will be treated as LHX.
LK1	Using this option will keep 01 records on the same page. No page break will occur when a new 01 is encountered.
LLA	On the printing of the Layout Reports, a plus (+) character is normally used to intersect lines. Use of this option will substitute an asterisk (*) for the plus character.
LNR	This option indicates that COBOL narrative is to be printed on the right-hand side of the Layout Report. This option is only valid for single COBOL programs. If LOR is used as an option, this option is turned off. If multiple COBOL programs are inputted, narrative will only appear alongside the first one if this option is used.
LOR	This option indicates that just 01 records are being brought into CONTROL/DCD for producing Layout Reports. COBOL programs are not present. When this option is used, the LAYOUTS option is turned on automatically and other report options for producing reports other than Layout Reports are not allowed. When using this option, the COBOL records are brought into the CONTROL/DCD system by using the COBOLIN DD. When using this option, place a ceiling limit between 10,000 and 12,000 lines per run. (If the Member Fetcher is used with the LOR option, the associated member name will be printed on the Layout Report.) Do not use this option for COPY MEMBERS where pseudo-text is present and the pseudo-text is not in a valid COBOL format.
LSQ	This option works in conjunction with the LOR option <u>ONLY</u> . This option generates a sequential number in the left margin for each data name found on the Layout Reports. Otherwise, these numbers are suppressed.

<u>LPP</u> NOLPP	This option indicates that a PICTURE clause which is designed as NE (Numeric Edited) will be printed below the data name in the Layout Reports. This option is turned on automatically when the LAYOUTS option is turned on. It may be turned off by using NOLPP.
<u>LPV</u> NOLPV	This option indicates that a VALUE clause when present will be printed below the data name in The Layout Reports. This option is turned on automatically when the LAYOUTS option is Turned on. It may be turned off by using NOLPV. Notice – VALUE clauses for <u>88 level entries</u> are inserted automatically on the <u>same</u> line of the 88, regardless of the option used here.
<u>LS1</u> <u>NOLLS1</u>	This option (if turned on) indicates that Layout Reports should be produced for records that have no elementary fields (levels 02-49) underneath them. If not turned on, (which is the default) they will be omitted. This option will be turned on automatically if option L77 is used.
<u>LTC</u> NOLTC	This option is turned on automatically if the LAYOUTS option is turned on. It indicates that a Table of Contents for the Layout Reports by record name will be produced ahead of the Layout Reports. Unless the LTS option is used, the Table of Contents will be sorted in alphabetic sequence by record name.
LTS	This option when used turns the LTC option on. However, the records in the Table of Contents will not be sorted. They will be left in sequence as they were inputted into CONTROL/DCD or as they appear in the COBOL program.
L77	This option when used indicates that Layout Reports should also be produced for 77 level entries.
LITERALS <u>NOLITERALS</u>	Produce the System Cross Reference for Literals.
LNCNT=nn <u>LNCNT=60</u>	Set the maximum lines per page for all CONTROL/DCD reports.
NIS	Re-arrange the SORT sequence of the COBOL narrative produced by DCD into primary sequence by compiler sequence number, then verb name. Without this option, the primary sequence is verb name.
NUC	Convert all NARRATIVE produced by CONTROL/DCD to UPPER Case Characters.
PARAGRAPH <u>NOPARAGRAPH</u>	Produce the System Cross Reference for Paragraph Names.
PRANGES <u>NOPRANGES</u>	Produce a set of ranges of beginning and ending expanded (after Copy-members have been resolved) sequence numbers for paragraphs and sections within a COBOL program.
QUOTE <u>NOQUOTE</u> DETERMINE	Use the double quote rather than the single apostrophe as a delimiter for alphanumeric literals. The DETERMINE option allows using the first quote or apostrophe encountered to determine whether to use option QUOTE or NOQUOTE as a delimiter.
RECORDS <u>NORECORDS</u>	Produce the 01 Records Report.
<u>RESOLVE</u> NORESOLVE	This option indicates CONTROL/DCD will resolve COPY members by accessing the members on the data set specified on the COPYLIB DD. IF NORESOLVE is used, the COPYLIB DD is not necessary. (COPY members within COPY members are not currently resolved in this section.)

SORTREG=nnnnnnn SORTREG=0810000	Indicates the SORT region size in bytes. Do not specify a SORTREG larger than 1,000,000.
SPREGS <u>NOSPREGS</u>	Produce the System Cross Reference for Special Registers Report.
STOP <u>NOSTOP</u>	This option causes CONTROL/DCD to immediately stop processing and issue a Condition Code of zero. This option may be used when the CONTROL/DCD step is embedded with other steps in a PROC and is not wanted.
SRANAL <u>NOSRANAL</u>	Produce the System Record Analysis Report. When this option is used, control statements must also be used. This option is turned on automatically when the DICT option is used. When using this option, also see “ <b>Control Statements for System Record Analysis</b> ”.
<b>The following options affect the System Record Analysis Report:</b> <i>Limit System Record Analysis Report as follows:</i>	
RA1	RA1 - Print only as 01 summary report.
<u>RAA</u>	RAA - The default - no limiting.
RAB	RAB - Select records that have any flags turned on.
RAD	RAD - Select records that have any direct flags turned on.
RAS	RAS - Select records if the direct (S)et flag is turned on.
RAT	RAT - Select records if any (S)et flag is turned on.
S03 S15 S50 S3H S1T	Use one of these options to correct error messages DCDUF010-D or DCDUFA02-D where an OCCURS clause in one or more 01 records causes the combined table space needed for this report to be exceeded. (S03) limits all OCCURS to a maximum of 3 TIMES. (S15), a maximum of 15 TIMES. (S50), 50 TIMES. (S3H), 300 TIMES. (S1T), 1000 TIMES. <b>Warning:</b> The smaller the OCCURS (e.g. S03 or S15), the more likely that an existing REDEFINES overlapping the OCCURS will assist in either producing incorrect results and/or causing DCD error messages for invalid DATA DIVISION structures.
SRCOPY <u>NOSRCOPY</u>	Produce the System Record Analysis Report using COPY member names to select which 01 records are selected. (Include option SRDELCOPY if the COPY report is not desired.)
TRACE <u>NOTRACE</u>	Produce the ‘Abend Analysis’ report. See ‘Abend <b>Analysis Supporting Options</b> ’ on the next page. Also, see ‘ <b>Control Statements for Abend Analysis</b> ’ in this section.
UNREF <u>NOUNREF</u>	Print or suppress un-referenced names in the System Data Name Cross Reference and System Paragraph Cross Reference. Note - when NOUNREF (the default) is used and PARM option D88 is also used, all 88 level names with either multiple 88's or the THRU clause will be listed whether or not they are referenced.
VERB <u>NOVERB</u>	Produce the Verb Analysis Report.
VR3 <u>NOVR3</u>	Causes CONTROL/DCD to emulate Version 3 and earlier versions of 1974 and 1968 COBOL in which sequence numbers are not generated for SKIPS and EJECTs. Ignore this is using ISPF panels.
VS2 <u>NOVS2</u>	Use NOVS2 for older programs prior to the 1985 COBOL standard. When VS2 is used, RESERVED WORDS for the latest release of COBOL (ENTERPRISE COBOL) are checked for. To force using a different release, such as IBM-COBOL, insert a //DCD.VERSION DD to check for a different version of COBOL. See Install Section for instructions on use of the VERSION DD. Ignore this option is using ISPF panels.

(Continued..)

WRITPDS  
READPDS

Used to store information over time and/or several runs on an internal CONTROL/DCD Data Dictionary using the WRITPDS option and then retrieving the information for reporting during on run using a READPDS option. Do not use this feature when using the ‘Abend Analysis’ Report. See the heading ‘**WRITPDS and READPDS Options**’ in this section for more information.

## Abend Analysis Supporting Options

These options are available providing the **TRACE** option is on. See ‘Control Statements for Abend Analysis’ in this section for **SELECTing** and also for **BYPASSing** of Names.

### Utility Options

YOP  
NOYOP

Print a separate page showing all related TRACE options on the PRINT report.

### Directly Selected Name Options

YDNARR  
NOYDNARR

Produce Procedure Division Narrative for each directly selected field and list the narrative right underneath this field.

Y2PROG  
NOY2P

Sort Direct Names by PROGRAM name so one program’s names are done ahead of the next. The secondary sort is Alphabetic by data name. To reverse sequence, use NOY2P option.

### Overlapping Option

*(Applies to REDEFINES, GROUP fields or otherwise Overlapping fields)*

Y2INDIR  
NOY2INDIR

For each Direct Name selected, this option selects names for every associated REDEFINES, GROUP field, or otherwise Overlapping field.

### Trace Options

*(Traces infinite levels deep [up to 999 times] to get all possible fields; see TAC=)*

YAP  
NOYAP

Traces names selected and using overlapping fields and their record positions also traces through these fields to find all possible names that may be affected.

TAC=nnn

Limits the number of Traces to a specific number such as 010 or 025.

### Supporting Options for Overlapping (Y2INDIR) and Trace (YAP) Options

YINARR  
NOYINARR

Produce Procedure Division Narrative for every overlapping name selected here and list the narrative right underneath this field.

YIPROG  
YIALPHA

Within each Directly Selected Name, overlapping names are sorted in program sequence or the order in which they are listed within the COBOL program. To sort in alphabetic sequence, use YIALPHA option.

YAI  
NOYAI

Show the existence of overlapping names even if there are no Procedure Division references to this name. To omit names with no Procedure Division references, use NOYAI option.



## Corresponding PROC Symbolics

<u>PARM Option</u>	<u>Corresponding PROC Symbolic</u>	<u>PARM Option</u>	<u>Corresponding PROC Symbolic</u>
CAHIER NOCAHIER	OTHER='CAH,...' default	LNCNT=nnn	LINECNT=nnn,
CALL NOCALL CAC / CAP	CALL=, default OTHER='CAx,...'	NIS	OTHER='NIS,...'
CDD	OTHER='CDD,...'	NUC	OTHER='NUC,...'
COPY COQ / COR	COPY=, OTHER='COx,...'	PARAGRAPH	OTHER = 'PAR...'
CPA	CPA=,	QUOTE NOQUOTE DETERMINE	OTHER='QUO,...' default OTHER='DET,...'
C68	OTHER='C68,...'	RECORDS	OTHER='REC...'
DATA NODATA D88 / DAn / DAL	DATA=, default OTHER='Dxx,...'	RESOLVE NOREOLVE	default RESOLVE=NO,
DASELECT	OTHER='DAS,...'	SORTREG=n	SORTREG=nnnnnnnn,
DICT	OTHER='DIC,...'	SPREGS NOSPREGS	OTHER='SPR,...' default
DIT DRL / DRF / <u>DRC</u>	OTHER='DIT= OTHER='DRx,...'	SRANAL NOSRANAL RA1 / RAA / RAB RAD / RAS / RAT S03 / S15 / S50 / S3H / SIT	SRA=, default OTHER='RAX,...' OTHER='RAX,...' OTHER='Snx,...'
DNB NODNB	default OTHER='NODNB...'	note: n=numeric digit, x=letter or number	
DNF NODNF	default OTHER='NODNF...'	SRCOPY	OTHER='SRC,...'
EIB	OTHER='EIB,...'	TRACE NOTRACE	TRACE=, default
NOERRORS	OTHER='NOERR,...'	TAC=nnn	TRLIMIT=nnn
FGCONSTS NOFGCONSTS	OTHER='FGC,...' default	UNREF	OTHER='UNR...'
LAYOUTS NOLAYOUTS LFD / LHR / LHX LK1 / LLA / LLI LNR / LOR / LTC LTS L77 NOLPP / NOLPV / NOLTC	LAYOUT=, default OTHER='Lxx,...' OTHER='Lxx,...' OTHER='Lxx,...' OTHER='Lxx,...' OTHER='L77,...' OTHER='NOLxx	VERB	OTHER='VER...'
note: x=letter or number		VR3 NOVS2	OTHER='VR3...' OTHER='NOVS2...'
LITERALS NOLITERALS	OTHER='LIT,...' default	<b><u>Supporting Options for TRACE follow:</u></b>	
		YIA, YOP	OTHER='Yxx,...'
		NOYDN / NOY2P	OTHER='NOYxx,...'
		NOY2I / NOYIN	OTHER='NOYxx,...'
		NOYAI / NOYAP	OTHER='NOYxx,...'
		note: x=letter or number	
		WRITPDS READPDS	OTHER='WRI,...' OTHER='REA...'

Note: The PROC symbolic **OTHER** is used to enter one or multiple PARM options for which there are no corresponding symbolics. For example: **OTHER='LNR,NOLPV,NOVS2'**

## Control Statements for System Record Analysis

The System Record Analysis Report (& Data Dictionary Interface file) requires control statements to select records to report on. The DD for these control cards is CTLCD SRA. The maximum number of control statements must not exceed 775 in the entire file.

More than one set of reports may be run through during one run of CONTROL/DCD. Each set of reports should be run on like records which ideally have the same record length and format. The data names do not need the same spelling since fields are matched up by field positions.

To break apart sets of control statements, each set of control statements must begin with a header control statement of the following format:

Column 1 - An asterisk ( \* )                      Columns 2 through 72 - Documentation for the user

Within each set of control statements, records must be selected which make up that set. Selecting records requires specifying both program name and record name. Each control statement has two fields: program-id and record name. This control statement uses the following format:

Starting in column 1                      - Program-id, *followed by at least one space*  
In next available column                - Record Name

The field for program-id must contain either a ( name ) which matches to a COBOL program-id from an Identification Division or the constant -ALL-. If -ALL- is used, the record that follows will be pulled for selection from all programs that were entered.

The field for record name must contain either a record name which matches to an 01 record name within the COBOL program or it must be a numeric number for matching to the length of one or more records within a COBOL program. Also, See '**Selecting by COPY Name...**'.

*Note - When a number is used, it may be followed by a second number to form a selection range. For example, the control statement ( -ALL- 1 7500 ) without the enclosing parentheses may be used to select all records with an overall record length not greater than 7500 bytes. While the SRA report produced using this range may not be very meaningful, the Data Dictionary file produced may be used for several purposes such as loading data dictionaries or repositories.*

An example of control statements follows:

```
//DCD.CTLCD SRA DD *
*THIS IS THE TITLE FOR THE FIRST SET
-ALL- 184
*THIS IS THE TITLE FOR THE SECOND SET
-ALL- MS-RECORD-A
-ALL- MR-RECORD
*SELECTION FOR CERTAIN RECORDS
PAYR001 RECORD-1
PAYR001 RECORD-2
PAYR002 RECORD-1
PAYR003 224
/*
```

In the example shown, the first set of statements selects all records from all programs which have a record length of 184. In case of variable length records, the largest record length applies.

In the second set, the records MS-RECORD-A and MR-RECORD are selected from all programs.

In the last set, various records were individually selected from programs PAYR001 and PAYR002. In program PAYR003, all records are selected that have an overall record length of 224.

A listing of the control statements used will be printed at the beginning of the REPORTS DD print file ahead of all other reports. The System Record Analysis report may not immediately follow these control statements.

Further limiting of the records documented in this report may be accomplished through the use of RAX options. See the heading, “PARM Options”.

#### Limiting DATA Analysis Report when using with SRA Report

The above control statements are also used for limiting the DATA Analysis Report, *providing* **PARM** option (**DASELECT**) is also used. When used *without* the System Record Analysis Report, the control statement field for the record name may be used to select just a group name or an elementary data name. See the **UNREF PARM** option for further limiting of the Data Analysis Report. Use **caution** when also using **OPTION SRCOPY** shown below. When option **SRCOPY** is also used, include at least one non SRCOPY= control statement for each set used before any **SRCOPY=** control statements. If problems still occur, contact Marble Computer, Inc.

#### Selecting by COPY Name for System Record Analysis

Selecting 01 records for use in the System Record Analysis report may be done by using **COPY** member name. Simply specify the **COPY** member name and those **COPY**s which begin in the **COPY** immediately with an 01 will be selected. (Caution, if the **COPY** begins with other than an 01, such as an FD, it will be selected.) The result is a full report on all SET, USED and TESTED activity (direct or indirect) on each field within **COPY** used through a system of COBOL programs.

The **PARM** option needed to invoke this feature is **SRCOPY**. The control statements have the following format:

Columns 1-7 - The constant **SRCOPY=** Columns  
Columns 8-15 - The **COPY member name**

The **DDNAME** for inputting these control statements is the same **CTLCD SRA** used for other System Record Analysis control statements. It is possible to combine other control statements for these **SRCOPY** control statements. **Caution** - When this is done, other control statements must come before the **SRCOPY** control statements. Within each SET, include a control statement for all programs (-ALL-) for program name and then with **RECORD NAME** following on same control statement matching the 01 **RECORD NAME** within the **COPY** member. See previous page example.

When the **SRCOPY** option is used, both the **COPY** Analysis Report and System Record Analysis Report will be printed. The **COPY** Analysis Report will list all **COPY** members found in all programs. The System Record Analysis Report will list only those records selected by the control statements submitted with the **CTLCD SRA DDNAME**.

**See Examples for ‘System Record Analysis Reports’ on next page**

Example 1:

```
//STEP1 EXEC DCDCOBOL,OTHER='SRCOPY'  
//DCD.COBOLIN DD DSN=user.cobol(prog1),DISP=SHR  
// DD DSN=user.cobol(prog2),DISP=SHR  
//DCD.COPYLIB DD DSN=user.copylib,DISP=SHR  
//DCD.CTLCDRA DD *  
SRCOPY=MEMBER1  
SRCOPY=MEMB333  
/*
```

This example does not combine statement formats. This example selects all 01 records which have a COPY MEMBER1 or a COPY MEMB333 at the beginning of the record. The 01 record name may come immediately before the COPY or after the first (non-comment) entry within the COPY.

Example 2:

```
//STEP2 EXEC DCDCOBOL,OTHER='SRCOPY'  
//DCD.COBOLIN DD DSN=user.cobol(prog1),DISP=SHR  
// DD DSN=user.cobol(prog2),DISP=SHR  
//DCD.COPYLIB DD DSN=user.copylib,DISP=SHR  
//DCD.CTLCDRA DD *  
-ALL- USER-RECORD-25  
SRCOPY=MEMB5  
/*
```

This example combines control statement formats by selecting all 01 records for USER-RECORD-25 and also all 01 records which have a COPY MEMB5.

Note - SRCOPY= control statements will be ignored by CONTROL/DCD if the PARM option SRCOPY is not turned on.

### Control Statements for Literal Tracing

The Tracing of Literals reports (*3 individual reports are listed at bottom of page*) require control statements specifying which COBOL data fields are to be traced. Additionally, options DRL, DRF or DRC must be specified stating which reports are to be run. See 'PARM options' in this section or at the bottom of this page for specifying one of these options. Also, this report is formatted for, and limited to only one program at a time. Extra programs will be ignored.

Control statements are specified with the DD name CTLCDDLT. COBOL fields to be traced are entered starting in column 1. Multiple statements must be provided for multiple COBOL fields. If qualification is necessary to clarify a field, enter a Q, one space, then a group or record name as a qualifier control statement ahead of the COBOL field being selected. For instance, if duplicate names ACCT exist in group or record names FIELD-1 and FIELD-2, then qualification control statements for FIELD-1 or FIELD-2 must be used ahead of the field to be selected. To select ACCT OF FIELD-1 enter control statements as follows:

```
//DCD.CTLCDDLT DD *  
Q FIELD-1  
ACCT  
/*
```

If more than one level of qualification is required, enter multiple qualification statements (statements beginning with a Q) ahead of the COBOL field name control statement. Put the 01 Record Name or Group Name having the lowest level number first (01 being lowest) when specifying qualification control statements.

Up to **17** levels of tracing are accomplished by tracking literals through **MOVEs** and **SET 88-level-name TO TRUE** statements. To limit the number of tracing levels to less than 17, modify the PARM field within the DCD step of the DCDSYSTEM PROC to include 'DLT=nn' where nn is a number from 01 to 17.

A maximum of 1000 control statements are allowed. Much less are recommended. One COBOL program at a time may be processed.

PARM options are specified with the OTHER PROC symbolic. A sample is shown:

```
OTHER= 'DRC,DLT=06'
```

Three reports are available:

- |    |   |   |
|----|---|---|
| 1. | <b>Possible literals for each field traced</b>  | (Use option <b>DRF</b> for just report 1) |
| 2. | <b>Possible literals showing owner fields</b>   | (Use option <b>DRL</b> for reports 1 & 2) |
| 3. | <b>Possible literals showing possible paths</b> | (Use option <b>DRC</b> for all 3 reports) |

## Control Statements for Layouts

The running of Layout Reports does not specifically require the use of control statements. However, control statements may be used to limit the selection of records for Layout Reports to selected record names or selected sizes.

Two types of control statements are available, but only one type (not both) may be used within one run. The DD name for these control statements is CTLCDLAY.

One way that control statements may be used is to specify by record name (or group name within an 01 record) the records or groups that Layout Reports are to be run for. (In the case of group names, the field positions in the Layout Reports will be relative to the start of the 01 record as opposed to the start of the group field, however the first field position in the group field may be reset to one by specifying an asterisk ( \* ) after the group field in the control statement.)

The format of this type of control statement is as follows:

Column 1 through ?	-	01 record name (or 02-48 level group name)
Column ?+1	-	SPACE
Column ?+2	-	Optional Asterisk for group names that need to be reset

An example follows:

```
//DCD.CTLCDLAY DD *  
MR-RECORD-1  
MR-RECORD-2  
MR-GROUP-FIELD-3 *  
/*
```

In the above example, the first two control statements indicate selection of two 01 record names. The third control statement indicates the selection of a group field within an 01 record and the from-to positions within the group field will be reset starting at 1 for this group.

Another type of control statement allows selection to be limited by not printing Layout Reports for records smaller than a given record length and/or larger than a given record length. Within these control statements is the ability to print just records which have a specific record length. In the case of variable length records for determining size, the largest record length applies.

The format of this type of control statement is as follows:

Columns 1 through 6	-	The constant (SELECT)
Column 7	-	The character >, < or =
Column 8 through x	-	A numeric number with no punctuation

Only two control statements are allowed. One with SELECT< and one with SELECT>. Both are not required if one is used. If SELECT= is used, then only that control statement is allowed.

An example follows:

```
//DCD.CTLCDLAY DD *  
SELECT>25  
SELECT<1000  
/*
```

In the above example, Layout Reports will not be produced for small records that are 25 characters or under in length. They will also not be printed for records that are 1000 characters or over in length.

### Control Statements for Verb Analysis

The running of the Verb Analysis report does not require the use of control statements. However, control statement(s) may be used to allow printing of selected verbs. Up to 10 control statements are allowed. The field in the control statement is also limited to 10 characters.

An example follows:

```
//DCD.CTLCDVER DD *  
ALTER  
CASE GO TO  
EXIT PROGM  
GO TO  
PERFORM  
STOP RUN  
/*
```

Most verbs should be coded with one verb with no spaces. Those which require spaces like 'CASE GO TO' are shown above.

## Control Statements for Using the (OLDER) MBRFETCH PROC

**(Please see NEW DCDFETCH PROC at end of this section)**

The older PDS Member Fetcher PROC MBRFETCH is available for pulling one or several members from a partitioned data set (PDS) and creating one sequential data set. This data set originally was used as input to the DCDCOBOL PROC. (This PROC was also embedded as one step in the DCDJCL PROC which is covered in the section on JCL PROC Analysis Reports Facility.) If older PROCS in use, reference this PROC, we recommend converting to newer DCDFETCH PROC for increased flexibility and speed of processing.

The DD name for these control statements is CTLCDMBR.

Control statements are used to indicate which members are to be selected. The format of these control statements is as follows:

Columns 1 through 4	-The constant ( INDD )
Column 5	- An equal sign ( = )
Columns 6 through <i>a</i>	- The name of a made-up DDNAME
Column <i>a</i> +1	- An equal sign ( = ) with no spaces before or after it.
Columns <i>b</i> through <i>c</i>	- One of the following words: <ol style="list-style-type: none"><li>1. ALL</li><li>2. COBOL</li><li>3. COBRECS</li><li>4. MEMBER</li><li>5. PREFIX</li></ol>

The remaining two fields are required if PREFIX was used as the last operand and are optional if COBOL or COBRECS was used as the last operand. They are not permitted if either ALL or MEMBER is used as an operand.

Column <i>c</i> +1	-An equal sign ( = ) with no spaces before or after it.
Columns <i>d</i> through <i>e</i>	-A 1 to 7 characters prefix which will be used to limit selection

An illustration of the possible combinations is listed below:

1. INDD=ddname=ALL
2. INDD=ddname=COBOL
3. INDD=ddname=COBRECS
4. INDD=ddname=MEMBER
5. INDD=ddname=PREFIX=prefix
6. INDD=ddname=COBOL=prefix
7. INDD=ddname=COBRECS=prefix



An example showing the use of these control statements is listed below:

```
//STEP1      EXEC  MBRFETCH
//MBR.OUTSET  DD   DCB=(LRECL=80,BLKSIZE=3120)
//MBR.CTLCDMBR DD  *
INDD=USERDD=COBOL
//MBR.USERDD  DD   DSN=USER.COBO.LIBRARY,DISP=SHR
```

The above example will pull off all COBOL programs from the library specified by the DD name USERDD and pass them out to a sequential data set.

If members are wanted from more than one library, then multiple DD names may be used. An example is listed below:

```
//STEP2      EXEC  MBRFETCH
//MBR.OUTSET  DD   DCB=(LRECL=80,BLKSIZE=3120)
//MBR.CTLCDMBR DD  *
INDD=USERDD=COBOL
INDD=OTHERDD=COBOL
//MBR.USERDD  DD   DSN=USER.COBO.LIBRARY,DISP=SHR
//MBR.OTHERDD DD   DSN=USER.COBO.LIBRARY,DISP=SHR
```

The use of the following words for selection is described here:

<b>ALL</b>	<b>COBRECS</b>	<b>MEMBER</b>
<b>COBOL</b>	<b>COBRECS=PREFIX</b>	<b>PREFIX</b>
<b>COBOL=PREFIX</b>		

**ALL** ALL indicates that all members will be selected from the partitioned data set. This option should not be used here. Instead, the options COBOL or COBRECS should be used. An exception to this rule occurs when using the READPDS option, in which case, ALL may be used and COBOL and COBRECS may not be used.

**COBOL** COBOL indicates that all COBOL programs are to be pulled off of the partitioned data set. If non-COBOL programs are found, then they are discarded.

**COBRECS** COBRECS indicates that all COPY members which are 01 records or record groups beginning with a level number (02-48) are to be pulled off of the PDS. Those members that do not conform to this selection are bypassed for selection. COBRECS may be used when the LOR option is used.

**MEMBER** MEMBER indicates that the user wants to make further selection with member name control statements. These control statements immediately follow the control statement which contains the word MEMBER. An example is listed below:

```
//STEP3      EXEC  MBRFETCH
//MBR.CTLCDMBR DD  *
INDD=USERDD=MEMBER
MEMBER1
MEMBER2
MEMB03
MEMBER04
//MBR.USERDD  DD   DSN=USER.PDS,DISP=SHR
```

**PREFIX** PREFIX indicates that selection is to be done strictly on the basis of a 1 to 7 character prefix that follows the (=) sign after the word PREFIX. It is recommended that this option not be used here and that **COBOL=prefix** or **COBRECS=prefix** be used in its place. Prefix is described more on the next page.

Three ways to use PREFIX follow:

**COBOL=prefix** pulls off all COBOL programs from the PDS specified that begins with the same letters that are specified in the prefix. The prefix may not exceed seven characters in length.

**COBRECS=prefix** pulls off all COPY members that have as their first COBOL record, a level number from (01-48) that have a matching prefix. This is used when using PARM option LOR for LAYOUTS.

**PREFIX=prefix** pulls off all members that have a matching prefix.

An example follows:

```
//STEP4      EXEC  MBRFETCH
//MBR.OUTSET  DD   DCB=(LRECL=80,BLKSIZE=3120)
//MBR.CTLCDMBR DD  *
INDD=USERDD=COBOL=M4
//MBR.USERDD  DD   DSN=USER.COBOL.LIBRARY,DISP=SHR
```

In the above example, all COBOL programs whose member name begins with the prefix M4 will be selected for passing on to the next step.

Further notes on the member fetcher:

1. Compressing the PDS before using the data set will eliminate the possibility of pulling in older unwanted members from the PDS.
2. Multiple control statements may be used for any of the above formats.
3. To prevent obtaining duplicate members, do not mix formats in the same run, or more preferably use new PROC DCDFETCH.

## Control Statements for CALL Hierarchy Report

*Read this page completely before setting up to use the CALL Hierarchy Report.*

This report produces one or several reports showing top down the CALL Hierarchy for those COBOL programs processed. Within each program the order of CALLs is shown in alphabetical order. These reports may be modified by ADD or DELETE controls statements. The ADD and DELETE commands must be entered one per line. Columns 73-80 are not used. Use spaces to separate the operands. Do not use the single apostrophes or double quotes. Up to 500 control statements may be used.

To add a CALL to the Hierarchy Report, use the following format:

ADD program-a CALLS program-b

To delete a CALL from the Hierarchy Report, use the following format:

DELETE program-b

DELETE pr\* (where \* indicates that only the characters before the asterisk will be used in making the comparison, and those not compared are considered to be equal for matching)

An example of the use of these control statements is shown below:

```
//DCD.CTLCDCAH DD *  
ADD SUB1P003 CALLS SUB3P091  
DELETE SUB6P*  
DELETE SUB9P*  
/*
```

The CALL Hierarchy Report produces counts showing the number of CALLs present. These counts are valid for all STATIC CALLs and for those DYNAMIC CALLs which use the 'CALL literal' format. When the 'CALL identifier' format is used, multiple CALLs are counted as one call. CALL identifier specifies a dataname, which contains a literal. CONTROL/DCD builds one CALL for each literal contained in an elementary VALUE clause and/or with the MOVES of a literal to this name. In cases where the identifier is built over several MOVES or VALUE clauses of a group field, then an ADD control statement must be used for each CALL that is missing.

This report works with all the CALLs (and ENTRYs) found within the programs submitted to CONTROL/DCD. The ENTRY verb (when present) plays a part in determining the CALL Hierarchy only when the program that CALLs a secondary program with the ENTRY verb was not submitted for processing to CONTROL/DCD. For example, if PROG-A calls an Assembler program PROG-B, which in turn calls PROG-C where PROG-C contains an ENTRY 'PROG-B', then the CALL 'PROG-B' within PROG-A and the ENTRY 'PROG-B' within PROG-C provides all the information to complete the CALL from PROG-A to PROG-C even though Assembler program PROG-B could not be processed by CONTROL/DCD. In cases where the ENTRY verb is not used (i.e. - the entry is done via PROCEDURE DIVISION USING ... within the sub-program) and the calling program is missing or cannot be processed by CONTROL/DCD because it is non-COBOL, then ADD control statements must be used to complete the Hierarchy Report. (i.e. ADD PROG-B CALLS PROG-C)

## Control Statements for Abend Analysis for Data Errors

Two types of control statements are available for Abend Analysis using **//DCD.SELECT DD**. The first type is **SELECTION** control statements and these are mandatory to state which fields are to be selected for the report. The second type is **BYPASSing** and is optional and may be used to break a trace invoked by tracing option YAP.

This report is applicable to any maintenance work done in COBOL for the purpose of tracing how any one data field is used in a COBOL program. There is a limit of one program at a time for this report. Extra programs will be ignored.

### SELECT Control Statements

The **DDNAME** for these SELECT (or BYPASS) statements is **SELECT**. There is a limit of 250 SELECTs, which may be used in any one run. See **TRACE** and ‘**Abend Analysis Supporting Options**’ in the PARM section. Also see ‘**Abend Analysis Report**’ under ‘**Overview of All Reports including Abend Analysis**’.

There are two formats for SELECTs. Use the first format if you know the name or names to be selected. Use the second format to select by different criteria. If both formats are used together, then all Format#2 SELECTs *must come before* any Format#1 SELECTs. The following rules apply to both SELECT formats. The word SELECT must start in columns 1 to 12. Columns 73-80 are not used. Leave one or more spaces between each entry.

#### Format#1

**user-supplied-name**

**OR**

**SELECT IF NAME = user-supplied-name**

In case of duplicate names where only 1 name is wanted then use the following format, and fill in the appropriate 01 record name where shown. Using a **GROUP name** will **NOT substitute** for the 01 record name. If further qualification is required, then invoke **Format#2** by adding an AND in the SELECT using START-POSITION (or other) keyword to complete the selection with or without the **OF 01-record-name** shown below.

**SELECT IF NAME = user-supplied-name OF 01-record-name**

#### Format#2

```
SELECT IF keyword operator selection-field
              [ OR      selection-field ] ...
[ AND keyword operator selection-field
              [ OR      selection-field ] ... ] ...
```

The following rules apply to this SELECT format. The brackets [ ] and ellipses ... in the above format are not to be coded however are there to show the allowance of **multiple ORs** and **multiple ANDs** with multiple ORs within the ANDs. The SELECT statement may be continued on to several lines. **Lower case** entries within the SELECT must be replaced with a **user entry** as follows:

<b>keyword</b>	replace with one of the keywords shown on the KEYWORD list. Within ANY one SELECT, the same keyword may be used once unless operators < and > are used. Use <b>AND</b> as a separator to start a new keyword.
<b>operator</b>	Use = unless the KEYWORD chosen allows the operators < and >.
<b>selection-field</b>	Do not use quotes or apostrophes. Enter the selection field as one entry with no embedded spaces. An asterisk (*) may be used as a wild string if the KEYWORD chosen allows them. The size of the selection-field must not exceed the maximum size allowed for that KEYWORD. Multiple selection-fields may be used by separating them with the word <b>OR</b> .

If the user wants to select a field, which has certain characteristics, the following 18 KEYWORDS are provided for finding field which have the selection criteria provided:

#	keyword	operators allowed	maximum length	for selecting on	Comments
1.	PREFIX	=	20	Data-Name	For selecting by begin of Name
2.	SUFFIX	=	20	Data-Name	For selecting by end of Name
3.	BEGIN-NODE	=	20	Data-Name	For selecting by begin of Node*
4.	END-NODE	=	20	Data-Name	For selection by end of Node*
5.	NODE-1	=	20	Data-Name	Wild Strings Allowed, selects from any Node*
6.	NODE-2	=	20	Data-Name	Wild Strings Allowed, selects from any Node*
7.	PICTURE	=	20	PICTURE	Use ORs to select different combinations
8.	LEVEL-NUMBER	=	02	Level Numbers	Use ORs to select different level numbers
9.	WHOLE-DIGITS	=	02	Coded Numeric Size	Selects by # of digits on left of decimal place
10.	DECIMAL-DIGITS	=	02	Coded Numeric Size	Selects by # of digits on right of decimal place
11.	START-POSITION	=, >, <	07	Position in record	May use two START-POSITION keywords separated by AND, 1 using > and 1 using <
12.	END-POSITION	=, >, <	07	Position in record	May use two keywords; one >, and one <
13.	FIELD-SIZE	=, >, <	07	Actual Size of Field	May use two keywords, one >, and one <
14.	GROUP-ONLY	=	01	GROUP fields	Use Y to select only GROUP fields
15.	ELEMENTARY-ONLY	=	01	ELEMENTARY fields	Use Y to select only ELEMENTARY fields
16.	SECTION	=	01	SECTION	Use first letter of SECTION as follows: (F=FILE, W=WORKING-STORAGE, L=LINKAGE, R=REPORT, C=COMMUNICATION)
17.	USAGE	=	02	USAGE	Use two letters for USAGE as follows: (D=DISPLAY, D1=DISPLAY-1, C=COMP, C1=COMP-1, C2=COMP-2, C3=COMP-3, C4=COMP-4, IX=INDEX)
18.	CLASS	=	01	CLASS	Use one letter for CLASS as follows: (N=Numeric X=Alphabetic or Alphanumeric, E=Numeric Edited)
19.	NAME	=	30	NAME	(OF 01-record-name) optional after data-name

### Table of KEYWORDS for use with free-format SELECT

The most commonly used keywords are those which SELECT on some part of the data-name. Consider using more than one of the first six KEYWORDS in one SELECT separated by ANDs to develop a very powerful selection capability for finding data-names. Four of these six keywords start selection at the **beginning** of a node or data-name and the other two SUFFIX and END-NODE start selection at the **end** of a node or data-name). For NODE-1 and NODE-2, an \* may be used after one or more letters in the selection field as a wild string, providing another letter or letters are used following the \*. When used, the \* indicates that any number from 0 to 18 characters (non-dashes) may be present before picking up selection with the next character. Consider using NODE-1 and NODE-2 together with Wild Strings in one or both PREFIXs. Consider completing selection with one or more non-data-name keywords being ANDed to those used for selecting by data-name.

When selecting by field size, there is a difference, which may be used to an advantage when doing selection. WHOLE-DIGITS and DECIMAL-DIGITS work with NUMERIC fields and work with the size coded in the PICTURE clause, while FIELD-SIZE works with the actual number of bytes that the field occupies within a record. (e.g - 05 TEST-FLD S9(9) COMP-3. takes up 5 bytes in FIELD-SIZE, but has 9 WHOLE-DIGITS in the field)

See Example 10 under 'JCL Examples' in this section, for an example of JCL to use this feature.

\* Node is defined as a cluster of characters in name separated by dashes.

## BYPASS Control Statements

After the first run of Selecting Names, it is possible to have TRACED names (names traced with the use of PARM option YAP) which may not actually be in a valid functioning program path. For example, a date in an 01 record HEADING-1 may accurately trace to a related 01 record PRINT-RECORD, but can inaccurately trace to other 01 records HEADING-2 and DETAIL-RECORD. As a simple means of stopping the trace into and through HEADING-2 and DETAIL-RECORD, bypass control statements should be provided using Format#1 (01-record-name) or in other cases using Format#2 below.

The DD name of the control file for BYPASS statements is BYPASS. Only columns 1-30 may be in BYPASS control statements. **RANGE control statements only use columns 1-17.**

There are three formats for BYPASS control statements. They follow:

### Format#1

*Columns 1-30*

**01-record-name**

Specifies an 01 record **WHICH IS NOT** implicitly or explicitly **REDEFINED**. When used, all names belonging to this record AND it's redefined (implicit or explicit) 01 records will be BYPASSED.

### Format#2

*Columns 1-30*

**data-name**

Specifies a COBOL elementary, group, 88 name, or other data division name, which is to be BYPASSED.

### Format#3

*Columns 1-17*

**RANGE=nnnnn-nnnnn**

Specifies a range of sequence number. Each nnnnn **MUST BE** 5 digits. The first nnnnn specifies a BEGIN program sequence number. The second nnnnn specified an END program sequence number. These sequence numbers are determined AFTER COPY members are expanded. To be safe, use sequence numbers from the 'Alternate Compile Listing' for the program submitted.

**Warning** - Do not use **RANGE=** when multiple programs are used. If RANGE is used and the program is modified, then the RANGE will change and need to be modified.

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## JCL Examples

The examples within this heading use one of three CONTROL/DCD PROCs. These three PROCs are:

1. **PANCOBOL**
2. **LIBCOBOL**
3. **DCDCOBOL**

Within each of the examples, capitalized letters should be left coded as shown, and non-capitalized letters require the user to enter in the names or entries required to complete the JCL.

Some of the examples using the DCDCOBOL PROC also use the **DCDFETCH** PROC for fetching members from a partitioned data set. If extensive fetching members is done from multiple partitioned data sets or with multiple sets of control statements, consider using the newer **DCDFETCH PROC** to save computer time. See '**DCDFETCH - Newer Software to replace MBRFETCH**' in this section.

For WRITPDS and READPDS options, see the heading for “**WRITPDS and READPDS Options**”.

### Example 1

Print the System Paragraph Cross Reference and System Data Name Cross Reference Reports from three programs residing on a Panvalet library.

```
//STEP1      EXEC  PANCOBOL,SRCLIB='panvalet.library',  
//          DATA=,OTHER=' PAR'  
//PAN.SYSIN  DD   *  
++WRITE WORK,prog1  
++WRITE WORK,prog2  
++WRITE WORK,prog3  
//DCD.COPYLIB DD  DSN=user.copy.library,DISP=SHR
```

Note: The COPYLIB DD is added assuming that there may be COPY members on some of the Panvalet stored programs.

### Example 2

Print the CALL Analysis, COPY Analysis and CALL PARAMETER Analysis Reports from two programs residing on a Librarian library.

```
//STEP2      EXEC  LIBCOBOL,SRCLIB='librarian.lib',  
//          CALL=,COPY=,CPA=  
//LIB.SYSIN  DD   *  
-OPT EXEC  
-SEL prog1,pswd  
-EMOD  
-SEL prog2,pswd  
-EMOD  
-END  
//DCD.COPYLIB DD  DSN=user.copy.library,DISP=SHR
```

Note: The COPYLIB DD is added assuming there may be COPY members on some of the Librarian stored programs.



**Example 3**

Print the System Cross Reference for Literals, 01 Record Report and Layout Report from four programs residing on a partitioned data set.

```
//STEP3      EXEC      DCDCOBOL,OTHER='LIT,REC',LAYOUT=
//DCD.COBLIN DD      DSN=user.cobol.library(prog1),DISP=SHR
//           DD      DSN=user.cobol.library(prog2),DISP=SHR
//           DD      DSN=user.cobol.library(prog3),DISP=SHR
//           DD      DSN=user.cobol.library(prog4),DISP=SHR
//DCD.COPYLIB DD      DSN=user.copy.library,DISP=SHR
```

**Example 4**

Print the 01 Record and Layout Reports from all COBOL programs residing on a partitioned data set whose member names begin with the prefix PAYR or PAYM.

```
//STEP4A      EXEC      DCDFETCH
//PDS.OUTPUT  DD      DCB=(LRECL=80,BLKSIZE=3120)
//PDS.CTLINFO DD      *
PDS=USERDD=COBOL=PAYR
PDS=USERDD=COBOL=PAYM
//PDS.USERDD  DD      DSN=user.cobol.library,DISP=SHR
//*
//STEP4B EXEC  DCDCOBOL,OTHER=REC,LAYOUT=
//DCD.COBLIN  DD      DSN=*&PASSFILE,DISP=(OLD,PASS)
//DCD.COPYLIB DD      DSN=user.copy.library,DISP=SHR
```

**Note:** The PDS Member Fetcher PROC is discussed under the headings, “**PROCs Provided for Use in this Section**” and “**DCDFETCH - Newer Software to replace MBRFETCH**”, both in this section.

**Example 5**

Print the System Record Analysis Report on two sets of records.

```
//STEP5      EXEC      DCDCOBOL,SRA=
//DCD.COBLIN  DD      DSN=user.cobol.library(prog1),DISP=SHR
//           DD      DSN=user.cobol.library(prog2),DISP=SHR
//           DD      DSN=user.cobol.library(prog3),DISP=SHR
//DCD.COPYLIB DD      DSN=user.copy.library,DISP=SHR
//DCD.CTLCDRA DD      *
*title for report 1
-ALL- mr-record-1
-ALL- ms-record-1
prog3 ms-record-4
*title for the second report
prog2 184
/*
```

**Notes:**

- In the first report, 2 records are selected from ALL programs along with a record from prog3.
- In the second report, all records in prog2 which have an overall length of 184 will be used.

### Example 6

Produce a Data Dictionary Interface File on all records 240 characters in length.

```
//STEP6A      EXEC    DCDCOBOL,OTHER=DICT
//DCD.DCDDICT  DD      DSN=user.file,DISP=(,KEEP),
//              VOL=SER=userpk,UNIT=SYSDA,SPACE=(CYL,(2,20)),
//              DCB=(RECFM=FB,LRECL=120,BLKSIZE=3120)
//DCD.COBLIN   DD      DSN=user.cobol.library(progl),DISP=SHR
//DCD.COPYLIB  DD      DSN=user.copy.library,DISP=SHR
//DCD.CTLCDRA  DD      *
*set number 1
progl 240
/*
```

### Example 7

Print Layout Reports for selected records from a given program.

```
//STEP7      EXEC    DCDCOBOL,LAYOUT=
//DCD.COBLIN  DD      DSN=user.cobol.library(progl),DISP=SHR
//DCD.COPYLIB DD      DSN=user.copy.library,DISP=SHR
//DCD.CTLCDL  DD      *
ms-record-1
ms-record-2
/*
```

### Example 8

Print Layout Reports for all records which have a record size from 220 to 240 characters in length.

```
//STEP8      EXEC    DCDCOBOL,LAYOUT=
//DCD.COBLIN  DD      DSN=user.cobol.library(progl),DISP=SHR
//              DD      DSN=user.cobol.library(prog2),DISP=SHR
//DCD.COPYLIB DD      DSN=user.copy.library,DISP=SHR
//DCD.CTLCDL  DD      *
SELECT>219
SELECT<241
/*
```

### Example 9

Bring just 01 records into CONTROL/DCD (not a COBOL program) and print Layout Reports.

```
//STEP9A      EXEC    DCDFETCH
//PDS.OUTPUT  DD      DCB=(LRECL=80,BLKSIZE=3120)
//PDS.CTLINFO  DD      *
PDS=USERDD=COBRECS
//PDS.USERDD   DD      DSN=user.copy.library,DISP=SHR
//              *
//STEP9B      EXEC    DCDCOBOL,LAYOUT=,OTHER=LOR
//DCD.COBLIN   DD      DSN=&&PASSFILE,DISP=(OLD,PASS)
```

### Notes:

- See “**DCDFETCH - Newer Software to replace MBRFETCH**” in this section of the manual.
- All COPY members that do not begin an 01 record or (02-48) level group are bypassed.
- With option LOR option indicating records (not COBOL programs), no other reports are allowed.

For Examples 10 and 11, see **AAbend Analysis Report@** under **AOverview of All Reports including Abend Analysis@** in this section.

#### Example 10

Produce a report using the Abend Analysis feature.

```
//STEP10      EXEC      DCDCOBOL,TRACE=,OTHER=NOYIN
//DCD.COBLIN  DD      DSN=user.cobol.library(progl),DISP=SHR
//DCD.COPYLIB DD      DSN=user.copy.library,DISP=SHR
//DCD.SELECT  DD      *
      SELECT  IF          NODE-1      =  P*R
                  AND     NODE-2      =  Y*R  OR  YE
                  AND     FIELD-SIZE  =   2
//DCD.BYPASS  DD      *
HEADING-1-RECORD
DETAIL-RECORD
```

Notes:

- X The SELECT looks for a node with PAYROLL, PR or other combinations and then looks for another node with YEAR, YR, YE or other combinations, and then looks for a field which is two bytes long.
- X The optional BYPASS DD is used to stop the TRACE for 01 records HEADING-1-RECORD and DETAIL-RECORD
- X The option to also produce PROCEDURE DIVISION Narrative is turned off

#### Example 11

Produce a report using the Abend Analysis feature.

```
//STEP11      EXEC      DCDCOBOL,TRACE=
//DCD.COBLIN  DD      DSN=user.cobol.library(progl),DISP=SHR
//DCD.COPYLIB DD      DSN=user.copy.library,DISP=SHR
//DCD.SELECT  DD      *
PAYROLL-MONTH
```

Notes:

- X The SELECT simply looks for the name shown (PAYROLL-MONTH)

### JCL to Execute CONTROL/DCD without Using PROCs

The JCL necessary to execute the DCDSYSTM program for use with the features in this section is listed here and is informational. It is recommended however, that PROCs be used for the actual execution of CONTROL/DCD. The rest of this section is designed for use of the PROCs shown in this section.

```
//DCD      EXEC      PGM=DCDSYSTM, REGION=8192K,
//          PARM=(options)
//*
//STEPLIB  DD  DSN=user.loadlib,DISP=SHR
//*
//DCDWK01 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//DCDWK02 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//DCDWK03 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//DCDWK04 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//DCDWK05 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//DCDWK06 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//DCDWK07 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//DCDWK08 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//DCDWK09 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//DCDWK10 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//DCDWK11 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//DCDWK12 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//*
//DCDWKS1 DD  UNIT=SYSDA,SPACE=(CYL,(2,20)),DCB=BUFNO=5
//DCDWKS2 DD  UNIT=SYSDA,SPACE=(CYL,(2,20)),DCB=BUFNO=5
//DCDWKS3 DD  UNIT=SYSDA,SPACE=(CYL,(2,20)),DCB=BUFNO=5
//DCDWKS4 DD  UNIT=SYSDA,SPACE=(CYL,(2,20)),DCB=BUFNO=5
//DCDWKS5 DD  UNIT=SYSDA,SPACE=(CYL,(2,20)),DCB=BUFNO=5
//DCDWKS6 DD  UNIT=SYSDA,SPACE=(CYL,(2,20)),DCB=BUFNO=5
//DCDWKS7 DD  UNIT=SYSDA,SPACE=(CYL,(2,20)),DCB=BUFNO=5
//DCDWKS8 DD  UNIT=SYSDA,SPACE=(CYL,(2,20)),DCB=BUFNO=5
//*
//DCDWKT1 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//DCDWKT2 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//DCDWKT3 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//DCDWKT4 DD  UNIT=SYSDA,SPACE=(CYL,(2,2)),DCB=BUFNO=5
//*
//PRINT    DD  SYSOUT=*,DCB=BLKSIZE=133
//CALPARAM DD  SYSOUT=*,DCB=BLKSIZE=133
//REPORTS  DD  SYSOUT=*,DCB=BLKSIZE=133
//*
//SYSOUT    DD  SYSOUT=*,DCB=BLKSIZE=121
//SORTMESS  DD  SYSOUT=*,DCB=BLKSIZE=133
//SORTLIB   DD  DSN=SYS1.SORTLIB,DISP=SHR
//SORTWK01 DD  UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK02 DD  UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//SORTWK03 DD  UNIT=SYSDA,SPACE=(TRK,(100),,CONTIG)
//*
//CONTROL   DD  DSN=user.pds(DCDCNTRL),DISP=SHR
//*
```

**See the next page for additional DD statements.**

**Extra DD statements may be required in addition to those shown on the previous page. These additional DD statements are listed below:**

- BYPASS - optionally used to stop tracing levels by BYPASSing a record or field in the Abend Analysis report. See the heading '**Control Statements for Abend Analysis**'.
- COBOLIN - required unless PARM option READPDS is used without using WRITPDS at the same time. Points to a COBOL program, several COBOL programs or one or more COBOL records when producing only Layout Reports using the LOR option.
- COPYLIB - required if COPY members are present in the COBOL program
- CTLCDCAH- optionally used to modify the CALL Hierarchy Report.
- CTLCDDLT - used to provide data names for use in the Tracing Literals Report.
- CTLCDLAY- optionally used if the LAYOUTS PARM option is used and further selection is wanted through control statements. See the heading, '**Control Statements for Layouts**'.
- CTLINFO- see 'DCDFETCH Extra DD Statements ...' below.
- CTLCDSPA - required when either the SPA or DICT PARM option is used. See the heading, '**Control Statements for System Record Analysis**'.
- CTLCDVER- optionally used to select by verb in the VERB Analysis Report.
- DCDPDS - required if the WRITPDS option is used. See the heading, '**WRITPDS and READPDS Options**'.
- DCDREPDS - required if the READPDS option is used. See the heading, '**WRITPDS and READPDS Options**'.
- SELECT - required to select fields for the Abend Analysis report. See the heading '**Control Statements for Abend Analysis**'.

The REGION is set to 8192K. Consult the Installation Instructions for Guidelines on REGION size.

The DCB=BUFNO is set to 5 for MVS.

See Installation Instructions for information on the CONTROL DD.

JCL for the PDS member fetcher PROC is shown below:

```
//PDS      EXEC    PGM=DCDFETCH,REGION=2048K
//PRINT    DD     SYSOUT=*
//SYSOUT   DD     SYSOUT=*
//WORKFIL1 DD     UNIT=SYSDA,SPACE=(TRK,(2,4))
//WORKFIL2 DD     UNIT=SYSDA,SPACE=(CYL,(1,3))
//OUTPUT   DD     DSN=%%PASSFILE,DISP=(,PASS),UNIT=SYSDA
//         SPACE=(CYL,(5,10)),DCB=(LRECL=80,BLKSIZE=3120)
```

**DCDFETCH Extra DD statements are listed here:**

- CTLINFO - required and used to input control to this PROC.  
See the heading '**DCDFETCH - Newer Software to replace MBRFETCH**'.
- userdd - one or more DDnames that are user specified are required if the above CTLINFO DD is used.

### **PROCs Provided for Use in This Section**

Four PROCs are provided. They are listed here and are shown on the next pages. If Panvalet or Librarian are not used in your shop, then PROCs PANCOBOL or LIBCOBOL may be ignored.

1.     **PANCOBOL**   -   Running CONTROL/DCD with input from Panvalet
2.     **LIBCOBOL**   -   Running CONTROL/DCD with input from Librarian
3.     **DCDCOBOL**   -   Running CONTROL/DCD without Panvalet or Librarian
4.     **DCDFETCH**   -   Used with PROC DCDCOBOL for selecting COBOL programs or COPY records by means of control statements from partitioned data sets.

```

//PANCOBOL PROC CALL=NO,      * CALL ANALYSIS REPORT
//      COPY=NO,              * COPY ANALYSIS REPORT
//      CPA=NO,                * CALL PARAMETER ANALYSIS
//      DATA=NO,              * DATA ANALYSIS REPORT
//      LAYOUT=NO,             * LAYOUTS
//      SRA=NO,                * SYSTEM RECORD ANALYSIS
//      TRACE=NO,              * ABEND ANALYSIS
//      RESOLVE=,              * RESOLVE COPY MEMBERS
// * USE XXXX= ABOVE TO TURN ON A REPORT OR OPTION
//      OTHER=' ',             * USED TO ENTER OTHER PARM OPTIONS
//      LINECNT=60,             * NUMBER OF LINES PER PAGE
//      TRLIMIT=999,            * MAX NBR OF TRACES
//      SRCLIB='PANVALET.SOURCE',
//      BUF=5,                  * USE TO CHANGE NUMBER OF BUFFERS
//      PRINT='*',              * SEND PRINT OUTPUT TO MSGCLASS
//      REG=08192K,             * REGION SIZE
//      SORTREG=0810000,        * SORT REGION
//      WORK=SYSDA              * UNIT=SYSDA, DISK OR OTHER
// * PROC TO RUN THE SYSTEM REPORTS WITHIN CONTROL/DCD
// * MARBLE COMPUTER, INC. 1-800-252-1400 PROC=PANCOBOL REL 2.2
// *                                                                    LM080117
//PAN      EXEC PGM=PAN#1
// * INSERT STEPLIB HERE IF NECESSARY
//SYSPRINT DD SYSOUT=&PRINT
//PANDD1   DD DSN=&SRCLIB,DISP=SHR
//PANDD2   DD DSN=&&TEMP,DCB=BLKSIZE=6160,UNIT=&WORK,
//          DISP=(,PASS),SPACE=(CYL,(2,20))
//DCD      EXEC PGM=DCDSYSTM,REGION=&REG,
//          PARM=(&CALL.CAL,&COPY.COP,&CPA.CPA,
//          &DATA.DAT,&LAYOUT.LAY,
//          &SRA.SRA,&TRACE.TRA,&RESOLVE.RES,
//          &OTHER,
//          'TAC=&TRLIMIT','SOR=&SORTREG','LNC=&LINECNT')
// * INSERT STEPLIB HERE IF NECESSARY
// * * * * * DD DSN=SYS1.CEE.SCEERUN,DISP=SHR
//CONTROL  DD DSN=USER.PDS(DCDNTRL),DISP=SHR
//COBOLIN  DD DSN=&&TEMP,DISP=(OLD,DELETE)
// * INSERT COPYLIB HERE IF NECESSARY
//DCDWK01  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK02  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK03  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK04  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK05  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK06  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK07  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK08  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK09  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK10  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK11  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK12  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
// *
//DCDWKS1  DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS2  DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS3  DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS4  DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS5  DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS6  DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS7  DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS8  DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
// *
//DCDWKT1  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWKT2  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWKT3  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWKT4  DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
// *
//PRINT    DD SYSOUT=&PRINT,DCB=BLKSIZE=133
//REPORTS  DD SYSOUT=&PRINT,DCB=BLKSIZE=133
//SYSOUT   DD DUMMY,DCB=BLKSIZE=121 (SORT & OTHER MESSAGES)
//SORTMESS DD DUMMY,DCB=BLKSIZE=133
//SORTLIB  DD DSN=SYS1.SORTLIB,DISP=SHR
//SORTWK01 DD UNIT=&WORK,SPACE=(TRK,(100)),CONTIG)
//SORTWK02 DD UNIT=&WORK,SPACE=(TRK,(100)),CONTIG)
//SORTWK03 DD UNIT=&WORK,SPACE=(TRK,(100)),CONTIG)
// *
// * VERSION DD DSN=PREFIX.CDCD.VERSION,DISP=SHR

```

## Exhibit 1 PANCOBOL PROC

```

//LIBCOBOL PROC CALL=NO,      * CALL ANALYSIS REPORT
//      COPY=NO,              * COPY ANALYSIS REPORT
//      CPA=NO,               * CALL PARAMETER ANALYSIS
//      DATA=NO,             * DATA ANALYSIS REPORT
//      LAYOUT=NO,            * LAYOUTS
//      SRA=NO,               * SYSTEM RECORD ANALYSIS
//      TRACE=NO,             * ABEND ANALYSIS
//      RESOLVE=,             * RESOLVE COPY MEMBERS
/*  USE  XXXX=  ABOVE TO TURN ON A REPORT OR OPTION
//      OTHER=' ',            * USED TO ENTER OTHER PARM OPTIONS
//      LINECNT=60,           * NUMBER OF LINES PER PAGE
//      TRLIMIT=999,          * MAX NBR OF TRACES
//      SRCLIB='LIBRARAN.SOURCE',
//      LIBPGM='LIBRARAN',
//      BUF=5,                * USE TO CHANGE NUMBER OF BUFFERS
//      PRINT='*',            * SEND PRINT OUTPUT TO MSGCLASS
//      REG=08192K,           * REGION SIZE
//      SORTREG=0810000,      * SORT REGION
//      WORK=SYSDA            * UNIT=SYSDA, DISK OR OTHER
/*  PROC TO RUN THE SYSTEM REPORTS WITHIN CONTROL/DCD
/*  MARBLE COMPUTER, INC. 1-800-252-1400 PROC=LIBCOBOL REL 2.2
/*                                  LM080117
//LIB      EXEC PGM=&LIBPGM,PARM='NJTA,NRJS' CHECK LIBRARIAN PARMS
/*  INSERT STEPLIB HERE IF NECESSARY
//SYSPRINT DD  SYSOUT=&PRINT
//LIST      DD  SYSOUT=&PRINT
//MASTER    DD  DSN=&SRCLIB,DISP=SHR
//OSJOB      DD  DSN=&&TEMP,DCB=BLKSIZE=6160,UNIT=&WORK,
//      DISP=(,PASS),SPACE=(CYL,(2,20))
//DCD        EXEC PGM=DCDSYSTM,REGION=&REG,
//      PARM=(&CALL.CAL,&COPY.COP,&CPA.CPA,
//      &DATA.DAT,LAYOUT.LAY,
//      &SRA.SRA,&TRACE.TRA,&RESOLVE.RES,
//      &OTHER,
//      'TAC=&TRLIMIT','SOR=&SORTREG','LNC=&LINECNT')
/*  INSERT STEPLIB HERE IF NECESSARY
/*  * * * * * DD  DSN=SYS1.CEE.SCEERUN,DISP=SHR
//CONTROL    DD  DSN=USER.PDS(DCDCNTRL),DISP=SHR
//COBOLIN     DD  DSN=&&TEMP,DISP=(OLD,DELETE)
/*  INSERT COPYLIB HERE IF NECESSARY
//DCDWK01     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK02     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK03     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK04     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK05     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK06     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK07     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK08     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK09     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK10     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK11     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK12     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
/*
//DCDWKS1     DD  UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS2     DD  UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS3     DD  UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS4     DD  UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS5     DD  UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS6     DD  UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS7     DD  UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS8     DD  UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
/*
//DCDWKT1     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWKT2     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWKT3     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWKT4     DD  UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
/*
//PRINT       DD  SYSOUT=&PRINT,DCB=BLKSIZE=133
//REPORTS     DD  SYSOUT=&PRINT,DCB=BLKSIZE=133
//SYSOUT      DD  DUMMY,DCB=BLKSIZE=121 (SORT & OTHER MESSAGES)
//SORTMESS    DD  DUMMY,DCB=BLKSIZE=133
//SORTLIB     DD  DSN=SYS1.SORTLIB,DISP=SHR
//SORTWK01    DD  UNIT=&WORK,SPACE=(TRK,(100),,CONTIG)
//SORTWK02    DD  UNIT=&WORK,SPACE=(TRK,(100),,CONTIG)
//SORTWK03    DD  UNIT=&WORK,SPACE=(TRK,(100),,CONTIG)
/*  VERSION DD  DSN=PREFIX.CDCD.VERSION,DISP=SHR

```

## Exhibit 2

### LIBCOBOL PROC



```

//DCDCOBOL PROC CALL=NO,          * CALL ANALYSIS REPORT
//                                * COPY ANALYSIS REPORT
//                                * CALL PARAMETER ANALYSIS
//                                * DATA ANALYSIS REPORT
//                                * LAYOUTS
//                                * SYSTEM RECORD ANALYSIS
//                                * ABEND ANALYSIS
//*
//                                * RESOLVE COPY MEMBERS
//* USE XXXX= ABOVE TO TURN ON A REPORT OR OPTION
//                                * USED TO ENTER OTHER PARM OPTIONS
//                                * NUMBER OF LINES PER PAGE
//                                * MAX NBR OF TRACES
//                                * USE TO CHANGE NUMBER OF BUFFERS
//                                * SEND PRINT OUTPUT TO MSGCLASS
//                                * REGION SIZE
//                                * SORT REGION
//                                * UNIT=SYSDA, DISK OR OTHER
//* PROC TO RUN THE SYSTEM REPORTS WITHIN CONTROL/DCD
//* MARBLE COMPUTER, INC. 1-800-252-1400 PROC=DCDCOBOL REL 2.2
//*                                LM080117
//DCD EXEC PGM=DCDSYSTM,REGION=&REG,
// PARM=(&CALL.CAL,&COPY.COP,&CPA.CPA,
// &DATA.DAT,&LAYOUT.LAY,
// &SRA.SRA,&TRACE.TRA,&RESOLVE.RES,
// &OTHER,
// 'TAC=&TRLIMIT','SOR=&SORTREG','LNC=&LINECNT')
//*
//* INSERT STEPLIB HERE IF NECESSARY
//*
//* * * * * DD DSN=SYS1.CEE.SCEERUN,DISP=SHR
//CONTROL DD DSN=USER.PDS(DCDCNTRL),DISP=SHR
//* INSERT COPYLIB HERE IF NECESSARY
//DCDWK01 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK02 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK03 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK04 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK05 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK06 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK07 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK08 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK09 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK10 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK11 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWK12 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//*
//DCDWKS1 DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS2 DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS3 DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS4 DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS5 DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS6 DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS7 DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//DCDWKS8 DD UNIT=&WORK,SPACE=(CYL,(2,20)),DCB=BUFNO=&BUF
//*
//DCDWKT1 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWKT2 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWKT3 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//DCDWKT4 DD UNIT=&WORK,SPACE=(CYL,(2,2)),DCB=BUFNO=&BUF
//*
//PRINT DD SYSOUT=&PRINT,DCB=BLKSIZE=133
//CALPARAM DD SYSOUT=&PRINT,DCB=BLKSIZE=133
//REPORTS DD SYSOUT=&PRINT,DCB=BLKSIZE=133
//SYSOUT DD DUMMY,DCB=BLKSIZE=121 (SORT & OTHER MESSAGES)
//*
//SORTMESS DD DUMMY,DCB=BLKSIZE=133
//SORTLIB DD DSN=SYS1.SORTLIB,DISP=SHR
//SORTWK01 DD UNIT=&WORK,SPACE=(TRK,(100)),CONTIG)
//SORTWK02 DD UNIT=&WORK,SPACE=(TRK,(100)),CONTIG)
//SORTWK03 DD UNIT=&WORK,SPACE=(TRK,(100)),CONTIG)
//*
//* VERSION DD DSN=PREFIX.CDCD.VERSION,DISP=SHR

```

### Exhibit 3

## DCDCOBOL PROC

```
//DCDFETCH  PROC  PRINT='*',WORK=SYSDA
//PDS       EXEC  PGM=DCDFETCH,REGION=2048K
//OUTPUT    DD   DSN=&&PASSFILE,DISP=(,PASS),UNIT=&WORK,
//          SPACE=(CYL,(5,10))
//PRINT     DD   SYSOUT=&PRINT
//SYSOUT    DD   SYSOUT=&PRINT
//WORKFIL1  DD   UNIT=&WORK,SPACE=(TRK,(2,4))
//WORKFIL2  DD   UNIT=&WORK,SPACE=(CYL,(1,3))
```

#### **Exhibit 4**

#### **DCDFETCH PROC**

#### Notes on DCDFETCH PROC

There are two uses for the DCDFETCH PROC within this section.

The first is for inputting COBOL programs. See 'PROC's Provided for Use in this Section'. The user needs to add the following DCB to the OUTPUT DD as shown below:

DCB=(LRECL=80,BLKSIZE=3120)

The second is for using Control/DCD's internal Data Dictionary. See "WRITPDS and READPDS" options in this section. When used here, the record size if specified must be 3120 as shown on the JCL example in the write-up on "WRITPDS and READPDS" options.

### Efficient Use of Work Space

When large systems are put through the CONTROL/DCD system, questions may arise over the use of work file space. This heading tries to answer these questions.

CONTROL/DCD work files DCDWK01 through DCDWK07 are used for one program at a time and do not hold cumulative files from several programs at any one time. For this reason, the SPACE allocation for these files may be kept small (both primary and secondary allocation). The only exception to this rule occurs when a user attempts to run Layout Reports on several programs at once, in which case, DCDWK01 will hold all the Layout Reports produced prior to printing them.

CONTROL/DCD work files DCDWK08 through DCDWK12 are used mostly by the Abend Analysis Feature and may typically be kept small.

CONTROL/DCD work files DCDWKS1 through DCDWKS8 hold cumulative information in a condensed format for all programs run through CONTROL/DCD at any one time. The files, besides being in a condensed format where three or more occurrences of spaces or zeros are reduced to two characters, are further reduced by only holding the fields that are needed for the particular reports wanted. Further, most of the work files DCDWKS1 through DCDWKS8 are not used when just one or two reports are selected.

Because of the file structure used for files DCDWKS1 through DCDWKS8, the SPACE in the PROCs for these files have very small primary increments and very large secondary increments.

DCDWKT1 through DCDWKT4 are used for Direct Tracing of Literals invoked by PARM option DIT.

The following chart shows which options use which work files:

PARM field	WS1	WS2	WS3	WS4	WS5	WS6	WS7	WS8
CAHIER	---	---	---	---	---	YES	---	---
CALL	---	---	---	---	---	YES	---	---
COPY	---	---	YES	---	---	---	---	---
DATA	---	---	---	---	YES	---	YES	---
FGCONSTS	---	---	YES	---	---	---	---	---
LAYOUTS	---	---	---	---	---	---	YES	---
LITERALS	---	---	YES	---	---	---	---	---
PARAGRAPH	---	YES	---	---	---	---	---	---
RECORDS	YES	---	---	---	---	---	---	---
SPREGS	---	---	YES	---	---	---	---	---
SRANAL	---	---	---	YES	---	---	---	---
VERB	---	YES	---	---	---	YES	---	---
CALL PARAMETERS	---	---	---	---	---	---	---	YES

The DDNAME DCDPDS which is used when the WRITPDS option is used, will contain condensed information from all the above eight condensed files depending on which options are specified during the WRITPDS run.

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## Overview of All Reports

The COBOL reports that are made available through this section are listed below:

1.	CALL Analysis Report .....	D-46
2.	CALL Hierarchy Report .....	D-47
3.	CALL PARAMETER Analysis .....	D-48
4.	COPY Analysis Report .....	D-49
5.	System Data Name Cross-Reference .....	D-50
6.	System Cross-Reference for Figurative Constants .....	D-52
7.	Table of Contents for Layouts .....	D-53
8.	Layout Report .....	D-54
9.	System Cross-Reference for Literals .....	D-56
10.	System Paragraph Cross-Reference .....	D-57
11.	01 Record Report .....	D-58
12.	System Cross-Reference for Special Registers .....	D-61
13.	System Record Analysis Report .....	D-62
14.	Tracing Literal Paths Reports .....	D-64
15.	Verb Analysis Report .....	D-67
16.	Abend Analysis Report .....	D-68

The PARM options that are required to run these reports are listed under the heading, “**PARM OPTIONS**”. For most reports, the PARM options require just one option per report (e.g. use option **CALL** for the CALL Analysis Report, **COPY** for COPY Analysis Report, **DATA** for System Data Name Cross-Reference). The following options are applicable to all reports:

C68	LNCNT=	RESOLVE=	VR3
EIB	QUOTE	SORTREG=	VS2
ERRORS	READPDS	STOP	WRITPDS

The Layout Report is affected by many options and optional control statements.

The System Record Analysis Report requires the use of control statements. Also, the RA1, RAA, RAB, RAD, RAS and RAT options are applicable to the System Record Analysis Report.

The System Data Name Cross-Reference and the System Paragraph Cross-Reference have the UNREF option available for including or omitting unreferenced names. The Data Name Cross-Reference report may be limited to control statement use by using the DAS parm option.

The CALL Hierarchy Report allows control statements for Adding and Deleting CALLs.

The Direct Literal Tracing Report requires control statements for specifying data names used for tracing the possible values of literals and the paths used to get a literal to a particular field.

The Verb Analysis Report allows the use of control statements to limit VERBs selected.

The Abend Analysis Report (**TRACE Option**) is available for finding data fields by their name (or by a very powerful selection capability), then bringing in all REDEFINES, GROUP fields, and overlapping fields for the name selected, doing Tracing through infinite levels to find all related fields and finally showing all Procedure Division references for all names selected or brought in. Two separate types of control statements are available for **SELECTing** and **BYPASSing**.

CALL ANALYSIS	PROGRAM-ID / CALL-NAME	SEQUENCE	01/01/2001	PAGE	1
PROGRAM-ID	PARAGRAPH-NAME	SEQ-#	CALL / ENTRY STATEMENT	PARAMETERS	
PAYMONTH	A070-COMPUTE-DEDUCTIONS	0169	CALL 'PAYDEDUC' USING	PN-RECORD PN-WEEKLY-DEDUCTION-1 PN-WEEKLY-DEDUCTION-2	
		0126	PROCEDURE DIVISION ENTRY (PAYMONTH)		
PAYROLL	A010-VERIFY-EMPLOYEE-NUMBER	0146	CALL 'EMPVERFY' USING	WS-SYSTEM-DATE PT-EMPLOYEE-NBR WS-VERIFY-CODE	
	B010-COMPUTE-FEDERAL-TAX	0026	CALL 'FEDTAX' USING	WS-SYSTEM-DATE PN-RECORD	
	A070-COMPUTE-DEDUCTIONS	0184	CALL 'PAYDEDUC' USING	PN-RECORD PN-WEEKLY-DEDUCTION-1 PN-WEEKLY-DEDUCTION-2	
		0124	PROCEDURE DIVISION ENTRY (PAYROLL)		

**A                      B                      C                      D                      E**

### CALL Analysis Report - Program-Id / CALL-Name Sequence

CALL ANALYSIS	CALL-NAME / PROGRAM-ID	SEQUENCES	01/01/2001	PAGE	1
PROGRAM-ID	PARAGRAPH-NAME	SEQ-#	CALL / ENTRY STATEMENT	PARAMETERS	
PAYROLL	A010-VERIFY-EMPLOYEE-NUMBER	0146	CALL 'EMPVERFY' USING	WS-SYSTEM-DATE PT-EMPLOYEE-NBR WS-VERIFY-CODE	
PAYROLL	B010-COMPUTE-FEDERAL-TAX	0226	CALL 'FEDTAX' USING	WS-SYSTEM-DATE PN-RECORD	
PAYMONTH	A070-COMPUTE-DEDUCTIONS	0169	CALL 'PAYDEDUC' USING	PN-RECORD PN-WEEKLY-DEDUCTION-1 PN-WEEKLY-DEDUCTION-2	
PAYROLL	A070-COMPUTE-DEDUCTIONS	0184	CALL 'PAYDEDUC' USING	PN-RECORD PN-WEEKLY-DEDUCTION-1 PN-WEEKLY-DEDUCTION-2	
PAYMONTH		0126	PROCEDURE DIVISION ENTRY (PAYMONTH)		
PAYROLL		0124	PROCEDURE DIVISION ENTRY (PAYROLL)		

**A                      B                      C                      D                      E**

### CALL Analysis Report - CALL-Name / Program-Id Sequence Exhibit 5 – (Both Sequences)

- A - COBOL Program-Id
- B - Paragraph name where the CALL or ENTRY resides
- C - Sequence number of the CALL, ENTRY or Procedure Division statement
- D - CALL or ENTRY statement
- E - Parameters used

01/01/2001

CALL HIERARCHY REPORT

PAGE 1

COUNT	HIERARCHY OF CALLS
	DCDMAIN
	+ DCDCOBOL
	+ + DCD12CMP
	+ + DCD14IND
12	+ + ST
	+ DCDCOPY
	+ + DCDMCOPY
	+ + + READCOPY
	+ + + READREPL
	+ + + + READCOPY
	+ + DCDMREPL
12	+ + ST
	+ DCDHSPG
	+ + BANNER
	+ + DCD07PRM
19	+ + + ER
	+ + DCD08OPT
	+ + DCDTR
24	+ + + ER
	+ + ER
	+ + GETNM
	+ + PW
7	+ + + ER
	+ DCDPRHP1
	+ DCDPXREF
	+ + DCDDDCCR
	+ + DCDOTHER
	+ + DCDPDCCR
	+ + DCDSETRF
18	+ + ST
	+ DCDSCAN1
	+ + DCDCICS
	+ + SCANTOK
6	+ + + PASSTOK
	+ + + + LASTIME
125	+ + + + NEXTTOK
<b>A</b>	<b>B C</b>

### Exhibit 6 CALL Hierarchy Report

- A - Count of times program is called from above program (Blank for 1 time)  
 B - Plus ( + ) closest to program-id is followed uphill to find calling module  
 C - COBOL Program-id

CALL Parameter reporting for Program ( DCDENTR1 )

Procedure Division	USING for program DCDENTR1	Length	
1	WS-FIELD-3	134	@00023
2	WS-EIGHT-2	8	@00013

From: "TSTCALLN" ENTRY at compile nbr 000046

ENTRY DCDENTR1 USING	Length	
1 WS-FIELD-3	134	@00023
** ERROR ** LENGTH does not match P-D USING # 2		
2 WS-FIELD-4	402	@00024
** ERROR ** PARAMETER # 00003 NOT USED in P-D USING		
3 WS-DCDSCAN2	8	@00015

From: "TSTCALLN" ENTRY at compile nbr 000050

ENTRY DCDENTR1 USING	Length	
1 WS-FIELD-3	134	@00023
2 - - ( parameter missing ) - -		
** ERROR ** Parameter MISSING for corresponding USING # 2		

A	B	C	D	E	F	G
---	---	---	---	---	---	---

### Exhibit 7

#### CALL PARAMETER ANALYSIS

- A - Line with Procedure Division... or From:...
- B - ENTRY or CALL with that name
- C - \*\* ERROR \*\* message line
- D - Parameter number
- E - Parameter name
- F - Length of parameter
- G - Sequence of this field



COPY ANALYSIS	MEMBER	SEQUENCE	01/01/2001	PAGE	1
MEMBER	PROGRAM	SEQ-#	LEVEL	IDENTIFIER	SECTION
BANKCOPY	DCDLOGIC	0061	01	BC-BANNER-FIELDS	WORKING-STORAGE SECTION
CORRECT	DCDLOGIC	0110	01	COB-REC	WORKING-STORAGE SECTION
CPYREC	DCDLOGIC	0079	01	COB-REC	WORKING-STORAGE SECTION
H021F	DCDLOGIC	0134		030-COPY-HERE	PROCEDURE DIVISION
INFOTYP7	DCDLOGIC	0012	FD	FILE-1	FILE SECTION
TESTCOPY	PAYMONTH	0024	01	TEST-COPY-REC	WORKING-STORAGE SECTION
	PAYMONTH	0036	01	TEST-COPY-REC-2	WORKING-STORAGE SECTION
TOGO2	DCDLOGIC	0008		SOURCE-COMPUTER	ENVIRONMENT DIVISION
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>

**Exhibit 8****COPY Analysis Report - Member Sequence**

- A - COPY member name
- B - COBOL Program-id
- C - Sequence number where the COPY is used in the program
- D - Level number associated with the COPY (if applicable)
- E - DATA name associated with the COPY (if applicable)
- F - DIVISION or SECTION where the COPY member resides

COPY ANALYSIS	PROGRAM	SEQUENCE	01/01/2001	PAGE	1
PROGRAM MEMBER	SEQ-#	LEVEL	IDENTIFIER	SECTION	
DCDLOGIC BANKCOPY	0061	01	BC-BANNER-FIELDS	WORKING-STORAGE SECTION	
COBREC1	0110	01	COB1-REC	WORKING-STORAGE SECTION	
CPYREC	0079	01	COB-REC	WORKING-STORAGE SECTION	
H021F	0134		030-COPY-HERE	PROCEDURE DIVISION	
INFOTYP7	0012	FD	FILE-1	FILE SECTION	
TOGO2	0008		SOURCE-COMPUTER	ENVIRONMENT DIVISION	
PAYMONTH TESTCOPY	0024	01	TEST-COPY-REC	WORKING-STORAGE SECTION	
TESTCOPY	0036	01	TEST-COPY-REC-2	WORKING-STORAGE SECTION	
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>

**Exhibit 9****COPY Analysis Report - Program Sequence**

- A - COBOL
- B - COPY member name
- C - Sequence number where the COPY is used in the program
- D - Level number associated with the COPY when applicable
- E - Data name associated with the COPY when applicable
- F - Division or section where the COPY member resides

# Control/DCD – Analysis on Multiple COBOL programs

SYSTEM DATA-NAME CROSS REFERENCE									
PROGRAM	SECTION	SEQ-#	LV	DATA-NAME	NARRATIVE	01/01/2001	PAGE	05	
(CONTINUED)	WS-ALL DEDUCTIONS				PN-WEEKLY-FED-TAX @97 (189), PN-WEEKLY-FICA @89 (189), PN-WEEKLY-STATE-TAX @89 (189) COMPUTE PN-WEEKLY-PAY-AMOUNT @102 = # (203) IF # > PN-WEEKLY-GROSS @96 (195,199) SUBTRACT PN-WEEKLY-DEDUCTION-1 @100 FROM # (200), PN-WEEKLY-DEDUCTION-2 @101 FROM # (196)				
PAYROLL	WORKING-STORAGE	0118	88	WS-EMPLOYEE-NBR-INVALID	VALUE (MULTIPLE VALUES)				
				IF # (150)					
PAYROLL	WORKING-STORAGE	0116	88	WS-EMPLOYEE-NBR-VALID	VALUE (MULTIPLE VALUES)				
PAYMONTH	WORKING-STORAGE	0116	88	WS-END-OF-FILE	VALUE 'Y'				
				PERFORM-UNTIL # (138)					
PAYROLL	WORKING-STORAGE	0114	88	WS-END-OF-FILE	VALUE 'Y'				
				PERFORM-UNTIL # (137)					
PAYMONTH	WORKING-STORAGE	0115	05	WS-END-OF-FILE-SW	PIC X				
				MOVE 'Y' TO # (135,202)	VALUE SPACE				
PAYROLL	WORKING-STORAGE	0113	05	WS-END-OF-FILE-SW	PIC X				
				MOVE 'Y' TO # (134,220)	VALUE SPACE				
PAYMONTH	WORKING-STORAGE	0110	05	WS-FICA-AMOUNT	PIC S9(4) COMP-3				
				COMPUTE # = .0715 (173), 3131.70 (179), PN-WEEKLY-GROSS @89 (173), WS-FICA-YTD-TOTAL @109 (179) COMPUTE WS-FICA-YTD-TOTAL @111 = # (160) MOVE # TO PN-WEEKLY-FICA @89 (160)	VALUE +0				
PAYROLL	WORKING-STORAGE	0108	05	WS-FICA-AMOUNT	PIC S9(4) COMP-3				
				COMPUTE # = .0715 (173), 3131.70 (179), PN-WEEKLY-GROSS @96 (173), WS-FICA-YTD-TOTAL @109 (179) COMPUTE WS-FICA-YTD-TOTAL @109 = # (175) MOVE # TO PN-WEEKLY-FICA @89 (181) MOVE ZEROS TO # (171)	VALUE +0				
PAYROLL	WORKING-STORAGE	0109	05	WS-FICA-YTD-TOTAL	PIC S9(4) COMP-3				
				COMPUTE # = PN-YTD-FICA @82 (175), WS-FICA-AMOUNT @108 (175) COMPUTE WS-FICA-AMOUNT @108 = # (179) IF # > 3131.70 (178)	VALUE +0				
PAYMONTH	WORKING-STORAGE	0110	05	WS-FICA-AMOUNT	PIC S9(4) COMP-3				
				COMPUTE # = .0715 (158), 3131.70 (164), PN-WEEKLY-GROSS @89 (158), WS-FICA-YTD-TOTAL @111 (164) COMPUTE WS-FICA-YTD-TOTAL @111 = # (160) MOVE # TO PN-WEEKLY--FICA @101 (166) MOVE ZEROS TO # (156)	VALUE +0				
PAYMONTH	WORKING-STORAGE	0111	05	WS-FICA-YTD-TOTAL	PIC S9(4) COMP-3				
				COMPUTE # = PN-YTD-FICA @84 (160), WS-FICA-AMOUNT @110 (160) COMPUTE WS-FICA-AMOUNT @110 = # (164) IF # > 3131.70 (163)	VALUE +0				

**A                      B                      C D                      E                      F                      G                      H                      I**

## Exhibit 10

### System Data Name Cross Reference

- A - COBOL program-id
- B - Section
- C - Sequence number of the data name
- D - Level number of the data name
- E - Data name
- F - All related Procedure Division narrative
- G - PICTURE clause
- H - USAGE clause
- I - VALUE clause

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SYSTEM CROSS REFERENCE FOR FIGURATIVE CONSTANTS

PAGE 01

FIGURATIVE CONSTANTS	PROGRAM	REFERENCES
SPACE (S)	PAYMONTH	115
	PAYROLL	113
ZERO (S)	PAYMONTH	117 123 156 182 186
	PAYROLL	115 121 130 171 197

**A****B****C**

**Exhibit 11**  
**System Cross Reference for Figurative Constants**

- A - Figurative constant
- B - COBOL program-id
- C - Sequence numbers where the figurative constant is used

01/01/2001		TABLE OF CONTENTS FOR LAYOUT REPORT	PAGE 1
PAYMONTH	FILE	PAYROLL-TIME-FILE.....	6
PAYROLL	FILE	PAYROLL-TIME-FILE.....	1
PAYMONTH	FILE	PAYROLL-UPDATED-FILE.....	8
PAYROLL	FILE	PAYROLL-UPDATED-FILE.....	3
PAYMONTH	FILE	PN-RECORD.....	8
PAYROLL	FILE	PN-RECORD.....	3
PAYMONTH	FILE	PT-RECORD.....	6
PAYROLL	FILE	PT-RECORD.....	1
PAYMONTH	WORK-ST	WS-AMOUNTS.....	10
PAYROLL	WORK-ST	WS-AMOUNTS.....	5

**A****B****C****D****Exhibit 12****Table of Contents for Layouts**

- A - COBOL program-id
- B - Section where record name is located
- C - Record name
- D - Page number where record layout starts

# Control/DCD –Analysis on Multiple COBOL programs

FILE SECTION		LAYOUT REPORT				PAGE	1
FD ( FILE NAME )		PAYROLL-UPDATED-FILE					
LABEL RECORDS ARE		STANDARD					
RECORD CONTAINS		170 CHARACTERS					
BLOCK CONTAINS		0 RECORDS					
DATA RECORD IS		PN-RECORD					
LEVEL	DATA NAME	LENGTH	TYPE	FROM	TO		
72 01	PN-RECORD	170	GROUP	1	170	CALL 'PAYDEDUC' USING # (169)	
						MOVE PT-RECORD @28 TO # (148)	
						WRITE # (197)	
73 05	PN-EMPLOYEE-NBR	5	N	1	5		
74 05	PN-EMPLOYEE-LAST-NAME	20	X	6	25		
75 05	PN-EMPLOYEE-FIRST-NAME	15	X	26	40		
76 05	PN-ENDING-DATE	6	GROUP	41	46		
77 05	PN-ENDING-YEAR	2	N	41	42		
78 05	PN-ENDING-MONTH	2	N	43	44		
79 05	PN-ENDING-DAY	2	N	45	46		
80 05	PN-CUMULATIVE-YTD-AMOUNTS	44	GROUP	47	90		
81 10	PN-YTD-GROSS PIC S9(6)V99	8	SNE	47	54	ADD PN-WEEKLY-GROSS @98 TO # (192)	
82 10	PN-YTD-FED-TAX PIC S9(6)V99	8	SNE	55	62		
83 10	PN-YTD-STATE-TAX PIC S9(6)V99	8	SNE	63	70		
84 10	PN-YTD-FICA PIC S9(4)V99	6	SNE	71	76	ADD PN-WEEKLY-FICA @101 TO # (193)	
						COMPUTE WS-FICA-YTD-TOTAL @111 = # (160)	
						IF # > 4380.00 (155)	
85 10	PN-YTD-DEDUCTION-1 PIC S9(5)V99	7	SNE	77	83	ADD PN-WEEKLY-DEDUCTION-1 @102 TO # (194)	
86 10	PN-YTD-DEDUCTION-2 PIC S9(5)V99	7	SNE	84	90		
87 10	PN-CURRENT-EMPL-DATA	31	GROUP	91	121		
PAYMONTH						01/01/2001	

A B C D E F G H

## Exhibit 13 Layout Report

- A - Sequence number of the data name
- B - Level number of the data name
- C - Data name
- D - Length in bytes of this field for computational or packed comp-3 fields, two lengths will be shown in this field. The first one will be in parentheses, and represents what is coded in the PICTURE clause.
- E - TYPE code indicating how the field is used **(see chart below)**
- F - From position of this field
- G - To position of this field
- H - Corresponding COBOL narrative (requires use of LNR option to produce this narrative)

Layout **TYPE** Chart

<u>TYPE</u>	<u>Meaning</u>
C	COMP or COMPUTATIONAL
C1	COMP-1
C2	COMP-2
C3	COMP-3
C4	COMP-4
N	NUMERIC (DISPLAY USAGE)
NE	NUMERIC EDITED
PR	USAGE IS POINTER
UI	USAGE IS INDEX
X	ALPHANUMERIC or ALPHABETIC
GROUP	GROUP FIELD

Note: The first seven fields (through NE above) will have an S preceding them if the PICTURE clause is signed.

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## SYSTEM CROSS REFERENCE FOR LITERALS

PAGE 01

LITERALS	PROGRAM	REFERENCES				
+0	PAYMONTH	110	111	112		
	PAYROLL	108	109	110		
'Y'	PAYMONTH	047	091	116	135	202
	PAYROLL	047	089	114	134	220
.0715	PAYMONTH	158				
	PAYROLL	173				
00	PAYMONTH	118				
	PAYROLL	116				
04	PAYMONTH	120				
	PAYROLL	118				
2.75	PAYROLL	201				
3131.70	PAYMONTH	163	164			
	PAYROLL	178	179			
43800.00	PAYMONTH	155				
	PAYROLL	170				

A	B	C
---	---	---

**Exhibit 14****System Cross Reference for Literals**

- |   |   |  |
|---|---|--|
| A | - | Literal                                |
| B | - | COBOL program-id                       |
| C | - | Sequence numbers where literal is used |



SYSTEM PARAGRAPH CROSS REFERENCE						01/01/2001	PAGE	01
PROGRAM	SEQ-#	PARAGRAPH	SECTION	SEQ-#	TYPE TRANSFER	PARAGRAPH OF TRANSFER		
PAYMONTH	145	A-PROCESS-PAYROLL-RECORDS	SECTION	137	PERFORM	040-PROCESS-ALL-RECORDS		
PAYROLL	144	A-PROCESS-PAYROLL-RECORDS	SECTION	136 138	PERFORM PERFORM	040-PROCESS-ALL-RECORDS 040-PROCESS-ALL-RECORDS		
PAYROLL	168	A060-COMPUTE-FICA	A-PROCESS-PAYROLL-RECORDS	164	GO TO	A050-COMPUTE-STATE-TAX		
PAYROLL	217	A800-READ-NEXT-RECORD	A-PROCESS-PAYROLL-RECORDS	151	GO TO	A010-VERIFY-EMPLOYEE-NBR		
PAYROLL	224	B-COMPUTE-FEDERAL-TAX	SECTION	159	PERFORM	A040-COMPUTE-FEDERAL-TAX		
PAYROLL	231	C-COMPUTE-STATE-TAX00	SECTION	166	PERFORM	A050-COMPUTE-STATE-TAX		
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>		

### Exhibit 15

#### System Paragraph Cross Reference

- A - COBOL program-id
- B - Sequence number of the paragraph
- C - Paragraph or section name
- D - Section name that paragraph name belongs to
- E - Sequence number of COBOL verb referencing this paragraph or section
- F - COBOL verb referencing this paragraph or section
- G - Paragraph name that contains the COBOL verb

01	RECORD REPORT	LENGTH	SEQUENCE	01/01/2001	PAGE	1
LENGTH	PROGRAM	SEQ-#	SECTION	RECORD-NAME		
170	PAYMONTH	00028	FILE	PT-RECORD		
170	PAYMONTH	00072	FILE	PN-RECORD		
170	PAYROLL	00028	FILE	PT-RECORD		
170	PAYROLL	00070	FILE	PN-RECORD		
09	PAYMONTH	00109	WORKING-STORAGE	WS-AMOUNTS		
09	PAYROLL	00107	WORKING-STORAGE	WS-AMOUNTS		
06	PAYMONTH	00123	WORKING-STORAGE	WS-SYSTEM-DATE		
06	PAYROLL	00121	WORKING-STORAGE	WS-SYSTEM-DATE		
03	PAYMONTH	00114	WORKING-STORAGE	WS-SWITCHES		
03	PAYROLL	00112	WORKING-STORAGE	WS-SWITCHES		
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>		

### Exhibit 16

#### 01 Record Report - Length Sequence

- A - Length in bytes of the 01 record
- B - COBOL program-id for this record
- C - Sequence number where the record resides
- D - Data Division section that contains the record
- E - 01 record name

01 RECORD REPORT	ENTRY	SEQUENCE	01/01/2001	PAGE	1
PROGRAM	SEQ-#	SECTION	RECORD-NAME	LENGTH	
PAYMONTH	0028	FILE	PT-RECORD	170	
PAYMONTH	00072	FILE	PN-RECORD	170	
PAYMONTH	00109	WORKING-STORAGE	WS-AMOUNTS	09	
PAYMONTH	00114	WORKING-STORAGE	WS-SWITCHES	03	
PAYMONTH	00123	WORKING-STORAGE	WS-SYSTEM-DATE	06	
PAYROLL	00028	FILE	PT-RECORD	170	
PAYROLL	00070	FILE	PN-RECORD	170	
PAYROLL	00107	WORKING-STORAGE	WS-AMOUNTS	09	
PAYROLL	00112	WORKING-STORAGE	WS-SWITCHES	03	
PAYROLL	00121	WORKING-STORAGE	WS-SYSTEM-DATE	06	
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	

### Exhibit 17

#### 01 Record Report - Entry Sequence

- A - Length in bytes of the 01 record
- B - COBOL program-id for this record
- C - Sequence number where the record resides
- D - Data Division section that contains the record
- E - 01 record name

*This page intentionally left blank*

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SYSTEM CROSS REFERENCE FOR THE SPECIAL REGISTERS

PAGE 01

SPECIAL REGISTERS PROGRAM REFERENCES

DATE	PAYMONTH	131	
	PAYROLL	129	
RETURN-CODE	PAYROLL	130	
SORT-RETURN	PAYROLL	156	173

**A**

**B**

**C**

### **Exhibit 18**

#### **System Cross Reference for Special Registers**

- A - Special register
- B - COBOL program-id
- C - Sequence number where special register is used

01/01/2001	11:30	SYSTEM RECORD ANALYSIS	-	01	RECORD SUMMARY		PAGE	1
FROM-TO	PROGRAM	01 RECORD NAME	SEQ-#	LV	DATA NAME	PICTURE	DIRECT-FLAGS SET/USE/TEST	INDIRECT FLAGS
1-70	PAYMONTH	PN-RECORD	0072	01	PN-RECORD		S U	SI UI TI
	PAYMONTH	PT-RECORD	0028	01	PT-RECORD		U	
	PAYROLL	PN-RECORD	0070	01	PN-RECORD		S U	SI UI TI
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>

**Exhibit 19****System Record Analysis Report - 01 Record Summary**

- A - Beginning and ending record positions for the data name(s) listed
- B - COBOL program-id where record resides
- C - 01 record name
- D - Sequence number where the field resides
- E - Level of the data name
- F - Data name
- G - PICTURE of the data name
- H - Direct flags indicating Procedure Division involvement with this field
- I - Indirect flags indicating Procedure Division involvement with other fields that are a part of this field

Explanation of S (Set), U (Used) and T (Tested) flags:

- S - Data was moved out of this field or the field was in some way modified
- U - Data was moved out of this field or the field was used in some way to modify another field
- T - The field was tested or compared to another field

# Control/DCD – Analysis on Multiple COBOL programs

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SYSTEM RECORD ANALYSIS - DATA NAME SUMMARY

PAGE 3

FROM-TO	PROGRAM	01 RECORD NAME	SEQ-#	LV	DATA NAME	PICTURE	DIRECT FLAGS SET/USE/TEST	INDIRECT FLAGS
84-90	PAYMONTH	PN-RECORD	0086	10	PN-YTD-DEDUCTION-2	PIC S9(5)V99		SI UI
	PAYMONTH	PT-RECORD	0042	10	PT-YTD-DEDUCTION-2	PIC S9(5)V99	S	SI UI
	PAYROLL	PN-RECORD	0084	10	PN-YTD-DEDUCTION-2	PIC S9(5)V99		SI UI
91-121	PAYMONTH	PN-RECORD	0087	05	PN-CURRENT-EMPL-DATA			SI UI
	PAYMONTH	PT-RECORD	0043	05	PT-CURRENT-EMPL-DATA			UI
	PAYROLL	PN-RECORD	0085	05	PN-CURRENT-EMPL-DATA			SI UI TI
91-96	PAYMONTH	PN-RECORD	0088	10	PN-CURRENT-HOUR-RATE	PIC S9(4)V99	S	SI UI
	PAYMONTH	PT-RECORD	0044	10	PT-CURRENT-HOUR-RATE	PIC S9(4)V99		UI
	PAYROLL	PN-RECORD	0086	10	PN-CURRENT-HOUR-RATE	PIC S9(4)V99	S	SI UI
97-106	PAYMONTH	PN-RECORD	0089	10	PN-EMP-TAX-CODES	PIC X (10)		SI UI
	PAYMONTH	PT-RECORD	0045	10	PT-EMP-TAX-CODES	PIC X (10)		UI
	PAYROLL	PN-RECORD	0087	10	PN-EMP-TAX-CODES	PIC X (10)		SI UI
107-107	PAYMONTH	PN-RECORD	0090	10	PN-NO-STATE-TAX-FLAG	PIC X		SI UI
	PAYMONTH	PT-RECORD	0046	10	PT-NO-STATE-TAX-FLAG	PIC X		UI
	PAYROLL	PN-RECORD	0088	10	PN-NO-STATE-TAX-FLAG	PIC X	T	SI UI
108-109	PAYMONTH	PN-RECORD	0092	10	PN-CURR-DEDUCTION-CODE1	PIC 99		SI UI
	PAYMONTH	PT-RECORD	0048	10	PT-CURR-DEDUCTION-CODE1	PIC 99		UI
	PAYROLL	PN-RECORD	0090	10	PN-CURR-DEDUCTION-CODE1	PIC 99		SI UI
110-114	PAYMONTH	PN-RECORD	0093	10	PN-CURR-DEDUCTION-AMT1	PIC S9(3)V99		SI UI
	PAYMONTH	PT-RECORD	0049	10	PT-CURR-DEDUCTION-AMT1	PIC S9(3)V99		UI
	PAYROLL	PN-RECORD	0091	10	PN-CURR-DEDUCTION-AMT1	PIC S9(3)V99		SI UI
115-116	PAYMONTH	PN-RECORD	0094	10	PN-CURR-DEDUCTION-CODE2	PIC 99		SI UI
	PAYMONTH	PT-RECORD	0050	10	PT-CURR-DEDUCTION-CODE2	PIC 99		UI
	PAYROLL	PN-RECORD	0092	10	PN-CURR-DEDUCTION-CODE2	PIC 99		SI UI
117-121	PAYMONTH	PN-RECORD	0095	10	PN-CURR-DEDUCTION-AMT2	PIC S9(3)V99		SI UI
	PAYMONTH	PT-RECORD	0051	10	PT-CURR-DEDUCTION-AMT2	PIC S9(3)V99		UI
	PAYROLL	PN-RECORD	0093	10	PN-CURR-DEDUCTION-AMT2	PIC S9(3)V99		SI UI
122-125	PAYMONTH	PN-RECORD	0096	05	PN-WEEKLY-HOURS	PIC S9(3)V99	S	SI UI
	PAYMONTH	PT-RECORD	0052	05	PT-WEEKLY-HOURS	PIC S9(3)V99		UI
	PAYROLL	PN-RECORD	0094	05	PN-WEEKLY-HOURS	PIC S9(3)V99	S	SI UI
126-165	PAYMONTH	PN-RECORD	0097	05	PN-COMPUTED-HOURS			SI UI TI
	PAYMONTH	PT-RECORD	0053	05	PT-COMPUTED-HOURS			UI
	PAYROLL	PN-RECORD	0095	05	PN-COMPUTED-HOURS			SI UI TI
126-131	PAYMONTH	PN-RECORD	0098	10	PN-WEEKLY-GROSS	PIC S9(4)V99	S U T	SI UI
	PAYMONTH	PT-RECORD	0054	10	PT-WEEKLY-GROSS	PIC S9(4)V99		UI
	PAYROLL	PN-RECORD	0096	10	PN-WEEKLY-GROSS	PIC S9(4)V99	S U T	SI UI
132-137	PAYMONTH	PN-RECORD	0099	10	PN-WEEKLY-FED-TAX	PIC S9(4)V99	S	SI UI
	PAYMONTH	PT-RECORD	0055	10	PT-WEEKLY-FED-TAX	PIC S9(4)V99		UI
	PAYROLL	PN-RECORD	0097	10	PN-WEEKLY-FED-TAX	PIC S9(4)V99	S U	SI UI

**A B C D E F G H I**

## Exhibit 20 System Record Analysis Report - Data Name Summary

01/01/2001                      POSSIBLE LITERALS FOR EACH FIELD TRACED                      PAGE      1

SEQ-#	FIELD BEING TRACED	LITERAL
816	HIST-2ND-ACCOUNT	VALUE UNKNOWN 'A142165513' 'BB----1235' 'CUST-E3E' 'HIST-LD-2G' 'TKY' 'TY1236RTY6' ALL '4' CURRENT-DATE SPACES ZEROS

**A**

**B**

**C**

### **Exhibit 21**

#### **Possible Literals for Each Field Report**

- A    -    Sequence Number for the field being traced
- B    -    Field Name
- C    -    Possible Ending Literals available for this field



01/01/2001	POSSIBLE LITERALS SHOWING OWNER FIELDS		PAGE	2
TRACED FIELD & RELATED FIELDS	LITERAL	HOW FORMED	HOW FORMED FLAGS	
816 HIST-2ND-ACCOUNT				
<b>A</b>	<b>B</b>			
1134 C3-IDENT-ACCT	VALUE UNKNOWN	UNKNOWN VALUE		UNK
C3-IDENT-ACCT	ALL '4'	MOVE LITERAL	ML	
1116 C3-SUB-ID-1A	VALUE UNKNOWN	UNKNOWN VALUE		UNK
C3-SUB-ID-1A	SPACES	MOVE FIG CONST		
C3-SUB-ID-1A	ZEROS	MOVE FIG CONST		
411 CUST-IDNT-ALPHA-1	'A142165513'	INITIAL VALUE	INI	
512 CUST-MAIN-ACCOUNT-3RD-ID	'CUST-E3E'	INITIAL VALUE	INI	
CUST-MAIN-ACCOUNT-3RD-ID	SPACES	MOVE FIG CONST		
431 CUST-STORAGE-IDENT	'BB----1235'	INITIAL VALUE	INI	
816 HIST-2ND-ACCOUNT	'HIST-LD-2G'	INITIAL VALUE	INI	
1125 S2-CUST-ACCOUNT-TA	'TY1236RTY6'	INITIAL VALUE	INI	
S2-CUST-ACCOUNT-TA	'TKY'	MOVE LITERAL		ML
S2-CUST-ACCOUNT-TA	CURRENT-DATE	MOVE SPEC REG		
<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>	<b>G</b>

**Exhibit 22****Possible Literals Showing Owner Fields Report**

- A** - Traced Field COBOL Sequence Number
- B** - Traced Field
- C** - Related Field COBOL Sequence Number
- D** - Related Field
- E** - Possible Literal tied to Related Field
- F** - How the Literal might be Formed
- G** - FLAGS for easy reference

01/01/2001 POSSIBLE LITERALS WITH POSSIBLE PATHS PAGE 3

LITERAL	HOW FORMED	SEQ-#	FIELD-NAMES BY TRACING LEVELS
'HIST-LD-2G'	INITIAL VALUE	816	HIST-2ND-ACCOUNT
'CUST-E3E'	INITIAL VALUE	512	- CUST-MAIN-ACCOUNT-3RD-ID
VALUE UNKNOWN	UNKNOWN VALUE	1116	- C3-SUB-ID-1A
'A142165513'	INITIAL VALUE	411	- CUST-IDNT-ALPHA-1
SPACES	MOVE FIG CONST	512	- CUST-MAIN-ACCOUNT-3RD-ID
'BB----1235'	INITIAL VALUE	431	- CUST-STORAGE-IDENT
VALUE UNKNOWN	UNKNOWN VALUE	1134	- C3-IDENT-ACCT
VALUE UNKNOWN	UNKNOWN VALUE	1116	- C3-SUB-ID-1A
SPACES	MOVE FIG CONST	1116	- C3-SUB-ID-1A
ZEROS	MOVE FIG CONST	1116	- C3-SUB-ID-1A
'A142165513'	INITIAL VALUE	411	- CUST-IDNT-ALPHA-1
'TK1236RTY6'	INITIAL VALUE	1125	- S2-CUST-ACCOUNT-TA
VALUE UNKNOWN	UNKNOWN VALUE	1134	- C3-IDENT-ACCT
ALL '4'	MOVE LITERAL	1134	- C3-IDENT-ACCT
VALUE UNKNOWN	UNKNOWN VALUE	1116	- C3-SUB-ID-1A
SPACES	MOVE FIG CONST	1116	- C3-SUB-ID-1A
ZEROS	MOVE FIG CONST	1116	- C3-SUB-ID-1A
'TY1236RTY6'	INITIAL VALUE	1125	- S2-CUST-ACCOUNT-TA
'TKY'	MOVE LITERAL	1125	- S2-CUST-ACCOUNT-TA
CURRENT-DATE	MOVE SPEC REG	1125	- S2-CUST-ACCOUNT-TA
ALL '4'	MOVE LITERAL	1134	- C3-IDENT-ACCT
SPACES	MOVE FIG CONST	1116	- C3-SUB-ID-1A
ZEROS	MOVE FIG CONST	1116	- C3-SUB-ID-1A
'TKY'	MOVE LITERAL	1125	- S2-CUST-ACCOUNT-TA
CURRENT-DATE	MOVE SPEC REG	1125	- S2-CUST-ACCOUNT-TA

**A****B****C****D****Exhibit 23****Possible Literals with Possible Paths Report**

- A - Possible Literal
- B - How the Literal might be formed
- C - Sequence Number of the Related COBOL Field
- D - Tracing Path Levels - (*Follow dash up page to next shorter indentation*)

## Control/DCD – Analysis on Multiple COBOL programs

VERB ANALYSIS REPORT				01/01/2001		PAGE	1
VERB	PROGRAM	SEQ-#	PARAGRAPH	SEQ-1	FIELD-1	SEQ-2	FIELD-2
MOVE	PAYROLL	00201	A080-COMPUTE-WEEKLY-PAY		2.75	00100	PN-WEEKLY-DEDUCT
MOVE	PAYROLL	00220	A800-READ-NEXT-RECORD		'Y'	00113	WS-END-OF-FILE-SW
OPEN	PAYMONTH	00128	010-OPEN-FILES	00020	PAYROLL-TIME-FILE		
OPEN	PAYMONTH	00128	010-OPEN-FILES	00064	PAYROLL-UPDATED-FILE		
OPEN	PAYROLL	00126	010-OPEN-FILES	00020	PAYROLL-TIME-FILE		
OPEN	PAYROLL	00126	010-OPEN-FILES	00064	PAYROLL-UPDATED-FILE		
PERFORM	PAYMONTH	00137	040-PROCESS-ALL-RECORDS	00145	A-PROCESS-PAYROLL-RECS		
.							
SUBTRACT	PAYMONTH	00181	A080-COMPUTE-WEEKLY-PAY	00103	PN-WEEKLY-DEDUCTION-2	00112	WS-ALL-DEDUCTIONS
SUBTRACT	PAYMONTH	00185	A080-COMPUTE-WEEKLY-PAY	00102	PN-WEEKLY-DEDUCTION-1	00112	WS-ALL DEDUCTIONS

**A                      B                      C                      D                      E                      F                      G                      H**

### Exhibit 24

#### Verb Analysis Report

- A - COBOL verb
- B - COBOL program-id
- C - Sequence number where the verb resides
- D - Paragraph name that contains the verb
- E - Sequence number in Data Division where first operand resides
- F - Data name of first operand
- G - Sequence number in Data Division where second operand resides
- H - Data name of second operand

COUNT	VERB	PERCENT	VERB ANALYSIS REPORT	( SUMMARY PAGE )
15	MOVE	13.8 %		
10	IF	9.2 %		
04	READ	3.7 %		
02	WRITE	1.8 %		
02	ACCEPT	1.8 %		
30	COMPUTE	27.5 %		
.				
04	PERFORM	3.7 %		
02	GO TO	1.8 %		
109	* TOTAL *	100.0 %		

**A                      B                      C**

### Exhibit 25

#### Verb Analysis Report - Summary Page

- A - Count of COBOL verbs
- B - COBOL verb
- C - Percent of verb usage compared to all verbs within the program(s)

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ABEND ANALYSIS SELECT STATEMENTS

PAGE 1

# 1 SELECT IF NODE-1 = D\*T AND NODE-2 = Y\*R AND FIELD-SIZE = 1

\* \* End of SELECTS \*\*

/ NO ERRORS /

D\*T  
Finds  
DATEY\*R  
finds  
YEAR1  
finds  
PIC Xresides in pos 2 - 2 ... is key to  
automatic selection of all REDEFINES,  
GROUP, & Overlapping fields after this field

Page 1

Program

Seq#

Level

Data-Name

ABEND ANALYSIS REPORT

Directly Referenced Narrative

MM/DD/YYYY

Section Sel#

NR30PGM1

0248

15

CW-DATE-2-YEAR-FORMAT

PIC X

WORK-ST

1

resides in pos 2 - 2 in record CW-RECORD

Narrative show all Procedure

If # = SPACES (1128,1278)

Division References in program -----&gt;

If # not = 'R' (1310)

Move # to RN-DATES-N2-IN @367 (1287), RN-DATES-N2-P3 @368 (1196,1223)

\ Points to

# 1 SELECT

overlap

0244

01

CW-RECORD

WORK-ST

uses field pos 1 - 80

If # not = SPACES (792)

Move HIGH-VALUES to # (985,1380), SPACES to # (832,889,901,967,1481,1503)

overlap

0245

05

CW-MASTER-RECORD-1ST-OCC

WORK-ST

uses field pos 1 - 72

If # not = SPACES (1451,1489)

0249 88 CW-DATE-TYPE-3

(88 LEVEL HAS MULTIPLE VALUES) WORK-ST

If # (1286,1300,1308)

0252 88 CW-DATE-TYPE-2

VALUE 'M'

WORK-ST

If # (1280,1327)

If not # (1290,1304,1567,1581,1605)

/ redefines

0253

15

CW-DATE-2-YMD-2

PIC X

REDEFINES field at 0248

WORK-ST

If # not = SPACES (1076)

Move &gt;E= to # (1172,1288), 'N' to # (1175,1293), 'U' to # (1177,1298)

overlap

0263

05

CW-MASTER-REC-2

REDEFINES field at 0244

WORK-ST

uses field pos 1 - 80

\----- identification of an Overlapping field -----/

\----- identification of a REDEFINES

## Exhibit 26

## Abend &amp; Analysis Report

Notes:

- Everything that can happen to CW-DATE-2-YEAR-FORMAT is shown on this page
- One field CW-DATE-2-YEAR-FORMAT is selected, and *every other possible field is listed* that is a **REDEFINES**, a **GROUP field** for this field, or in any way **Overlaps this field**
- **Narrative** - All Procedure Division References for every field identified is listed underneath each field
- See next page for infinite levels of TRACING

Page 2      **TRACE # 00001**      **ABEND ANALYSIS REPORT**  
 Program      Seq#   Level   Data-Name      Directly Referenced Narrative

01/01/2001  
 Section

### Tracing 1st Pass isolated the following affected fields

traced	0353	01	RN-RECORD		WORK-ST
				used field pos   1-80	
				Move SPACES to # (1409)	
				Move # to <b>MT-FORMAT-RECORD @471</b> (1923)	[ <b>TRACED to Page 3 below</b> ]
traced	0367	05	RN-DATES-N2-IN	PIC X	WORK-ST
				uses field pos   2 - 2	
				If # = ZEROS (1623)	
				Move SPACES to # (1508,1627)	
				Move <b>CW-DATE-2-YEAR-FORMAT</b> to # (1287)	[ <b>TRACED from Page 1 on left</b> ]
traced	0367	05	RN-DATES-N2-P3	PIC X	WORK-ST
				uses field pos   3 - 3	
				If # = ZEROS (1624)	
				Move SPACES to # (1629)	
				Move CW-DATE-2-YEAR-FORMAT to # (1196,1223)	

Page 3      **TRACE # 00002**      **ABEND ANALYSIS REPORT**  
 Program      Seq#   Level   Data-Name      Directly Referenced Narrative

01/01/2001  
 Section

### Tracing 2nd Pass isolated the following affected fields

traced	0471	01	MT-FORMAT-RECORD		WORK-ST
				used field pos   1-68	
				Move SPACES to # (1386)	
				Move <b>RN-RECORD @353</b> to # (1923)	[ <b>TRACED from Page 2 above</b> ]
traced	0476	05	MT-DATES-M3-P1	PIC X	WORK-ST
				uses field pos   2 - 2	
				If # = ZEROS (1923)	
traced	0476	05	MT-DATES-M3-P2	PIC X	WORK-ST
				uses field pos   3 - 3	
				If # = ZEROS (1923,2031)	
				Move SPACES to # (2052)	

**Tracing 3rd Pass found no additional fields - No additional tracing passes possible**

### Exhibit 27 ( Continued )

#### Notes:

- All Possible Uses are **traced** infinite levels and shown on this page
- **First tracing pass finds fields RN-DATES-N2-IN & RN-DATES-N2-P3** (*from previous page*)
- **Also picked up in first tracing pass is overlapping field RN-RECORD**
- **Second tracing pass finds field MT-FORMAT-RECORD** (*from this page*)
- **Also found in 2nd pass are overlapping fields MT-DATE-M3-1 & MT-DATE-M3-2**
- **Third tracing pass finds NO MATCHES and tracing is stopped here**

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### **Data Dictionary Interface File**

With the use of either PARM option DICT or SRA, a file is produced which may be used to interface with commercial Data Dictionary systems.

The file produced contains basically the same information, which is printed on the System Record Analysis Report except that it is in a file format rather than a printed report. The record size is 120 characters. The block size must be a multiple of 120. 3120 is recommended. The DDNAME is DCDDICT. The file is opened EXTEND for each program which allows for several programs to be run through during one run. See the PARM OPTIONS (DDF and CDD) for using the OPEN EXTEND across several CONTROL/DCD runs.

See the COBOL COPY record SYS1RECD and the associated description of these fields under this heading for a description of the fields within these records. Also, see the System Record Analysis Report under the heading, “Overview of CONTROL/DCD Other COBOL Reports”.

To create a Data Dictionary Interface File, control statements must be used. These control statements are the same control statements used in producing a System Record Analysis Report. In fact, the System Record Analysis Report will be printed unless the REPORTS DD is dummied out. Even though the control statements require program-id, only one program at a time may be used when creating a Data Dictionary Interface File.

See the next heading, “Control Statements for System Record Analysis”, for creating the control statements necessary for creating a Data Dictionary Interface File.

The SYS1RECD COPY record shown here may be used as a guide for creating a COBOL or other program to use this file. This COPY member is provided on the CDCD.CNTL file within the member CASEMBRS.

		COPY	SYS1RECD	
000100**				
000200	01	SRA-SYSTEM-RECORD-ANAL-REC.		
000300	05	SRA-SET-NUMBER	PIC 999.	
000400	05	SRA-FROM-TO-LOCATIONS.		
000500	10	SRA-FROM-POSITION	PIC 9(6).	
000600	10	SRA-TO-POSITION	PIC 9(6).	
000700	05	SRA-PROGRAM-ID	PIC X(8).	
000800	05	SRA-RECORD-NAME	PIC X(30).	
000900	05	SRA-DATA-NAME	PIC X(30).	
001000	05	SRA-EXP-CMPLR-NBR	PIC 9(5).	
001100	05	SRA-LEVEL-NUMBER	PIC XX.	
001200	05	SRA-TYPE-USAGE	PIC X(2).	
001300	88	SRA-TYPE-COMP		VALUE 'C '.
001400	88	SRA-TYPE-COMP-1		VALUE 'C1'.
001500	88	SRA-TYPE-COMP-2		VALUE 'C2'.
001600	88	SRA-TYPE-COMP-3		VALUE 'C3'.
001700	88	SRA-TYPE-COMP-4		VALUE 'C4'.
001800	88	SRA-TYPE-DEFAULT-DISPLAY		VALUE ' '.
001900	88	SRA-TYPE-DISPLAY		VALUE 'D '.
002000	88	SRA-TYPE-DISPLAY-1		VALUE 'D1'.
002100	88	SRA-TYPE-INDEX		VALUE 'IX'.
002200	88	SRA-TYPE-USAGE-IS-INDEX		VALUE 'UI'.
002300	88	SRA-TYPE-POINTER		VALUE 'PR'.
002400	05	SRA-FLAGS.		
002500	10	SRA-SET-FLAG	PIC X.	
002600	88	SRA-DIRECT-SET		VALUE 'S'.
002700	10	SRA-USED-FLAG	PIC X.	
002800	88	SRA-DIRECT-USED		VALUE 'U'.
002900	10	SRA-TESTED-FLAG	PIC X.	
003000	88	SRA-DIRECT-TESTED		VALUE 'T'.
003100	10	SRA-INDIR-SET-FLAG	PIC X.	
003200	88	SRA-INDIRECT-SET		VALUE 'S'.
003300	10	SRA-INDIR-USED-FLAG	PIC X.	
003400	88	SRA-INDIRECT-USED		VALUE 'U'.
003500	10	SRA-INDIR-TESTED-FLAG	PIC X.	
003600	88	SRA-INDIRECT-TESTED		VALUE 'T'.
003700	05	SRA-PICTURE-CLAUSE	PIC X(21) .	
003800	05	SRA-FILLER	PIC X.	



The following is a description of the fields within the SYS1RECD COPY member:

- |     |                         |  |
|-----|-------------------------|--|
| 1.  | SRA-SET-NUMBER          | Sequential number starting at 1 showing which set of control cards produced this set of records.   |
| 2.  | SRA-FROM -TO- LOCATIONS | From and to record positions for this data name.   |
| 3.  | SRA-PROGRAM-ID          | Taken from the program-id in the Identification Division.  |
| 4.  | SRA-RECORD-NAME         | The name of the 01 record which contains this data name.   |
| 5.  | SRA-DATA-NAME           | Self-explanatory   |
| 6.  | SRA-EXP-CMPLR-NBR       | Compiler number or sequence number in the program of this data name.   |
| 7.  | SRA-LEVEL-NUMBER        | 01-49 level number associated with this data name.   |
| 8.  | SRA-TYPE-USAGE          | Usage of this data name.   |
| 9.  | <b>SRA-FLAGS</b>        | Contains flags showing how this data field is used in the program. <ul style="list-style-type: none"><li>• <b>Direct flags</b> indicate this field was involved in the Procedure Division statement which caused this flag.</li><li>• <b>Indirect flags</b> indicate this field was <u>not</u> involved in the Procedure Division statement which caused this flag.</li><li>• <b>SET</b> indicates that this field is changed.</li><li>• <b>USED</b> indicates that this field was used to modify in some way another field.</li><li>• <b>TESTED</b> indicates that this field was used in a comparison.</li></ul> |
| 10. | SRA-PICTURE-CLAUSE      | The first 21 characters of the PICTURE clause associated with this data name.  |
| 11. | SRA-FILLER              | Not used at this time.   |

### WRITPDS and READPDS Options

In Control/DCD, a feature is available to allow the storing of work file information for all reports with the exception of the Abend Analysis report. The storing of information is done in condensed format as members on partitioned data sets for use at any time for printing reports from. This feature is controlled by two options and requires extra JCL.

To store information using this feature, do the following:

1. Catalog a partitioned data set with the following attributes:

```
RECFM=FB
LRECL=3120
BLKSIZE=3120 or a multiple of 3120
DSORG=PO
```

2. Add a DD statement after the EXEC DCDCOBOL PROC as follows:

```
//DCD.DCDPDS DD DSN=PDS.WITH.3120.LRECL,DISP=SHR
```

3. Run one or several CONTROL/DCD runs using one or several programs each time. With each run, do the following:
  - a) Add the WRITPDS PARM option to the DCDCOBOL PROC as shown in the example below. Also add parm option BEGIN or CONT. BEGIN is used during the first run to clear everything on the user created PDS. The CONTINUE option is used for all subsequent runs and will not clear the user PDS.
  - b) Add every one of the report options that will be wanted as stored information on the PDS. It will be impossible to later run a READPDS for a report option not specified on the WRITPDS run. Conversely, it is important not to specify unwanted options as the workspace on the PDS will be wasted with unused information.

An example follows:

```
//STEP1 EXEC DCDCOBOL,DATA=,LAYOUT=,PARA=,OTHER='WRI,BEGIN'
//DCD.COBLIN DD DSN=USER.COBL.LIBRARY(PROG1),DISP=SHR
//          DD DSN=USER.COBL.LIBRARY(PROG2),DISP=SHR
//DCD.COPYLIB DD DSN=USER.COPY.LIB,DISP=SHR
//DCD.DCDPDS DD DSN=USER.CREATED.PDS,DISP=SHR
```

The above example will store the information necessary to produce the System Data Name Cross Reference, System Paragraph Cross Reference and Layout Reports for programs PROG1 and PROG2 on the partitioned data set for later printing. The reports will not appear in this run. An exception to this is the report showing the control statements used when using the SRA option for the System Record Analysis Report, which will appear when using the WRITPDS option. It will not appear when using the READPDS option.

To **print** reports using this feature, do the following:

1. Put a step invoking the Member Fetcher PROC ahead of the EXEC DCDCOBOL PROC to bring in the members wanted. Point the user PDS in the Member Fetcher PROC to the same PDS used in the DCDPDS ddname in the DCDCOBOL step with the WRITPDS option. For information on using the PROC DCDFETCH, see the heading “DCDFETCH - Newer Software to replace MBRFETCH” in this section.

The possible combinations of control statements that may be used with the READPDS option are shown here:

- a) PDS=ddname=ALL
- b) PDS=ddname=MEMBER
- c) PDS=ddname=PREFIX=prefix
- d) PDS=ddname=PREFIX=MULTIPLE

Do **NOT** use either COBOL or COBRECS combinations here.

2. Add an extra DD with the name of DCDREPDS after the DCDCOBOL PROC as shown in the example that follows:
3. Add the READPDS option by using OTHER=REA on the DCDCOBOL PROC line.
4. Only use PARM options that have also been used consistently in WRITPDS CONTROL/DCD runs.

An example follows:

```
//STEP1 EXEC DCDFETCH
//PDS.OUTPUT DD DCB=(LRECL=3120,BLKSIZE=3120)
//PDS.CTLINFO DD *
PDS=USERDD=PREFIX=TRN20
PDS=USERDD=PREFIX=TRN30
//PDS.USERDD DD DSN=PDS.WITH3120.LRECL,DISP=SHR
// *
//STEP2 EXEC DCDCOBOL,DATA=,PARA=,OTHER=REA
//DCD.DCDREPDS DD DSN=&&PASSFILE,DISP=(OLD,PASS),
// DCB=LRECL=3120
```

In the previous example, both the System Data Name Cross Reference and System Paragraph Cross Reference Reports will be produced using the information created during the WRITPDS run.

Do not use the WRITPDS option along with the READPDS option. The information created by using the WRITPDS option will not be available for use by the READPDS option.

### **DCDFETCH - Newer Software to replace MBRFETCH**

This software is newer software with additional features to use in place of our older MBRFETCH software. The JCL is different and with one additional work file. The format of the control statements is almost the same with additional features. Older control statements within MBRFETCH need to have INDD= replaced with PDS= for those statements to work within this new software.

Additional Features within this software include the following:

- 1) A Member Count is shown for each DDNAME processed
- 2) Enhanced Error Messages to identify any error in processing control statements or for errors found when handling any of the files including the Partitioned Data Sets pointed to by the PDS=DDNAME= control statements.
- 3) A MULTIPLE option to allow multiple PREFIXs for three types of control statements; COBOL=, COBRECS=, and PREFIX=. Use of this option can allow one pass for multiple PREFIXs, as opposed to many passes with the older MBRFETCH software.

Important Note: Partitioned Data Sets with this software as with the older MBRFETCH software may NOT be concatenated. In place of concatenation, additional control statements pointing to additional DDNAMES must be used to point to each DDNAME that would otherwise be concatenated.

### **JCL for the DCDFETCH software**

The following JCL is used for running this software.

```
//STEP      EXEC   PGM=DCDFETCH,REGION=2048K
//OUTPUT    DD    DSN=&&PASSFILE,DISP=(,PASS),UNIT=SYSDA,
//          SPACE=(CYL,(5,10))
//PRINT     DD    SYSOUT=*
//SYSOUT    DD    SYSOUT=*
//WORKFIL1  DD    UNIT=SYSDA,SPACE=(TRK,(2,4))
//WORKFIL2  DD    UNIT=SYSDA,SPACE=(CYL,(1,3))
//CTLINFO   DD    *
Control statements inserted here
/*
```

Additional DD statements are required that point to Partitioned Data Sets used to get MEMBERS from. The DDNAMES for these DDs are inserted into the control statements the user adds. See examples provided over the next several pages.

A PROC for invoking this JCL is shown on the next page.

### PROC for the DCDFETCH\* software

The following PROC ( DCDFETCH ) is available on the file CDCD.CNTL provided by our install files.

```
//DCDFETCH  PROC  PRINT='*',WORK=SYSDA
//PDS       EXEC  PGM=DCDFETCH,REGION=2048K
//OUTPUT    DD   DSN=&&PASSFILE,DISP=(,PASS),UNIT=&WORK,
//          SPACE=(CYL,(5,10))
//PRINT     DD   SYSOUT=&PRINT
//SYSOUT    DD   SYSOUT=&PRINT
//WORKFIL1  DD   UNIT=&WORK,SPACE=(TRK,(2,4))
//WORKFIL2  DD   UNIT=&WORK,SPACE=(CYL,(1,3))
```

The PDS Member Fetcher PROC DCDFETCH is available for pulling one or several members from a partitioned data set (PDS) and creating one sequential data set. This data set may be used as input to the DCDCOBOL PROC. (This PROC is also embedded as one step in the DCDJCL PROC which is covered in the section on JCL PROC Analysis Reports Facility.)

### Control Statements for Using the DCDFETCH PROC

The DD name for these control statements is CTLINFO. This is different from the DD name used with the MBRFETCH program.

As with the MBRFETCH program, control statements are used to indicate which members are to be selected. The first these control statements is shown below. The second format, sometimes used for adding a PREFIX or MEMBER name is discussed where appropriate in the next several pages and examples.

Columns 1 through 3	-The constant ( PDS )
Column 4	- An equal sign ( = )
Columns 5 through <i>a</i>	- The name of a made-up DDNAME
Column <i>a</i> +1	- An equal sign ( = ) with no spaces before or after it.
Columns <i>b</i> through <i>c</i>	- One of the following words: 1. ALL 2. COBOL 3. COBRECS 4. MEMBER 5. PREFIX

The remaining two fields are required if PREFIX was used as the last operand and are optional if COBOL or COBRECS was used as the last operand. They are not permitted if either ALL or MEMBER is used as an operand.

Column <i>c</i> +1	-An equal sign ( = ) with no spaces before or after it.
Columns <i>d</i> through <i>e</i>	-A 1 to 7 characters prefix which will be used to limit selection or an eight-character word ( MULTIPLE ) to indicate that multiple PREFIX control statements will follow this control statement.

\*DCDFETCH is used in place of prior name PDSFETCH as CA Associates uses the PDSFETCH name.

An illustration of the possible combinations is listed below:

1. PDS=ddname=ALL
2. PDS=ddname=COBOL
3. PDS=ddname=COBRECS
4. PDS=ddname=MEMBER
5. PDS=ddname=PREFIX=prefix
6. PDS=ddname=COBOL=prefix
7. PDS=ddname=COBRECS=prefix
8. PDS=ddname=PREFIX=MULTIPLE
9. PDS=ddname=COBOL=MULTIPLE
10. PDS=ddname=COBRECS=MULTIPLE

An example showing the use of these control statements is listed below:

```
//STEP1      EXEC  DCDFETCH
//PDS.OUTPUT DD  DCB=(LRECL=80,BLKSIZE=3120)
//PDS.CTLINFO DD  *
PDS=USERDD=COBOL
//PDS.USERDD  DD  DSN=USER.COBL.LIBRARY,DISP=SHR
```

The above example will pull off all COBOL programs from the library specified by the DD name USERDD and pass them out to a sequential data set defined by the OUTPUT DD.

If members are wanted from more than one PDS library, then multiple DD names may be used. An example is listed below:

```
//STEP2      EXEC  DCDFETCH
//PDS.OUTPUT DD  DCB=(LRECL=80,BLKSIZE=3120)
//PDS.CTLINFO DD  *
PDS=USERDD=COBOL
PDS=OTHERDD=COBOL
//PDS.USERDD  DD  DSN=USER.COBL.LIBRARY1,DISP=SHR
//PDS.OTHERDD DD  DSN=USER.COBL.LIBRARY2,DISP=SHR
```

The use of the following words for selection is described here:

**ALL, COBOL, COBRECS, MEMBER, PREFIX=prefix, COBOL=prefix, COBRECS=prefix, PREFIX=MULTIPLE, COBOL=MULTIPLE, and COBRECS=MULTIPLE**

- |                |   |
|----------------|---|
| <b>ALL</b>     | ALL indicates that all members will be selected from the partitioned data set. This option should not be used here. Instead, the options COBOL or COBRECS should be used. An exception to this rule occurs when using the READPDS option, in which case, ALL should be used and COBOL and COBRECS <u>may not</u> be used. |
| <b>COBOL</b>   | COBOL indicates that all COBOL programs are to be pulled off of the partitioned data set. If non-COBOL programs are found, then they are discarded.   |
| <b>COBRECS</b> | COBRECS indicates that all COPY members which 01 records or record groups are beginning with a level number (02-48) are to be pulled off of the PDS. Those members that do not conform to this selection are bypassed for selection. COBRECS may be used when the LOR option is used.                                     |

- MEMBER** MEMBER indicates that the user wants to make further selection with member name control statements. These control statements immediately follow the control statement which contains the word MEMBER and must begin in column 1 and contain a 1-8 character MEMBER NAME. An example is listed below:
- ```
//STEP3      EXEC  DCDFETCH
//PDS.CTLINFO DD   *
PDS=USERDD=MEMBER
MEMBER1
MEMBER2
MEMB03
MEMBER04
//PDS.USERDD  DD   DSN=USER.PDS,DISP=SHR
```
- PREFIX** PREFIX indicates that selection is to be done strictly on the basis of a 1 to 7 character prefix that follows the (=) sign after the word PREFIX, or that selection is done with multiple prefixes if the characters MULTIPLE follow the (=) sign. It is recommended that this option not be used here and that **COBOL=prefix** or **COBRECS=prefix** be used in its place. Prefix is discussed more below and is shown in some of the COBOL= (prefix or MULTIPLE) examples that follow.

Six ways to use selection via a prefix follow:

- COBOL=prefix** pulls off all COBOL programs from the PDS specified that begins with the same letters that are specified in the prefix. The prefix may not exceed seven characters in length.
- COBRECS=prefix** pulls off all COPY members that have as their first COBOL record, a level number from (01-49) that have a matching prefix. This is used when using PARM option LOR for LAYOUTS. Again prefix may not exceed seven characters in length.
- PREFIX=prefix** pulls off all members that have a matching 1-7 character prefix.
- COBOL=MULTIPLE** requires that one or more control statements follow this control statement and that each control statement begin in column 1 and contain a 1-7 character prefix. Used for pulling off COBOL programs.
- COBRECS=MULTIPLE** requires that one or more control statements follow this control statement and that each control statement begin in column 1 and contain a 1-7 character prefix. Used for pulling off COBOL records.
- PREFIX=MULTIPLE** requires that one or more control statements follow this control statement and that each control statement begin in column 1 and contain a 1-7 character prefix.

An example where selection is done with the use of one prefix follows:

```
//STEP4      EXEC  DCDFETCH
//PDS.OUTPUT DD  DCB=(LRECL=80, BLKSIZE=3120)
//PDS.CTLINFO DD  *
PDS=USERDD=COBOL=M4
//PDS.USERDD  DD  DSN=USER.COBOL.LIBRARY, DISP=SHR
```

In the above example, all COBOL programs whose member name begins with the prefix M4 will be selected for passing on to the next step.

An example where selection is done for multiple prefixes on one PDS follows:

```
//STEP5      EXEC  DCDFETCH
//PDS.OUTPUT DD  DCB=(LRECL=80, BLKSIZE=3120)
//PDS.CTLINFO DD  *
PDS=USERDD=COBOL=MULTIPLE
M4
M5
M6A
M6B
//PDS.USERDD  DD  DSN=USER.COBOL.LIBRARY, DISP=SHR
```

In the above example, all COBOL programs whose member name begins with the prefixes M4, M5, M6A, and M6B will be selected for passing on to the next step.

Further notes on this PDS member fetch software follow:

1. Compressing the PDS if possible before accessing the data set may be helpful.
2. Multiple control statements may be used for any of the above formats.
3. To prevent obtaining duplicate members, do not mix formats in the same run.
4. When using DCDFETCH with the READPDS option, (see the heading 'WRITPDS and READPDS Options' in this section), replace LRECL=80 with LRECL=3120 in the  
//PDS.OUTPUT DD.
5. A listing of Error Message that may be generated from this utility are listed on the next two pages.
6. Look for a return code of Zero if there are no errors. Look for a return code of 0008 if errors are found.



**Error Messages that may be generated from DCDFETCH utility.**

| <u>Message #</u> | <u>Message</u>                                                                        |
|------------------|---------------------------------------------------------------------------------------|
| 040              | Expecting extra control statements for previous PDS=                                  |
| 050              | No Members were found                                                                 |
| 060              | Date is in invalid format                                                             |
| A011             | Expecting extra control statements for just previous PDS=                             |
| A021             | Found blank control statement                                                         |
| A022             | Looking for PDS= in columns 1-5                                                       |
| A023             | Looking for first MEMBER in columns 1-8                                               |
| C011             | DDNAME found has more than 8 CHARS                                                    |
| C012             | User DDNAME not found after PDS=                                                      |
| C013             | DDNAME has invalid Non-Alphanumeric CHAR                                              |
| C014             | Undefined error in previous entry                                                     |
| C021             | Type DDNAME not found after DDNAME=                                                   |
| C022             | Type DDNAME has invalid characters                                                    |
| C023             | Expecting ALL, COBOL, COBRECS, MEMBER or PREFIX                                       |
| C041             | PREFIX not found after XXXX<br>(where XXXX = ( COBOL= ), ( COBRECS= ), or ( PREFIX= ) |
| C042             | Prefix must be 7 characters or less                                                   |
| C043             | Invalid Character found in PREFIX                                                     |
| C050             | More than 20 PDS= records                                                             |
| C060             | Duplicate DDNAME Invalid - BYPASSING                                                  |
| D011             | Unidentified Control Record - BYPASSING                                               |
| D012             | Found more than 100 Member or Prefix records for last PDS=                            |
| D013             | Invalid Character found in previous entry - Previous Entry ignored                    |
| D014             | Previous PREFIX over 7 characters in length and ignored                               |
| D015             | Previous MEMBER over 8 characters in length and ignored                               |
| E011             | ERROR with DDNAME (DDNAME) Error in finding                                           |
| E012             | ERROR - DDNAME (DDNAME) was not found                                                 |
| E013             | ERROR - DDNAME (DDNAME) Error found while validating DDNAME                           |
| E031             | ERROR with internal work file with DDNAME (WORKFIL1)                                  |

|      |                                                                                  |
|------|----------------------------------------------------------------------------------|
| E032 | ERROR - while reading PDS with DDNAME (DDNAME)                                   |
| EA31 | ERROR - Member (Member-Name) not found on DDNAME (DDNAME) for just previous PDS= |
| EA32 | ERROR while opening file specified in DDNAME (DDNAME)                            |
| EA33 | ERROR while accessing file specified in DDNAME (DDNAME)                          |
| EA34 | ERROR - Problem while reading all members from UNCONCATENATED DDNAME (DDNAME)    |
| EB41 | ERROR - Member (Member-Name) not found on DDNAME (DDNAME) for just previous PDS= |
| EB42 | ERROR while opening file specified in DDNAME (DDNAME)                            |
| EB43 | ERROR while accessing file specified by DDNAME (DDNAME)                          |
| EB44 | ERROR - problem while reading all Members from UNCONCATENATED DDNAME (DDNAME)    |
| G011 | ERROR while reading record from DDNAME (DDNAME)                                  |
| G012 | ERROR with LRECL found for PDS for DDNAME (DDNAME) - should be 80 or 3120        |
| G013 | ERROR while reading record in DDNAME (DDNAME)                                    |
| G030 | ERROR - Unexpected Record Length of (nnnnn) - Must be 80 or 3120                 |
| H011 | ERROR while reading from DDNAME (DDNAME)                                         |
| H012 | ERROR with LRECL found for PDS for DDNAME (DDNAME) - Should be 80 or 3120        |
| H013 | ERROR while reading record in DDNAME (DDNAME)                                    |
| H040 | ERROR - Unexpected Record Length of (nnnnn) - Must be 80 or 3120                 |
| I020 | ERROR in logic for M2-NBR-CHARS = 'NNNN'                                         |

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JCL PROC Analysis

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Control/DCD

**JCL PROC Analysis**

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### **Use of This Section**

This section is provided to make the user aware of reports, which are available for JCL analysis.

### **Explanation of JCL PROC Analysis report**

The JCL PROC Analysis Reports produces JCL analysis reports on JCL JOB libraries which contain JOB Statements, and may contain references to PROCs. (Also, including members which contain only PROCs will have no effect on the output report.) See, “Sample Reports”, under this heading for a sample of these reports.

The DCDJCL PROC Analysis Report contains two steps in the JCL used to create this report.

- The first step isolates the wanted JCL members from a partitioned data set. This step executes a DCDFETCH PROC also described in another section of this manual for pulling members off a partitioned data set.
- The second step executes the program to print the JCL PROC Analysis Reports for a JOB library.

This report reports on only two fields, JOBNAME and PROCNAME.

### **Explanation of DDNAME/DSNAME Analysis report**

The DDNAME/DSNAME Analysis Reports produces JCL analysis reports DDNAME and DSNAMES within JOB STEPNAME or PROCNAME on both JCL JOB libraries mentioned above and members which contain only PROCs. See, “Sample Reports”, in this section of manual for a sample of these reports.

The DDNAME/DSNAME Analysis Report also contains two steps in the JCL used to create this report.

- The first step isolates wanted JCL members from a partitioned data set. This step executes a DCDFETCH PROC also described in another section of this manual for pulling members off a partitioned data set.
- The second step executes the program to print the DDNAME/DSNAME Analysis Reports for a JOB library or a PROC library.

This report reports on several fields including DDNAME and DSNAME.

Several Options are available within this report for adjusting SORT sequence, reporting in different sequences, omitting some DDNAMEs, omitting some DSNAMES, and omitting reporting program or proc STEPs where there are no DDNAMEs.

### User Options Available

There are two JCL Analysis Reports:

**The first report is the JOBLIB report** showing only two fields – JOB name and PROC name. The report when run will be listed in two sequences – 1) by JOB name and 2) by PROC name. To run, specify RPTYPE=JOBLIB on the EXEC line. Do not specify other report or J-options when running this report. LNCNT and SORTREG symbolics may be used here.

A sample EXEC line for the JOBLIB report is shown below:

```
//STEP1      EXEC    DCDJCL,RPTYPE=JOBLIB,LNCNT=60
```

**The second report is the PROC or basic JCL report** which shows a breakdown of user JCL for DDNAME, DSN & DISPOSITION along with related program name, proc name, step name and step number. There are three sequences to this report and several other related options.

The three sequences are:

- |             |          |
|-------------|----------|
| 1. DDNAME   | sequence |
| 2. DSNNAME  | sequence |
| 3. Unsorted | sequence |

To produce any of these sequences, enter one of the following symbolics on the EXEC DCDJCL statement:

1. RPTYPE=DDN
2. RPTYPE=DSN
3. RPTYPE=JNOSORT
4. RPTYPE=JCL (for all three reports)

To produce any two of the reports, specify two reports options in the RPTYPE symbolic within single apostrophes as shown in this example:

```
RPTYPE='DDN,JNOSORT'
```

### Other Options

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| JDSNONLY  | When the DSNNAME is missing from a DD and replaced with the use of DATA, DUMMY, SYSOUT=, DDNAME= or *, these fields will be shown as the related DSN. To exclude these DD statements, use the JDSNONLY option within the RPTYPE= symbolic within single apostrophes along with the report options selected. (Note options may be abbreviated to the first three characters).                                                                                            |
| JAPROC    | Without the use of this option or the JBPROGRAM option, the three different reports will have no primary sort ahead of DDNAME, DSNNAME or DDNAMES in their unsorted order within each EXEC. Using this option will sort the JCL report with PROC name as the primary (first) sort field.                                                                                                                                                                                |
| JBPROGRAM | See the JAPROC option. When this option is used, the report will be sorted on program name ahead of DDNAME, DSNNAME or DDNAMES in their unsorted order within each EXEC. If JAPROC is also used with this option, the PROC name for the JAPROC option will be sorted first. The program name for this JBPROGRAM option will be second, followed by DDNAME, or the unsorted DDNAME order.                                                                                |
| JEXEC     | PROC name and PROGRAM will not be shown normally if there are no DDNAMES that follow a PROC or PROGRAM name. Using this JEXEC option will force out the PROC name and/or PROGRAM name even if no DDNAMES are present. Using this option with the DSN or DDN option will cause PROGRAM/PROC records with blank DDNAME and blank DSNNAME to appear at the front of the report or scattered throughout the report depending on the use of the JAPROC and JBPROGRAM option. |

#### Example using additional options

```
//STEP1 EXEC DCDJCL,RPTYPE='DDNAME,DSNNAME,JDSN,JAP,JEX'
```

#### Other options for either report type

The other options that are available are number of lines per page (LNCNT=) and SORT region size (SORTREG=). The default for these are LNCNT=60 and SORTREG=600000.



### Use of Control Statements for Selection of PROCs

The first step in producing a JCL PROC Analysis Report is the selection of JCL members. This is accomplished through the use of a member fetcher PROC which isolates and selects members off of a partitioned data set.

The DD name for these control statements is CTLINFO.

Control statements must be used to indicate which members are to be selected. The format of these control statements is as follows:

|         |                           |   |                                                                 |
|---------|---------------------------|---|-----------------------------------------------------------------|
| Columns | 1 through 3               | - | The constant ( PDS )                                            |
| Column  | 4                         | - | An equal sign ( = )                                             |
| Columns | 5 through <i>a</i>        | - | The name of a made-up DDNAME                                    |
| Column  | <i>a</i> +1               | - | An equal sign ( = ) with no spaces before or after it           |
| Columns | <i>b</i> through <i>c</i> | - | One of the following words:<br>1. ALL<br>2. MEMBER<br>3. PREFIX |

The remaining two fields are required if PREFIX is used as the last operand. Otherwise, they may not be used.

|         |                     |   |                                                                 |
|---------|---------------------|---|-----------------------------------------------------------------|
| Columns | <i>c</i> +1         | - | An equal sign ( = ) with no spaces before it or after it        |
| Columns | <i>d</i> - <i>e</i> | - | A 1 to 7 character prefix which will be used to limit selection |

An illustration of the possible combinations follows:

1. PDS=ddname=ALL
2. PDS=ddname=MEMBER
3. PDS=ddname=PREFIX=prefix

An example showing the use of these control statements follows:

```
//STEP1 EXEC DCDJCL
//PDS.CTLINFO DD *
PDS=USERDD=PREFIX=SP
//PDS.USERDD DD DSN=USER.JCL.LIBRARY,DISP=SHR
```

The above example will pull off all members from the library, specified by the DD name USERDD, which begins with the prefix SP and passes them out to a sequential data set.

It is left up to the user to ensure that all members beginning with the prefix used are definitely JCL members and not something else, (e.g., COBOL programs, COPY members, Assembler programs).

If members are wanted from more than one library, then multiple DDNAMEs may be used. An example follows:

```
//STEP2      EXEC   DCDJCL
//PDS.CTLINFO DD   *
PDS=USERDD=ALL
PDS=OTHERDD=ALL
//PDS.USERDD  DD   DSN=USER.JCL.LIBRARY,DISP=SHR
//PDS.OTHERDD DD   DSN=USER.JCL.LIBRARY2,DISP=SHR
```

The use of the following words for selection is described here:

1.     **ALL**
2.     **MEMBER**
3.     **PREFIX**

1.     **ALL** indicates that all members will be selected from the partitioned data set.
2.     **MEMBER** indicates that the user wants to make further selection with member name control cards. These control statements immediately follow the control statement, which contains the word MEMBER. An example follows:

```
//STEP3      EXEC   DCDJCL
//PDS.CTLINFO DD   *
PDS=USERDD=MEMBER
MEMBER1
MEMBER2
MEMB03
MEMBER04
//PDS.USERDD  DD   DSN=USER.PDS,DISP=SHR
```

3.     **PREFIX** indicates that selection is to be done strictly on the basis of a 1 to 7 character prefix that follows the ( = ) sign after the word PREFIX. An example follows:

```
//STEP4      EXEC   DCDJCL
//PDS.CTLINFO DD   *
PDS=USERDD=PREFIX=TRR
//PDS.USERDD  DD   DSN=USER.JCL.PROC.LIBRARY,DISP=SHR
```

Further notes on the member fetcher:

1. Compressing the PDS before using the data set will eliminate the possibility of pulling in older unwanted members from the PDS.
2. Multiple control statements may be used for any of the above formats.
3. To prevent obtaining duplicate members, do not mix formats in the same run.

### Use of Control Statements for Excluding DDNAMEs

When using the DCDJCL PROC to produce a report on a PROC or other JCL, which contains DD statements, it is possible to exclude DDNAMEs from the report that do not necessarily add to the value of the report. In some cases, just add paper and distract from the value of the report, (e.g., DDNAMEs like SYSOUT, SYSPRINT and SORTLIB).

To invoke this feature, add a DDNAME with the name of EXCLUDE at the end of the JCL and add the DDNAMEs that are to be excluded as shown in the example below:

```
//STEP1 EXEC DCDJCL,RPTYPE=JCL
//PDS.CTLINFO DD *
PDS=JCLDD=ALL
//PDS.JCLDD DD DSN=USER.JCLPROC.LIBRARY,DISP=SHR
//JCLRPT.EXCLUDE DD *
SYSUDUMP
SYSOUT
SYSPRINT
SORTLIB
JOBCAT
STEPCAT
/*
```

## JCL Examples

The following example is provided for producing the JCL PROC Analysis Reports:

### Example 1

```
//STEP1 EXEC DCDJCL,RPTYPE=DDN
//PDS.CTLINFO DD *
PDS=USERDD=MEMBER
JCLPROC1
PROC2
JCLPROC3
PROC4
//PDS.USERDD DD DSN=USER.JCL.LIBRARY,DISP=SHR
/*
```

The above example produces the JCL PROC Analysis Report in DDNAME sequence for the four PROCs listed above.

### Example 2

```
//STEP2 EXEC DCDJCL,RPTYPE=JCL
//PDS.CTLINFO DD *
PDS=ALPHA=PREFIX=TR
PDS=ALPHA=PREFIX=PR
//PDS.ALPHA DD DSN=USER.JCL2.LIBRARY,DISP=SHR
//JCLRPT.EXCLUDE DD *
SYSOUT
SYSPRINT
/*
```

The above example produces the JCL PROC Analysis Report in both DDNAME and DSNAME sequence for all PROCs that begin with the prefix TR or PR on the library USER.JCL2.LIBRARY. It will omit the DDNAMEs, SYSOUT and SYSPRINT from that report.

**DCDJCL PROC**

The following is a listing of the DCDJCL PROC:

```
//DCDJCL PROC BUF=5,          ALLOW 5 BUFFERS FOR MVS
//          LINECNT=60,       NBR OF LINES PER PAGE
//          OTHER=,
//          PRINT='*',
//          REG=2048K,
//          RPTYPE=JCL,       (JCL) GIVES THE REPORT IN BOTH SEQUENCES
//          SORTREG=600000,
//          WORK=SYSDA
// *
// * MARBLE COMPUTER, INC.    DCDJCL PROC FOR PROC ANALYSIS REPORTS
// *                               REL 2.2      LM080117
//PDS          EXEC  PGM=DCDFETCH,REGION=2048K
// *
// * INSERT STEPLIB IF NECESSARY
// *
// * * * * * DD DSN=SYS1.CEE.SCEERUN,DISP=SHR
//OUTPUT      DD DSN=&&PASSFILE,DISP=(,PASS),UNIT=&WORK,
//          SPACE=(CYL,(5,10))
//PRINT       DD SYSOUT=&PRINT
//SYSOUT      DD SYSOUT=&PRINT
//WORKFIL1    DD UNIT=&WORK,SPACE=(TRK,(1,2))
//WORKFIL2    DD UNIT=&WORK,SPACE=(CYL,(1,2))
// *
//JCLRPT      EXEC  PGM=DCDJCL,REGION=&REG,COND=(4,LT,PDS),
//          PARM=('LNC=&LINECNT','SOR=&SORTREG',&RPTYPE,,&OTHER)
// *
// * INSERT STEPLIB IF NECESSARY
// *
//PRINT       DD SYSOUT=&PRINT,DCB=BLKSIZE=133
//PRTMSG      DD SYSOUT=&PRINT,DCB=BLKSIZE=133
//RPTFILE     DD SYSOUT=&PRINT,DCB=BLKSIZE=133
//SYSOUT      DD SYSOUT=&PRINT,DCB=BLKSIZE=121
//SYSUDUMP    DD SYSOUT=&PRINT,DCB=BLKSIZE=133
//SORTMESS    DD DUMMY,DCB=BLKSIZE=121
//SORTLIB     DD DSN=SYS1.SORTLIB,DISP=SHR
//SORTWK01    DD UNIT=&WORK,SPACE=(TRK,(400),,CONTIG)
//SORTWK02    DD UNIT=&WORK,SPACE=(TRK,(400),,CONTIG)
//SORTWK03    DD UNIT=&WORK,SPACE=(TRK,(400),,CONTIG)
//PROCFILE    DD DSN=&&PASSFILE,DISP=(OLD,DELETE),DCB=BUFNO=&BUF
//WKFILE      DD DISP=(,DELETE),UNIT=&WORK,SPACE=(3240,(200,120)),
//          DCB=(LRECL=108,BLKSIZE=3240,RECFM=FB,BUFNO=&BUF)
//SYSIN       DD DDNAME=EXCLUDE
// *
//CONTROL     DD DSN=USER.PDS(DCDCNTRL),DISP=SHR
```

### Sample Reports

DATA SET ANALYSIS \*\* 01/01/2001 \*\*\*\*\* PAGE 1  
 DSNNAME\*\*\*\*\*PROGRAM\* PROC\*\* STEP-NBR STEP-NAME DDNAME\*\* DISPOSITION

|                 |          |        |   |          |          |            |
|-----------------|----------|--------|---|----------|----------|------------|
|                 | DCDJCL   | DCDJCL | 2 | DCDRPT   | WKFILE   | NEW DELETE |
| &&COMPLIST      | DCDMAIN  | COMACL | 1 | DCD      | INFILE   | OLD PASS   |
|                 | GIVEBACK | COMACL | 2 | RETCMPLR | INFILE   | OLD DELETE |
| &&PASSFILE      | DCDJCL   | DCDJCL | 2 | JCLRPT   | PROFILE  | OLD DELETE |
|                 | MBRFETCH | DCDJCL | 1 | MBR      | OUTSET   | MOD PASS   |
| &&TEMP          | DCDMAIN  | LIBACL | 2 | DCD      | COBOLIN  | OLD DELETE |
|                 |          | PANACL | 2 | DCD      | COBOLIN  | OLD DELETE |
|                 | LIBRARAN | LIBACL | 1 | LIB      | OSJOB    | NEW PASS   |
|                 | PAN#1    | PANACL | 1 | PAN      | PAN002   | NEW PASS   |
| DDNAME          | DCDJCL   | DCDJCL | 2 | JCLRPT   | SYSIN    |            |
| DUMMY           | DCDJCL   | DCDJCL | 2 | JCLRPT   | SORTMESS |            |
| LIBRARAN.SOURCE | LIBRARAN | LIBACL | 1 | LIB      | MASTER   | SHR        |
| PANVALET.SOURCE | PAN#1    | PANACL | 1 | PAN      | PAN001   | SHR        |
| SYSOUT          | DCDJCL   | DCDJCL | 2 | JCLRPT   | PRINT    |            |
|                 |          |        | 2 | JCLRPT   | PRTMSG   |            |
|                 |          |        | 2 | JCLRPT   | RPTFILE  |            |
|                 |          |        | 2 | JCLRPT   | SYSOUT   |            |
|                 |          |        | 2 | JCLRPT   | SYSUDUMP |            |
|                 |          |        | 1 | DCD      | PRINT    |            |
|                 |          |        | 1 | DCD      | PRTCMPLR |            |
|                 |          |        | 1 | DCD      | SORTMESS |            |
|                 |          |        | 1 | DCD      | SYSOUT   |            |
|                 |          |        | 2 | DCD      | SYSOUT   |            |
|                 | DCDMAIN  | COMACL | 1 | DCD      | PRINT    |            |
|                 |          |        | 1 | DCD      | PRTCMPLR |            |
|                 |          |        | 1 | DCD      | SORTMESS |            |
|                 |          |        | 1 | DCD      | SYSOUT   |            |
|                 |          |        | 2 | DCD      | SYSOUT   |            |
|                 |          |        | 1 | DCD      | PRINT    |            |
|                 |          |        | 1 | DCD      | SORTMESS |            |
|                 |          |        | 1 | DCD      | SYSOUT   |            |
|                 |          |        | 1 | DCD      | SYSOUT   |            |
|                 |          |        | 2 | DCD      | PRINT    |            |
|                 | DCDCOBOL | LIBACL | 1 | DCD      | SYSOUT   |            |
|                 |          |        | 2 | DCD      | PRINT    |            |
|                 |          |        | 2 | DCD      | SORTMESS |            |
|                 |          |        | 2 | DCD      | SYSOUT   |            |
|                 | PANACL   |        | 2 | DCD      | SYSOUT   |            |
|                 |          |        | 2 | DCD      | PRINT    |            |
|                 |          |        | 2 | DCD      | SORTMESS |            |
|                 |          |        | 2 | DCD      | SYSOUT   |            |

### JCL PROC Analysis Report - DSN Sequence

## Control/DCD - JCL PROC Analysis

DATA SET ANALYSIS \*\*\* \*01/01/2001\*\*\*\*\*PAGE 1  
 DDNAME\* PROGRAM PROC \*\*\*\*\* STEP-NBR STEP-NAME DSNAME\*\*\*\*\* DISPOSITION

|          |          |          |   |          |                    |            |
|----------|----------|----------|---|----------|--------------------|------------|
| COBOLIN  | DCDMAIN  | LIBACL   | 2 | DCD      | &&TEMP             | OLD DELETE |
|          |          | PANACL   | 2 | DCD      | &&TEMP             | OLD DELETE |
| CONTROL  | DCDJCL   | DCDJCL   | 2 | JCLRPT   | USER.PDS(DCDCNTRL) | SHR        |
|          |          | PANACL   | 2 | JCLRPT   | USER.PDS(DCDCNTRL) | SHR        |
|          | DCDMAIN  | COMACL   | 1 | DCD      | USER.PDS(DCDCNTRL) | SHR        |
|          |          | DCDACL   | 1 | DCD      | USER.PDS(DCDCNTRL) | SHR        |
|          |          | LIBACL   | 2 | DCD      | USER.PDS(DCDCNTRL) | SHR        |
|          |          | PANACL   | 2 | DCD      | USER.PDS(DCDCNTRL) | SHR        |
|          | DCDSYSTM | DCDCOBOL | 1 | DCD      | USER.PDS(DCDCNTRL) | SHR        |
| INFILE   | DCDMAIN  | COMACL   | 1 | DCD      | &&COMPLIST         | OLD PASS   |
|          | GIVEBACK | COMACL   | 2 | RETCMPLR | &&COMPLIST         | OLD DELETE |
| LIST     | LIBRARAN | LIBACL   | 1 | LIB      | SYSOUT             |            |
| MASTER   | LIBRARAN | LIBACL   | 1 | LIB      | LIBRARAN.SOURCE    | SHR        |
| OSJOB    | LIBRARAN | LIBACL   | 1 | LIB      | &&TEMP             | NEW PASS   |
| OUTSET   | MBRFETCH | DCDJCL   | 1 | MBR      | &&PASSFILE         | MOD PASS   |
| PAN001   | PAN#1    | PANACL   | 1 | PAN      | PANVALET.SOURCE    | SHR        |
| PAN002   | PAN#1    | PANACL   | 1 | PAN      | &&TEMP             | NEW PASS   |
| PRINT    | DCDJCL   | DCDJCL   | 2 | JCLRPT   | SYSOUT             |            |
|          | DCDMAIN  | COMACL   | 1 | DCD      | SYSOUT             |            |
|          |          | DCDACL   | 1 | DCD      | SYSOUT             |            |
|          |          | LIBACL   | 2 | DCD      | SYSOUT             |            |
|          |          | PANACL   | 2 | DCD      | SYSOUT             |            |
|          | DCDSYSTM | DCDCOBOL | 1 | DCD      | SYSOUT             |            |
| PROFILE  | DCDJCL   | DCDJCL   | 2 | JCLRPT   | &&PASSFILE         | OLD DELETE |
| PRTCMPLR | DCDMAIN  | COMACL   | 1 | DCD      | SYSOUT             |            |
| PRTFILE  | GIVEBACK | COMACL   | 2 | RETCMPLR | SYSOUT             |            |
| PRTMSG   | DCDJCL   | DCDJCL   | 2 | JCLRPT   | SYSOUT             |            |
| REPORTS  | DCDSYSTM | DCDCOBOL | 1 | DCD      | SYSOUT             |            |

### JCL PROC Analysis Report - DDNAME Sequence



## Control/DCD – JCL PROC Analysis

---

| JCL DATA | SET ANALYSIS     | 01/01/2001 | INPUT     | SEQUENCE           | (NO SORTING) | PAGE 1      |
|----------|------------------|------------|-----------|--------------------|--------------|-------------|
| DDNAME** | PROGRAM* PROC*** | STEP-NBR   | STEP-NAME | DSNAME*****        | *****        | DISPOSITION |
| CONTROL  | DCDMAIN DCDACL   | 1          | DCD       | USER.PDS(DCDCNTRL) |              | SHR         |
| PRINT    |                  | 1          |           | SYSOUT             |              |             |
| SORTLIB  |                  | 1          |           | SYS1.SORTLIB       |              | SHR         |
| SORTMESS |                  | 1          |           | SYSOUT             |              |             |
| SYSOUT   |                  | 1          |           | SYOUT              |              |             |
| SYSPRINT | LIBRARAN LIBACL  | 1          | LIB       | SYSOUT             |              |             |
| LIST     |                  | 1          |           | SYSOUT             |              |             |
| MASTER   |                  | 1          |           | LIBRARAN.SOURCE    |              | SHR         |
| OSJOB    |                  | 1          |           | &&TEMP             |              | NEW PASS    |
| COBOLIN  | DCDMAIN          | 2          | DCD       | && TEMP            |              | OLD DELETE  |
| CONTROL  |                  | 2          |           | USERPDS(DCDCNTRL)  |              | SHR         |
| PRINT    |                  | 2          |           | SYSOUT             |              |             |
| SORTLIB  |                  | 2          |           | SYS1.SORTLIB       |              | SHR         |
| SORTMESS |                  | 2          |           | SYSOUT             |              |             |
| SYSOUT   |                  | 2          |           | SYSOUT             |              |             |
| SYSPRINT | MBRFETCH DCDJCL  | 1          | MBR       | SYSOUT             |              |             |
| OUTSET   |                  | 1          |           | &&PASSFILE         |              | MOD PASS    |
| PRINT    | DCDJCL           | 2          | JCLRPT    | SYSOUT             |              |             |
| PRTMSG   |                  | 2          |           | SYSOUT             |              |             |
| RPTFILE  |                  | 2          |           | SYSOUT             |              |             |
| SYSOUT   |                  | 2          |           | SYSOUT             |              |             |
| SYSUDUMP |                  | 2          |           | SYSOUT             |              |             |
| SYSOUT   |                  | 2          |           | SYSOUT             |              |             |
| SORTMESS |                  | 2          |           | DUMMY              |              |             |
| SORTLIB  |                  | 2          |           | SYS1.SORTLIB       |              | SHR         |
| PROCFE   |                  | 2          |           | &&PASSFILE         |              | OLD DELETE  |
| WKFILE   |                  | 2          |           |                    |              | NEW DELETE  |
| SYSIN    |                  | 2          |           | DDNAME=EXCLUDE     |              |             |
| CONTROL  |                  | 2          |           | USER.PDS(DCDCNTRL) |              | SHR         |

### JCL PROC Analysis Report - Unsorted Sequence

| JCL JOBLIB<br>JOBNAME | ANALYSIS<br>PROCNAME                                                                | 01/01/2001 | IN JOB NAME SEQUENCE | PAGE 1 |
|-----------------------|-------------------------------------------------------------------------------------|------------|----------------------|--------|
| DCD115D               | >-----<<br>COPYPROC<br>DVN2PROC<br>PROC003                                          |            |                      |        |
| DCD116D               | >-----<<br>DTNUPR2                                                                  |            |                      |        |
| DCD116NA              | >-----<<br>DTNPRC60<br>DTNUPR2                                                      |            |                      |        |
| DCD117D               | >-----<<br>DSN1PR1<br>DSN2PR1<br>DSN3PR6<br>DSN4PR6<br>PROC01<br>PROC02<br>TRAC03NA |            |                      |        |
| DCD118L               | >-----<<br>TRUN02A<br>TRUN03<br>YTOKENS                                             |            |                      |        |

**Job Library Report - JOB NAME Sequence**

Release 2.3

Control/DCD

SPF (System Productivity Facility) PANELS

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MARBLE Computer, Inc. provides an on-line ISPF panel interface for our Control/DCD software. To make use of these panels, a client must have Version 2 or later of the ISPF Dialog Manager and have ISPF/PDF installed.

The ISPF Panel have been completely redone for Control/DCD. It is expected that most all use of Control/DCD will be done through these ISPF panels, unlike previous versions of DCD where some parts of DCD were routinely run outside of ISPF.

### BENEFITS

#### **FUNCTIONALITY**

Typically, individual users do not have a Control/DCD user's manual which causes many features of DCD to be unused or unnoticed. With the interactive SPF panels, the user will be drawn to understand full DCD functionality. This is due to our IBM/OS Control/DCD user's manual being placed on either HELP or SELECTION panels to guide users right to the function he/she wants to know about. The manual is available for when the user needs further explanation of an advanced feature and the ISPF panels do not fully explain to the user everything to their satisfaction.

The SPF Panels work for all features of Control/DCD. When using mainframe editing of the COBOL program, under Section 1 or the ISOLATE feature in Section 2, ISPF panels are required.

#### **USER-FRIENDLY INTERFACE**

Selection panels will be designed to make the user aware of every feature of Control/DCD in a friendly way, while the printed manual is still available as a reference guide.

#### **ALLEVIATION OF JOB CONTROL LANGUAGE MODIFICATIONS**

The user is not required to know OS JCL as all JCL will be built and submitted automatically as a batch job from the ISPF panels. Therefore, there is no need to modify JCL job streams.

#### **INTERACTIVE ERROR DETECTION**

As errors are detected on-line, error messages will be displayed describing what action needs to be performed on the user's behalf. This will speed up the job submission process by both reducing JCL errors and reducing wasted CPU time due to running jobs that do not produce the anticipated results.

#### **SAVES TIME**

On new tasks, the users time will be saved by 50% - 75% thus eliminating the need to understand all the options and JCL that are required to achieve desired output reports produced by Control/DCD. With this timesaving, the user can perform project related tasks instead of spending large amounts of time understanding the parameters and JCL that drive DCD.

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### Use of this Section

This section is designed to give **only** a partial overview of how the ISPF panels are used. Full coverage is not attempted here. There are more than **90 main** panels to help the user complete options for submitting JOBS and more than **135 HELP** panels to support these main panels. These panels are assisted with more than **65 individual programs** to help insure error free submission of Control/DCD jobs.

In addition to error free submission of jobs, features that are generally hidden unless one has carefully and thoroughly read the entire Control/DCD manual are made available as a user selects one or more features or options.

Selected panels for completing user requests and some associated HELP panels from the Analysis on Multiple COBOL Programs facility are shown in this section.

#### Panel Exhibits

|                                                                     |      |
|---------------------------------------------------------------------|------|
| Main Selection Panel . . . . .                                      | F-6  |
| Build Editable COBOL Program Panel . . . . .                        | F-6  |
| Isolate Just COBOL Program Panel . . . . .                          | F-7  |
| Analysis on Multiple COBOL Programs . . . . .                       | F-7  |
| Report Panel for Analysis of Multiple COBOL Programs . . . . .      | F-8  |
| Type Input Panel for Analysis of Multiple COBOL Programs . . . . .  | F-8  |
| Main Panel for Abend Analysis for Data Field Errors . . . . .       | F-9  |
| Choose type Abend Analysis (Before or After ERROR Occurs) . . . . . | F-9  |
| Main Panel for Verify JCL Accuracy . . . . .                        | F-10 |
| Panel for DDNAME/DSNAME Report . . . . .                            | F-10 |

#### HELP Panel Exhibits

|                                                                          |      |
|--------------------------------------------------------------------------|------|
| Help Main Table of Contents . . . . .                                    | F-11 |
| Help for Analyze a COBOL Program with Commentary . . . . .               | F-11 |
| Help showing FIND &data-name example . . . . .                           | F-12 |
| Help Table of Contents for Analysis of Multiple COBOL Programs . . . . . | F-12 |
| Help Sample Output on Abend Analysis for SELECT IF Selection . . . . .   | F-13 |
| Help Sample Output on Abend Analysis for Data Field Selection . . . . .  | F-13 |

## Selected Panel Exhibits

### Main Selection Panel

Control/DCD            The Ultimate COBOL Program and Application Analysis Tool

Option ==> 1            Enter 1-6, H or use F3 to exit)

- 1 Build a Digital Documentation Manual
- 2 Build COBOL Program with F &operand Analysis for ISPF editing
- 3 Save COBOL Program without F &operand Analysis after ISPF editing
- 4 Analyze a Cobol Application
- 5 Abend Analysis for Data Field Errors
- 6 Verify JCL Accuracy within an Application
- H HELP

Control/DCD Release x.x

### Build Editable COBOL Program Panel

COBOL Program ==> PAYROL2M      Press Enter with S to submit; F3 to Exit

COBOL PDS ==> Userid.UserLib.COBOL

EDITFILE PDS ==> Userid.UserLib.EDITFILE

==> S      Enter 1-6 to make changes before submitting; Use S to submit

- 1 - Modify Analysis Selection
- 2 - Change COPYLIBs for resolving COPY Members
- 3 - Modify PARM Options, COBOL Version, or Report Selection
- 4 - Modify File Name for EDITFILE, SUMMARY or BCKUPCOB
- 5 - Edit SPACE= or BUFFER= in JCL
- 6 - Edit JOB Statement
- 
- S - Submit JOB

|                                    | ISPF Library          |
|------------------------------------|-----------------------|
| Sample Edit Entry Panel    - - - > | Project . . . Userid  |
| to use after JOB finishes          | Group . . . . UserLib |
|                                    | Type . . . . EDITFILE |
|                                    | Member . . . PAYROL2M |



### Isolate **Just COBOL** Program Panel

ISOLATE just COBOL Program from EDITFILE & STORE in MAIN COBOL PDS

COBOL Program ==> PAYRM32A      Press Enter to submit or F3 to Exit+

FROM:    EDITFILE PDS ==> USERID.USER.EDITFILE

TO: MAIN COBOL PDS ==> USERID.USER.COBOL

### Analysis on Multiple COBOL Programs – **Main Panel**

#### ANALYSIS ON MULTIPLE COBOL PROGRAMS

==> 1    Enter 1-6 to make changes before submitting; Use S to submit

- 1 - REPORTs & Using scanned files from previous runs
- 2 - Specify COBOL Input
- 3 - Specify COPYLIBs for resolving COPY Members
- 4 - Modify PARM Options or COBOL Version
- 5 - Edit SPACE= or BUFFER= in JCL
- 6 - Edit JOB Statement
  
- S - Submit JOB

**Report Panel** for Analysis on Multiple COBOL Programs**Analysis on Multiple COBOL Programs - REPORTS**

Selection by reports                      Enter Y or N

|                   |   |   |                                                                 |   |   |
|-------------------|---|---|-----------------------------------------------------------------|---|---|
| 1. 01 Records     | - | N | 8. Literal & Trace                                              | - | N |
| 2. CALL Analysis  | - | N | 9. Paragraph                                                    | - | N |
| 3. CALL Hierarchy | - | N | 10. Special Registers                                           | - | N |
| 4. COPY Analysis  | - | Y | 11. System Record Analysis                                      | - | N |
| 5. DATA Analysis  | - | N | 12. Verb Analysis                                               | - | N |
| 6. Fig. Constants | - | N | 13. CALL Parameter Analysis                                     | - | N |
| 7. LAYOUTs        | - | N | (Verify PARAMETER field sizes & order in CALLs across programs) |   |   |

WRITE (save) information for later reading - (Enter Y or N)  
Write to condensed files - N  
READ from saved information for reporting - (Enter Y or N)  
Read from condensed files - N

**Type Input Panel** for Analysis on Multiple COBOL Programs

Specify type input for this job

TYPE ==&gt; C

(Enter C, E, L, M, P, or S to indicate type input)  
C - Select from Partitioned Data Set(s)  
E - Select from Librarian using -EXTRACT  
L - Select from Librarian using -SEL  
M - Use Member Fetcher utility to select multiple programs from 1 or more Partitioned Data Set(s)  
P - Select from Panvalet  
S - Select from Sequential File

COBOL programs (or COPY members if LOR option is used for LAYOUT records) will be taken from the type input specified

## Main Panel for **Abend Analysis** for Data Field Errors

### Abend Analysis for Data Field Errors

COBOL Program ==> PAYROL2M      Enter Program Name

COBOL PDS ==> USERID.USER.COBOL  
Do not use Quotes in PDS name

==> S    Enter 1-5 to make changes; Use an S to submit; or F3 to exit

- 1 - Specify SELECT IF or Data Field
- 2 - Change COPYLIBs for resolving COPY Members
- 3 - Modify PARM Options, or COBOL Version
- 4 - Edit SPACE= or BUFFER= in JCL
- 5 - Edit JOB Statement

S - Submit JOB

Choose type Abend Analysis - (**Before** or **After** ERROR Occurs)

### Abend Analysis for Data Field Errors

Type ==> 1    (Enter 1 or 2)

- 1 - SELECT IF    (Use BEFORE error identified)
- 2 - DATA-NAME   (Use AFTER error identified)

|                    |                    |           |                  |
|--------------------|--------------------|-----------|------------------|
| SELECT IF example: | SELECT             | IF PREFIX | = INV-2 OR INV-M |
|                    | AND                | CLASS     | = NUMERIC        |
| Use F1 for HELP in | AND                | USAGE     | = D OR C3        |
| building SELECT IF | AND FIELD-SIZE     | < 10      |                  |
|                    | AND DECIMAL-DIGITS | = 0       |                  |

SELECT IF    brings in selected names with REDEFINES and GROUP fields along with their COBOL P-D Narrative. Arrows point to those PROCEDURE DIVISION statements where errors might be present.

DATA NAME    does full tracing through program on any field that can be accessed by this field along with REDEFINES and associated PROCEDURE DIVISION Narrative.

## Main Panel for **Verify JCL Accuracy**

Verify JCL Analysis within an Application

===> D    Enter D or P to specify type Reporting

        D - Produce DDNAME/DSNAME report

        P - Produce PROC Name report

## Panel for **DDNAME/DSNAME** report

        Produce DDNAME/DSNAME report

===> S    Enter 1-7 to do modification prior to submitting, or S to Submit

        1    Choose Reports and Establish SORT Sequence

        2    Specify Input

        3    Exclude DDs with (DATA, DUMMY, SYSOUT=, DDNAME= or \*)

        4    Exclude by specific DDNAMEs

        5    Show report line with PROC/PROG when there are no DDs present

        6    Modify Line Count or SORTREG

        7    Modify JOB Statement

        S    Submit JOB

## HELP Panel Exhibits

### HELP Main Table of Contents

#### HELP Table of Contents for Control/DCD

Option ==> 1            Enter 1 to 5

- 1 Analyze a COBOL Program with Commentary using Control/SE
- 2 Save a COBOL Program without Commentary after Modifying
- 3 Analyze a Cobol Application
- 4 Abend Analysis for Data Field Errors
- 5 Verify JCL Analysis within an Application

### HELP for Analyze a COBOL Program with Commentary

#### Analyze a COBOL Program with Commentary - HELP

Option ==> 3            Enter 1 to 8

- 1 Analyzing a COBOL Program with Commentary - Description
- 2 Types of ( FIND &Operand ) available
- 3 Examples of ( F &Operand ) use
- 4 How to Edit a program making using the added Commentary
- 5 How to build a COBOL Program with the added Commentary
- 6 Use of EDITFILE SUMMARY and BCKUPCOB Partitioned Data Sets
- 7 Saving the COBOL program without Commentary after editing is done
- 8 What is and how to use the Alternate Compile Listing

## HELP showing **FIND &data-name** example

### Data Name Analysis

```
EDIT          USERID.CSEPDS(MPA01425)
Command ==> F &MAST-LAST-NAME
               brings in commentary like:
(0247)  &MAST-LAST-NAME
        In 32-51 of 01 MAST-RECORD
        In FILE SECTION
               PIC X(20)
C-HANDLE-MAST-REC
        MOVE MAST-LAST-NAME TO TRANS-LAST-NAME (367)
L-PUT-OUT-SELECTED-MAST-RECS
        IF MAST-LAST-NAME NOT = SPACES (742)
        MOVE SPACES TO MAST-LAST-NAME (766)
```

Examples on FIND &Operand are shown later in the HELP panels include:  
CALL, COPY, CODE-NOT-USED, ERRORS, FORWARD-TRACING, HELP, INDEX,  
OPEN, PERFORM-ANALYSIS, PERFORMED-ROUTINES, SQL & Copy-Member-Name.

## HELP Table of Contents for Analysis of Multiple COBOL Programs

### "Analysis on Multiple COBOL Programs" HELP

SELECTION ==> 4

- 1 - 01 record report
- 2 - CALL Analysis Report
- 3 - CALL Hierarchy report
- 4 - CALL Parameter Analysis (Verify Parameter Size & Order)
- 5 - COPY Analysis Report
- 6 - DATA Name cross reference
- 7 - Figurative Constant report
- 8 - LAYOUTs
- 9 - Literal reports
- 10 - Paragraph reports
- 11 - Special Register report
- 12 - System Record Analysis (Field or record use through many programs)
- 13 - Verb Analysis report
- 14 - WRIPPDS to condensed files (Save info for later reporting)
- 15 - READPDS from condensed files (Retrieve Saved info on many programs)
- 16 - Other HELP information for "Analysis on Multiple COBOL Programs"

HELP Sample Output on Abend Analysis for **SELECT IF** Selection

Sample REPORT generated by SELECT IF

MM/DD/YYYY ABEND ANALYSIS SELECT STATEMENTS PAGE 1

# 1 SELECT IF FIELD-SIZE < 10  
AND CLASS = N

| Page 1  | ABEND ANALYSIS REPORT |       |                |                                                 | MM/DD/YYYY |
|---------|-----------------------|-------|----------------|-------------------------------------------------|------------|
| Program | Seq#                  | Level | Data-Name      | Referenced Narrative                            | Section    |
| ANAR    | 0145                  | 10    | EN-PRINT-HOURS | PIC 99                                          | WORK-ST    |
|         |                       |       |                | resides in pos 17 - 18 in record EN-TIME-OF-DAY |            |
|         |                       |       |                | Move EN-TIME-HOURS @137 to # (1359)             |            |
| overlap | 0134                  | 01    | EN-ADJUST-TIME |                                                 | WORK-ST    |
|         |                       |       |                | uses field positions 1 - 21                     |            |
| overlap | 0144                  | 05    | EN-TIME-OF-DAY |                                                 | WORK-ST    |
|         |                       |       |                | uses field positions 17 - 21                    |            |
|         |                       |       |                | *-----> Move # to EN-HDG-1-TIME @154 (1361)     |            |

Arrows \*-----&gt; point to suggested lines to look at for Possible Errors

HELP Sample Output on Abend Analysis for **Data Field** Selection

| Page 1                                 | Abend Analysis for Data Field Errors |       |                          |                                          | MM/DD/YYYY |
|----------------------------------------|--------------------------------------|-------|--------------------------|------------------------------------------|------------|
| Program                                | Seq#                                 | Level | Data-Name                | Directly Referenced Narrative            | Section    |
| NR30PGM1                               | 0248                                 | 15    | CW-DATE-2-YEAR-FORMAT    | PIC X                                    | WORK-ST    |
|                                        |                                      |       |                          | resides in pos 2-2 in record CW-RECORD   |            |
|                                        |                                      |       |                          | If # = SPACES (1128,1278)                |            |
|                                        |                                      |       |                          | If # not = 'R' (1310)                    |            |
|                                        |                                      |       |                          | Move # to RN-DATES-N2-IN @367 (1287),    |            |
|                                        |                                      |       |                          | RN-DATES-N2-P3 @368 (1196,1223)          |            |
| overlap                                | 0244                                 | 01    | CW-RECORD                |                                          | WORK-ST    |
|                                        |                                      |       |                          | uses field pos 1-80                      |            |
|                                        |                                      |       |                          | If # not = SPACES (792)                  |            |
|                                        |                                      |       |                          | Move HIGH-VALUES to # (985,1380), SPACES |            |
|                                        |                                      |       |                          | (832,889,901,967,1481,1503)              |            |
| overlap                                | 0245                                 | 05    | CW-MASTER-RECORD-1ST-OCC |                                          | WORK-ST    |
|                                        |                                      |       |                          | uses field pos 1-72                      |            |
|                                        |                                      |       |                          | If # not = SPACES (1451,1489)            |            |
| see RN-DATES-N2-IN traced on next page |                                      |       |                          | (Continued) ...                          |            |

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Release 2.3

# Control/DCD

## Error Messages

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## Error Messages

Each error message has a 10-character alphanumeric code associated with it in the following format:

Positions 1 - 3 - CSE or DCD  
Position 4 - character indicating the sub-system the message comes from  
Position 5 - character indicating a program within specified sub-system  
Position 6 - 8 - 3 characters indicating the location within the program of the message  
Position 9 - hyphen (-)  
Position 10 - one of the following letters: I, W, C, E, or D where:

- I** indicate an informational message that requires no action from the user.
- W** indicates a warning, which the user should look at, then correct if necessary.
- C** indicates an error was found and it should be looked at and if possible, corrected.
- E** indicates an error was found and it should be looked at and corrected.
- D** indicates an error was found that is causing DCD to stop processing prior to normal end of job. This error must be corrected before DCD will successfully run.

Error messages when they are present will print on the PRINT DD file starting on the second or third page.

If the PRINT DD is somehow omitted, then the following messages will occur on the SYSOUT file:

```
***** DDNAME (PRINT) MISSING
***** DDNAME (PRINT) MISSING
```

## Control/DCD – Error Messages

DCD messages are listed on the following pages in alphanumeric sequence of the 10-character codes associated with each error message, with numbers sorting ahead of letters.

|            |            |            |            |
|------------|------------|------------|------------|
| CSEA4022-D | CSEM4030-D | CSENB060-D | DCDGJA02-D |
| CSECC005-E | CSEM5050-D | CSEND040-D | DCDGJC01-E |
| CSECCC02-E | CSEM5A02-D | CSENF020-D | DCDGJD01-E |
| CSECCG03-E | CSEM5B12-E | CSENH050-D | DCDGJF02-D |
| CSEEA030-D | CSEM6C02-D | CSENHA13-E | DCDGJH07-E |
| CSEEAC04-E | CSEM6C07-D | CSENH12-E  | DCDGJH17-E |
| CSEEA01-E  | CSEM6AB3-E | CSENHK01-D | DCDGKA02-D |
| CSEEB030-D | CSEM6AD1-E | CSENL004-D | DCDGKC01-E |
| CSEEFB91-E | CSEM6AA2-E | CSEP2030-D | DCDGKD01-E |
| CSEEFH00-E | CSEM6BD1-E | CSEPB050-D | DCDGP040-D |
| CSEEFH21-E | CSEM6DD1-E | CSEPEY70-D | DCDGQA02-D |
| CSEESDDA-D | CSEM6EA1-E | CSEPEY80-D | DCDGR020-D |
| CSEESDDE-D | CSEM6M85-E | CSEPNU20-D | DCDGXCD1-E |
| CSEESDDK-E | CSEM6M86-E | CSEPNU21-D | DCDGXCDF-D |
| CSEESYLB-E | CSEM6M95-E | CSETBM85-E | DCDCXCDQ-D |
| CSEG8030-D | CSEM6Wxx-D | CSETBM86-E | DCDGXDAA-D |
| CSEGBA02-D | CSEM7A02-D | CSETBM95-E | DCDGS010-D |
| CSEGBA10-E | CSEM7B04-D | CSETDM85-E | DCDGS030-D |
| CSEGBB03-D | CSEM7C02-D | CSETDM86-E | DCDGSE04-E |
| CSEGBB11-E | CSEM7F02-D | CSETDM95-E | DCDGSA1-E  |
| CSEGBB20-E | CSEM8A02-D | CSETJ040-D | DCDGSG01-E |
| CSEGBB50-E | CSEM8B13-D | CSETLC02-D | DCDGSG09-E |
| CSEGBC01-D | CSEM8C02-D | CSETLM85-E | DCDGSGA1-D |
| CSEGE030-D | CSEM8D13-D | CSETLM86-E | DCDGV040-D |
| CSEGF030-D | CSEM8M01-D | CSETLM95-E | DCDKBR10-E |
| CSEGF060-D | CSEM8M02-D | CSEUDA01-D | DCDKBR30-E |
| CSEGJA02-D | CSEM8Q01-E | CSEUF010-D | DCDKBY40-D |
| CSEGJC01-E | CSEMB02-D  | CSEUFA02-D | DCDKBY50-D |
| CSEGJD01-E | CSEMBM85-E | CSEUFD01-E | DCDKM020-D |
| CSEGJF02-D | CSEMBM86-E | CSEUHD01-E | DCDKW040-D |
| CSEGJH07-E | CSEMBM95-E | CSEUJA02-E | DCDMB008-D |
| CSEGJH17-E | CSEMCA02-D | CSEV3055-D | DCDM5B12-E |
| CSEGKA02-D | CSEMCB09-D | CSEVA021-D | DCDNB020-D |
| CSEGKC01-E | CSEMCC02-D | CSEVAW03-D | DCDNB060-D |
| CSEGKD01-E | CSEMCF02-D | DCD82A02-D | DCDND040-D |
| CSEGP040-D | CSEME030-D | DCD82B02-D | DCDNF020-D |
| CSEGQA02-D | CSEMG02-D  | DCD82FL1-D | DCDNH050-D |
| CSEGR020-D | CSEMG85-E  | DCD88050-D | DCDNHA13-E |
| CSEGS010-D | CSEMG86-E  | DCD88K01-D | DCDNHB12-E |
| CSEGS030-D | CSEMG95-E  | DCDA4022-D | DCDNHK01-D |
| CSEGSE04-E | CSEMH02-D  | DCDCC005-E | DCDNL004-D |
| CSEGSFA1-E | CSEMHM85-E | DCDCCC02-E | DCDPB050-D |
| CSEGS01-E  | CSEMHM86-E | DCDCCG03-E | DCDPEY70-D |
| CSEGSG09-E | CSEMHM95-E | DCDEA030-D | DCDPEY80-D |
| CSESGA1-D  | CSEMJ602-D | DCDEAC04-E | DCDPNU20-D |
| CSEGV040-D | CSEMKB02-D | DCDEAE01-E | DCDPNU21-D |
| CSEJAA02-D | CSEMNA02-D | DCDEB030-D | DCDTBM85-E |
| CSEJAA06-D | CSEMP030-D | DCDEFB91-E | DCDTBM86-E |
| CSEJCA02-D | CSEMQA02-D | DCDEFH00-E | DCDTBM95-E |
| CSEJCA06-D | CSEMQB10-E | DCDEFH21-E | DCDTDM85-E |
| CSEJE050-D | CSEMR02-D  | DCDESDDA-D | DCDTDM86-E |
| CSEJEA01-D | CSEMRB10-E | DCDESdde-D | DCDTDM95-E |
| CSEJEB10-E | CSEMWBA1-E | DCDESDDK-E | DCDTJ040-D |
| CSEJGA02-D | CSEMWCB0-E | DCDESYLB-E | DCDTLC02-D |
| CSEJIA02-D | CSEMWCB0-E | DCDG8030-D | DCDTLM85-E |
| CSEJPA02-D | CSEMWDD2-E | DCDG8030-D | DCDTLM86-E |
| CSEJPA02-D | CSEMWDB1-E | DCDG8030-D | DCDTLM95-E |
| CSEJPA02-D | CSEMWDD2-E | DCDG8030-D | DCDU0A01-D |
| CSEKBR10-E | CSEMWFA1-E | DCDG8030-D | DCDUFD01-E |
| CSEKBR30-E | CSEMWGA3-E | DCDG8030-D | DCDUHD01-E |
| CSEKBY40-D | CSEMX020-D | DCDG8030-D | DCDUJA02-E |
| CSEKBY50-D | CSEMX030-D | DCDG8030-D | DCDV3055-D |
| CSEKM020-D | CSEMX040-D | DCDG8030-D | DCDVA021-D |
| CSEKW040-D | CSEMX050-D | DCDG8030-D | DCDVAV03-D |
| CSEM3030-D | CSENB020-D | DCDG8030-D |            |

If you should encounter error messages in your DCD run that are not self explanatory or require further explanation, look the message up and follow any instructions that are given for that particular error message.

The Error messages listed on the just previous page are major errors that are not listed on the following pages, and are unlikely to occur. Should you receive one of these errors, we request that you contact Marble Computer, Inc. for further assistance, should re-running or correcting any JCL errors not immediately correct the problem or remove the error.

If you need to contact Marble Computer, Inc. for technical support, you may follow one of the below suggested procedures:

1. Send an email to us at [support@marblecomputer.com](mailto:support@marblecomputer.com) with any attachments needed.
2. You may call Marble Computer, Inc. toll-free at 800-252-1400. We recommend having the following information available when calling.
  - Release number and release date of the version of DCD that you are running
  - The error message number(s)
  - If you are using DCD as a remote job entry to a data center, specify the location of the data center that you are using.
  - Exactly what conditions existed when the error messages were encountered (what PARM options were in effect, what PROC was being executed, any other related conditions).

|                   |                                                                                                                                                                                                                                                                                             |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CSE5E035-D</b> | <b>//CONTROL DD DATE AND/OR MATCHING VERIFICATION CODE IS INCORRECT - SEE SYSOUT FOR REASON</b>                                                                                                                                                                                             |
| Explanation:      | The Control date and matching verification code in PDS member (DCDCNTRL) is incorrect.                                                                                                                                                                                                      |
| User Action:      | Look on Install information provided by Marble Computer or contact Marble Computer.                                                                                                                                                                                                         |
| <b>CSE5E040-C</b> | <b>PARM LENGTH GREATER THAN 100 - ACCEPTED</b>                                                                                                                                                                                                                                              |
| Explanation:      | The number of characters in the total PARM field is greater than 100 characters. Only the first 100 characters are meaningful to CSE. The characters over 100 are ignored.                                                                                                                  |
| User Action:      | Make adjustments to the PARM field to reduce the total length to be under 100 characters.                                                                                                                                                                                                   |
| <b>CSE5E052-I</b> | <b>PARM (R3N) OPTION TURNS OFF (PMO) OPTION ELIMINATING PRINTING OF OFFSETS TO THE FAR RIGHT OF SOURCE CODE</b>                                                                                                                                                                             |
| Explanation:      | Parm option R3N is inconsistent with parm option PMO. Option R3N carries PL and SL information from the right hand side of the compile listing into right side of CSE listing, while option PMO traps information from the compile OFFSET option and prints into right side of CSE listing. |
| User Action:      | Determine whether PMO option is needed, and if not needed turn that options off, or turn option R3N off.                                                                                                                                                                                    |
| <b>CSE5E056-W</b> | <b>PARM OPTION ( NIS ) MAY NOT BE USED WITH OPTION ( IREFS ) - OPTION ( IREFS ) IS TURNED OFF</b>                                                                                                                                                                                           |
| Explanation:      | Parm option NIS (which is used to provide a sequential sequence) for Procedure Division Narrative is not compatible with the IREFS option which provides indirect References.                                                                                                               |
| User Action:      | The IREFS option is being turned off. To turn it back on, do not use PARM option NIS.<br>Determine whether NIS option is needed, and if not, turn that options off.                                                                                                                         |
| <b>CSE5E060-D</b> | <b>PARM OPTION (LOR) MAY NOT BE USED WHEN OTHER REPORTS ARE ALSO TURNED ON</b>                                                                                                                                                                                                              |
| Explanation:      | The option LOR indicates that non-COBOL programs are being used as input for creating the Layouts Reports.                                                                                                                                                                                  |
| User Action:      | Do not use this option when other report options are also turned on.                                                                                                                                                                                                                        |
| <b>CSE5E061-W</b> | <b>PARM OPTION (LHR) TREATED AS (LHX) WHEN OPTION (LNR) FOR NARRATIVE IS IN EFFECT</b>                                                                                                                                                                                                      |
| Explanation:      | Options LHR and LNR are incompatible. See these options in this User's Manual.                                                                                                                                                                                                              |
| User Action:      | Do not use these options together.                                                                                                                                                                                                                                                          |
| <b>CSE5E062-D</b> | <b>PARM OPTION (TRACE) NOT ALLOWED WHEN OPTIONS (WRITPDS OR READPDS) ARE USED</b>                                                                                                                                                                                                           |
| Explanation:      | Option TRACE is incompatible with option WRITPDS or READPDS. See these options in this User's Manual.                                                                                                                                                                                       |
| User Action:      | Do not use these options together. Eliminate TRACE or eliminate READPDS or WRITPDS.                                                                                                                                                                                                         |
| <b>CSE5E063-D</b> | <b>AT LEAST ONE PRINT REPORT OPTION MUST BE TURNED ON WHEN RUNNING THE OTHER COBOL REPORTS</b>                                                                                                                                                                                              |
| Explanation:      | No PARM options were specified (DATA, LAYOUT, etc...) for printing of reports or for the specification of the Data Dictionary file. Even when using WRITPDS or READPDS options, report options must be specified.                                                                           |
| User Action:      | Specify one or more report options.                                                                                                                                                                                                                                                         |
| <b>CSE5E065-D</b> | <b>(WRITPDS) PARM OPTION ALSO REQUIRES (BEGIN) OR (CONTINUE) PARM OPTION</b>                                                                                                                                                                                                                |
| Explanation:      | Parm option WRITPDS requires either option BEG or CON. See these options in this User's Manual.                                                                                                                                                                                             |
| User Action:      | Add parm option BEGIN or parm option CONTINUE.                                                                                                                                                                                                                                              |
| <b>CSE5E067-D</b> | <b>PARM OPTION (S03), (S15) OR (S50) MAY NOT BE USED WITH (LAYOUT) OR (RECORDS) OPTION</b>                                                                                                                                                                                                  |
| Explanation:      | PARM options S03, S15, S50, S3H and S1T alter the maximum size of OCCURS within a record which contains an OCCUR clause for use with the System Record Analysis Report. Using these options with the RECORD or LAYOUT reports will produce incorrect results.                               |
| User Action:      | Turn off the RECORD and LAYOUT options or remove the S03, S15, S50, S3H and S1T options being used.                                                                                                                                                                                         |
| <b>CSE5E800-I</b> | <b>(STOP) PARM OPTION IN EFFECT</b>                                                                                                                                                                                                                                                         |
| Explanation:      | The PARM option STOP was entered and processing in CSE is halted.                                                                                                                                                                                                                           |
| User Action:      | None. To process with CSE, remove the STOP option.                                                                                                                                                                                                                                          |

## Control/DCD – Error Messages

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| <b>CSE5EA11-E</b> | <b>PARM OPTION (parm field) INVALID WHEN FOLLOWING (option) AND IS IGNORED</b>                                                                                                                                        |
| Explanation:      | The two PARM fields shown in the message conflict with each other. The first PARM option will be used and the second one will be ignored.                                                                             |
| User Action:      | Remove either of the two options shown.                                                                                                                                                                               |
| <b>CSE5EA20-C</b> | <b>INTERNAL ERROR FOR PARM (parm field)</b>                                                                                                                                                                           |
| Explanation:      | An internal error has occurred during the storing of PARM fields.                                                                                                                                                     |
| User Action:      | Save printed output and contact MARBLE Computer, Inc.                                                                                                                                                                 |
| <b>CSE5EA50-D</b> | <b>FIELD IN PARM RECORD TOO LARGE (parm field)</b>                                                                                                                                                                    |
| Explanation:      | The PARM field displayed is in excess of 10 characters. All valid PARM fields are 10 characters or under in length.                                                                                                   |
| User Action:      | Determine what PARM field was intended and correct.                                                                                                                                                                   |
| <b>CSE5EA70-D</b> | <b>PARM-FIELD IS INVALID (parm field)</b>                                                                                                                                                                             |
| Explanation:      | The first three characters of the PARM field displayed do not match to a valid PARM field.                                                                                                                            |
| User Action:      | Consult the User's Manual if necessary and then re-enter a valid PARM field.                                                                                                                                          |
| <b>CSE5EA78-C</b> | <b>FOUND MORE THAN 1 PARM OPTION IN THE RANGE IR1 - IR6 –USING LAST FOUND</b>                                                                                                                                         |
| Explanation:      | More than one parm option (IR1, IR2, IR3, IR4, IR5, IR6) was used.                                                                                                                                                    |
| User Action:      | Remove one or more parm options, so that only one is present.                                                                                                                                                         |
| <b>CSE5EA90-W</b> | <b>PARM OPTION (parm field) MISCODED. ACCEPTED AS (parm field)</b>                                                                                                                                                    |
| Explanation:      | The first three characters of the PARM field matches with a valid PARM option, however, the remaining characters do not match.                                                                                        |
| User Action:      | Check to be sure the PARM option used was the one intended. Correct the PARM field for later runs.                                                                                                                    |
| <b>CSE5EC01-E</b> | <b>PARM OPTION (parm field) NOT FOLLOWED BY (=) AND (VALUE)</b>                                                                                                                                                       |
| Explanation:      | The PARM field displayed is a keyword type option which requires both an (=) sign and value after the (=) character. Either the (=) character is missing or the value after the (=) character is miscoded or missing. |
| User Action:      | Ensure that the fully coded PARM field contains the (=) character and a valid value. It may also help to ensure that the entire keyword and value are enclosed in single apostrophes.                                 |
| <b>CSE5EF02-C</b> | <b>PROBLEM WITH LNC= (USING LNC=60)</b>                                                                                                                                                                               |
| Explanation:      | The value found after LNC= was not numeric or was numerically greater than 999.                                                                                                                                       |
| User Action:      | Correct by using a valid number. For this run a default of 60 is used.                                                                                                                                                |
| <b>CSE5EF03-D</b> | <b>PROBLEM WITH SOR= (USING SOR=600000)</b>                                                                                                                                                                           |
| Explanation:      | The value found after SOR= was not numeric or too large.                                                                                                                                                              |
| User Action:      | Use a valid number in SOR= for SORT region. Use SOR=600000 or slightly larger.                                                                                                                                        |
| <b>CSE5EF04-W</b> | <b>WHEN SORTREG= 1024000 INSURE THAT REG=12288K IS USED</b>                                                                                                                                                           |
| Explanation:      | A larger SORTREG was found and requires a larger REGION.                                                                                                                                                              |
| User Action:      | Insure REG=12288K is used.                                                                                                                                                                                            |
| <b>CSE5EF05-W</b> | <b>USE SORTREG=810000, 1024000, 1536000 &amp; USE CORR REG=8192K, REG=12288K OR REG=20480K</b>                                                                                                                        |
| Explanation:      | SORTREG must be 810000 or 1024000 or 1536000.                                                                                                                                                                         |
| User Action:      | Change SORTREG to one of these values and use corresponding REGION of 8192K, 12288K or 20480K.                                                                                                                        |
| <b>CSE5EF06-W</b> | <b>WHEN SORTREG= 1536000 INSURE THAT REG=20480K IS USED</b>                                                                                                                                                           |
| Explanation:      | A larger SORTREG was found and requires a larger REGION.                                                                                                                                                              |
| User Action:      | Insure REG=20480K is used.                                                                                                                                                                                            |
| <b>CSE5EF07-C</b> | <b>PROBLEM WITH DLT= (USING MAXIMUM OF DLT=017)</b>                                                                                                                                                                   |
| Explanation:      | The PARM option DLT= is greater than 17.                                                                                                                                                                              |
| User Action:      | Reenter DLT= value.                                                                                                                                                                                                   |
| <b>CSE5EF25-C</b> | <b>PROBLEM WITH TAC= (USING TAC=025)</b>                                                                                                                                                                              |
| Explanation:      | The value found after TAC = was not numeric or was numerically greater than 999.                                                                                                                                      |
| User Action:      | Correct by using a valid number. For this run, default of 025 is used.                                                                                                                                                |
| <b>CSE5EL01-E</b> | <b>PARM OPTION (CALL) not ON for //USERSEL DD (ADD CALL command)</b>                                                                                                                                                  |
| Explanation:      | The //USERSEL DD file has (ADD CALL on or defaulted to) and PARM option CALL is off.                                                                                                                                  |
| User Action:      | Turn on PARM option CALL.                                                                                                                                                                                             |

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| <b>CSE5EL2A-E</b> | <b>PARM OPTION (U01) not ON for //USERSEL DD (ADD CODE-NOT-USED command)</b>                                                          |
| Explanation:      | The //USERSEL DD file has (ADD CODE-NOT-USED on or defaulted to) and PARM option U01 is off.                                          |
| User Action:      | Turn on PARM option U01 to provide information needed for CODE-NOT-USED option.                                                       |
| <b>CSE5EL2C-E</b> | <b>PARM OPTION (UPARAS) not ON for //USERSEL DD (ADD CODE-NOT-USED command)</b>                                                       |
| Explanation:      | The //USERSEL DD file has (ADD CODE-NOT-USED on or defaulted to) and PARM option UDN is off.                                          |
| User Action:      | Turn on PARM option UPARAS to provide information needed for CODE-NOT-USED option.                                                    |
| <b>CSE5EL03-E</b> | <b>PARM OPTION (COPY) not ON for //USERSEL DD (ADD COPY command)</b>                                                                  |
| Explanation:      | The //USERSEL DD file has (ADD COPY on or defaulted to) and PARM option COPY is off.                                                  |
| User Action:      | Turn on PARM option COPY.                                                                                                             |
| <b>CSE5G010-D</b> | <b>DDNAME (CONTROL) MISSING</b>                                                                                                       |
| Explanation:      | A DD card is missing from the user JCL.                                                                                               |
| User Action:      | See the User's Manual and Installation Addendum for instructions on adding a CONTROL DD card.                                         |
| <b>CSE5G025-D</b> | <b>//CONTROL DD CONTROL INFO MISSING</b>                                                                                              |
| Explanation:      | The CONTROL DD file is empty. One control record is required.                                                                         |
| User Action:      | See the Installation Addendum for format and provide the control record required.                                                     |
| <b>CSE5G030-D</b> | <b>//CONTROL DD CONTROL INFO . MUST BE IN VALID FORMAT (MMYY). FOUND (xxxx)</b>                                                       |
| Explanation:      | The password control information contains invalid information in columns 1-4. MMYY for month and year is expected.                    |
| User Action:      | Enter the information in correct format (MMYY) and run again. If necessary consult the Installation Addendum for further information. |
| <b>CSE5G046-D</b> | <b>CONTROL MONTH/YEAR EXPIRED - MM/YYYY = XX/XXXX</b>                                                                                 |
| Explanation:      | Six characters of control information matching to MMYYYY are invalid.                                                                 |
| User Action:      | See the Installation Addendum or contact MARBLE Computer, Inc.                                                                        |
| <b>CSE5G048-D</b> | <b>SIX CHARACTER CODE (6-char) IN //CONTROL DD CONTROL INFO IS INVALID.</b>                                                           |
| Explanation:      | Six characters of control information are invalid.                                                                                    |
| User Action:      | See the Installation Addendum or contact MARBLE Computer, Inc.                                                                        |
| <b>CSE5H050-E</b> | <b>(TRACEIN) COMMANDS MUST BEGIN WITH AN (AFTER) COMMAND</b>                                                                          |
| Explanation:      | When using the debugging control statements under direction of Marble Computer, each command must begin with the word ( AFTER )       |
| User Action:      | Check the TRACEIN DD statements and make corrections to the TRACEIN commands as necessary.                                            |
| <b>CSE5H070-D</b> | <b>ONE OR MORE ERRORS FOUND IN (TRACEIN) COMMANDS</b>                                                                                 |
| Explanation:      | One or more errors occurred in processing the debugging control statements.                                                           |
| User Action:      | Check the related error messages and make corrections to the TRACEIN commands as necessary.                                           |
| <b>CSE5HA01-E</b> | <b>PROGRAM-NAME MISSING AFTER (AFTER) COMMAND IN (TRACEIN) FILE</b>                                                                   |
| Explanation:      | The program name must be used in the TRACEIN file. It was not there.                                                                  |
| User Action:      | Check the TRACEIN file and make corrections as necessary.                                                                             |
| <b>CSE5HA02-E</b> | <b>EXPECTING WORD (PRINT) WITHIN (TRACEIN) FILE FOUND (field-contents)</b>                                                            |
| Explanation:      | The word PRINT must be used in the TRACEIN file. It could not be found.                                                               |
| User Action:      | Check the TRACEIN file and make corrections as necessary.                                                                             |
| <b>CSE5HA03-E</b> | <b>EXPECTING (CSEWK01) THRU (CSEWK06) WITHIN (TRACEIN) FILE - FOUND (field-contents)</b>                                              |
| Explanation:      | The file names to be TRACEed must be CSEWK01 through CSEWK06.                                                                         |
| User Action:      | Check the file names and correct as necessary.                                                                                        |
| <b>CSE5HA05-E</b> | <b>ONLY 10 CONTROL CARDS ALLOWED WITHIN (TRACEIN) FILE</b>                                                                            |
| Explanation:      | The number of control cards in the TRACEIN file exceeds 10.                                                                           |
| User Action:      | Check the TRACEIN file and delete excess cards so there are a total of 10 cards or less.                                              |
| <b>CSE5HA06-E</b> | <b>EXPECTING NEW (AFTER) COMMAND</b>                                                                                                  |
| Explanation:      | The end of one command in the TRACEIN file was found. The next token (if present) must be the start of a new command.                 |



## Control/DCD – Error Messages

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| User Action:      | If multiple commands are used, make sure each new command starts with the word AFTER.                                                                                                  |
| <b>CSE5HA31-E</b> | <b>CSEWKXX NUMBER MUST BE 01 TO 06 WITHIN (TRACEIN) FILE</b>                                                                                                                           |
| Explanation:      | The CSEWKXX file that has been specified in the TRACEIN file does not exist.                                                                                                           |
| User Action:      | Check the file names and make corrections as necessary.                                                                                                                                |
| <b>CSE5HA35-E</b> | <b>PROGRAM OR FILE NUMBER IN CONTROL CARD IS INVALID</b>                                                                                                                               |
| Explanation:      | The program-id did not match or the record length was not numeric.                                                                                                                     |
| User Action:      | Check the control card and make corrections as necessary.                                                                                                                              |
| <b>CSE5HA90-I</b> | <b>BYPASSING TOKENS WITHIN (TRACEIN) FILE UNTIL NEXT (AFTER) OR END OF FILE</b>                                                                                                        |
| Explanation:      | A previous documented syntax error was found while scanning an AFTER command within the TRACEIN file. Further scanning for errors will not be done until a new AFTER command is found. |
| User Action:      | None.                                                                                                                                                                                  |
| <b>CSE5RV04-W</b> | <b>VERSION FILE HAS NO RECORDS OR HAS INVALID ENTRY IN THE FIRST RECORD</b>                                                                                                            |
|                   | <b>Using ENTERPRISE COBOL as default</b>                                                                                                                                               |
| Explanation:      | //VERSION DD was found without a valid entry as first record in file.                                                                                                                  |
| User Action:      | Insure entry starts in position 1 and is one of following values:<br>VS-COBOL VS-COBOL-II IBM-COBOL ENTERPRISE                                                                         |
| <b>CSE5X001-C</b> | <b>EXCESSIVE ERROR MESSAGES IN HSKPG</b>                                                                                                                                               |
| Explanation:      | The table of error messages was exceeded for the first phase of processing within CSE.                                                                                                 |
| User Action:      | Examine the previous error messages and make corrections as necessary to eliminate the errors.                                                                                         |
| <b>CSE63070-E</b> | <b>THE VALUES USED WITHIN SELECT CARDS ESTABLISHES A RANGE THAT IS NEGATIVE</b>                                                                                                        |
| Explanation:      | Control cards used to select records for Layout Reports by record size are incorrect.                                                                                                  |
| User Action:      | Correct either the SELECT> or the SELECT< card.                                                                                                                                        |
| <b>CSE63080-I</b> | <b>USING CONTROL CARDS FOR SELECTION BY DATA-NAME FOR LAYOUTS</b>                                                                                                                      |
| Explanation:      | This is an informational message reminding the user that control cards are being used for the selection of Layout Reports.                                                             |
| User Action:      | None.                                                                                                                                                                                  |
| <b>CSE63081-I</b> | <b>USING CONTROL CARDS FOR SELECTION BY RECORD-SIZE FOR LAYOUTS</b>                                                                                                                    |
| Explanation:      | This is an informational message reminding the user that control cards are being used for the selection of Layout Reports.                                                             |
| User Action:      | None.                                                                                                                                                                                  |
| <b>CSE63A03-I</b> | <b>DATA NAME IS GREATER THAN 30 CHARACTERS</b>                                                                                                                                         |
| Explanation:      | Programmer-supplied names must be 30 characters or less in length.                                                                                                                     |
| User Action:      | Check the data name to make sure that it less than 30 characters.                                                                                                                      |
| <b>CSE63A06-E</b> | <b>UNIDENTIFIED FIELD AFTER DATA NAME ( record-name )</b>                                                                                                                              |
| Explanation:      | Field in control statement after data name indicated is in error.                                                                                                                      |
| User Action:      | Check the control statement, correct, and re-submit.                                                                                                                                   |
| <b>CSE63A07-E</b> | <b>ONLY 750 CONTROL CARDS ALLOWED WITHIN FILE</b>                                                                                                                                      |
| Explanation:      | There are two many control statements used.                                                                                                                                            |
| User Action:      | Check the file and eliminate excess cards so there are a total of 750 statements or less.                                                                                              |
| <b>CSE63AA1-E</b> | <b>CONFLICTS WITH A PREVIOUS (SELECT) CONTROL CARD</b>                                                                                                                                 |
| Explanation:      | The control card conflicts with a previous SELECT control card.                                                                                                                        |
| User Action:      | Check the control cards and make necessary changes.                                                                                                                                    |
| <b>CSE63AA2-E</b> | <b>CONFLICTS WITH A PREVIOUS (SELECT) CONTROL CARD</b>                                                                                                                                 |
| Explanation:      | The control card conflicts with a previous SELECT control card.                                                                                                                        |
| User Action:      | Check the control cards and make necessary changes.                                                                                                                                    |
| <b>CSE63AA3-E</b> | <b>SYNTAX ERROR IN SELECT CARD</b>                                                                                                                                                     |
| Explanation:      | The SELECT card has a non-numeric field or a number over 6 characters in length.                                                                                                       |
| User Action:      | The correct format requires positions 1-6 to be numeric, columns 7 to be a dash, and 8-13 to be numeric.                                                                               |
| <b>CSE66003-D</b> | <b>DDNAME (CTLCD\$RA) IS MISSING</b>                                                                                                                                                   |
| Explanation:      | In the JCL, the DD card for CTLCD\$RA is missing.                                                                                                                                      |

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| User Action:      | Check JCL to ensure the DD card for CTLCD SRA is there and correctly placed. This control card is needed when PARM option DICT or SRA is used.                         |
| <b>CSE66A03-E</b> | <b>PROGRAM-ID IN EXCESS OF 8 CHARACTERS</b>                                                                                                                            |
| Explanation:      | The program name/record name control card statement is invalid.                                                                                                        |
| User Action:      | A 1 - 8 character program name must begin in column 1.                                                                                                                 |
| <b>CSE66A04-E</b> | <b>RECORD NAME OR LENGTH IN A CONTROL CARD IS MISSING</b>                                                                                                              |
| Explanation:      | The control card is missing either the record name or length.                                                                                                          |
| User Action:      | Check the control card for the record name or length to ensure one is present.                                                                                         |
| <b>CSE66A05-E</b> | <b>RECORD NAME IN EXCESS OF 30 CHARACTERS</b>                                                                                                                          |
| Explanation:      | The program name/record name control card statement is invalid.                                                                                                        |
| User Action:      | A 1 - 8 character program name must begin in column 1. A 1 - 30 character 01 record name must follow after one or more spaces.                                         |
| <b>CSE66A06-E</b> | <b>NUMERIC FIELD IS IN EXCESS OF 6 CHARACTERS</b>                                                                                                                      |
| Explanation:      | A control card field used for the System Record Analysis Report has a numeric field greater than 6 digits in length.                                                   |
| User Action:      | Shorten the number to 6 digits.                                                                                                                                        |
| <b>CSE66A07-E</b> | <b>MAXIMUM NUMBER OF CONTROL CARDS WITHIN A FILE HAS BEEN EXCEEDED</b>                                                                                                 |
| Explanation:      | The number of control cards in the file has been exceeded.                                                                                                             |
| User Action:      | Check the file and delete excess cards.                                                                                                                                |
| <b>CSE66AB2-E</b> | <b>A FIELD IS IN EXCESS OF 6 CHARACTERS OR NOT NUMERIC</b>                                                                                                             |
| Explanation:      | A numeric field within an SRA control statement range is too big or not numeric.                                                                                       |
| User Action:      | Correct the control statement and rerun.                                                                                                                               |
| <b>CSE66AB3-E</b> | <b>THE RANGE OF NUMBERS IN SRA CTL CD IS INVALID</b>                                                                                                                   |
| Explanation:      | A range of numbers found in an SRA control statement was found to be invalid.                                                                                          |
| User Action:      | Determine what should be entered, fix, and rerun.                                                                                                                      |
| <b>CSE6AB01-D</b> | <b>POSITIONS 33 THROUGH 72 IN CONTROL CARD MUST BE BLANK</b>                                                                                                           |
| Explanation:      | Control Statements for option DIT must have positions 33 up through position 72 blank.                                                                                 |
| User Action:      | Look at control statements used, consult manual if need be, and correct.                                                                                               |
| <b>CSE6AC01-D</b> | <b>LEADING SPACES ARE NOT PERMITTED FOR THESE CONTROL STATEMENTS</b>                                                                                                   |
| Explanation:      | Control Statements for option DIT must have the command used start in column 1.                                                                                        |
| User Action:      | Look at control statements used and correct.                                                                                                                           |
| <b>CSE6AD10-D</b> | <b>DDNAME (CTLCD DLT) IS MISSING WHEN PARM OPTION ( DIT ) IS SPECIFIED</b>                                                                                             |
| Explanation:      | Option DIT was used indicating control statements for Literal Tracing, however the required DDNAME CTLCD DLT is missing.                                               |
| User Action:      | Remove option DIT, or add DDNAME CTLCD DLT with valid control statements.                                                                                              |
| <b>CSE6AD20-D</b> | <b>DDNAME (CSEWK1) IS MISSING WHEN PARM OPTION ( DIT ) IS SPECIFIED</b>                                                                                                |
| Explanation:      | Option DIT requires an extra work file CSEWK1 and this file was not found.                                                                                             |
| User Action:      | Add an extra work file, similar to work file CSEWK01, 02, etc. with the name CSEWK1. Also insure that DD names CSEWK2, CSEWK3, and CSEWK4 are added similar to CSEWK1. |
| <b>CSE6C030-D</b> | <b>DDNAME (SELECT) IS MISSING WHEN PARM OPTION (TRACE) IS SPECIFIED</b>                                                                                                |
| Explanation:      | Parm Option TRACE indicates SELECTs are used for 'Follow a Data Field' report and DD SELECT is required.                                                               |
| User Action:      | Inspect JCL and add DDNAME SELECT with SELECTs to produce report.                                                                                                      |
| <b>CSE6C031-D</b> | <b>DDNAME (CSEWK08) MISSING</b>                                                                                                                                        |
| Explanation:      | A DDNAME (CSEWK08) is missing from JCL.                                                                                                                                |
| User Action:      | Inspect JCL and add DDNAME CSEWK08 to same.                                                                                                                            |
| <b>CSE6C110-D</b> | <b>CORRECT ERRORS FOUND IN SELECT STATEMENTS - SEE REPORT FILE</b>                                                                                                     |
| Explanation:      | See other file and look at syntax errors there for SELECT control statements used.                                                                                     |
| User Action:      | Correct the errors found and resubmit the run.                                                                                                                         |
| <b>CSE6CF02-D</b> | <b>A LIMIT OF 250 SELECT STATEMENTS ARE ALLOWED FOR (TRACE) - THIS NUMBER WAS EXCEEDED</b>                                                                             |

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| Explanation:      | More than 250 SELECTs were submitted. The limit allowed is 250.                                                                                            |
| User Action:      | Reduce run to 250 SELECTs or less and resubmit.                                                                                                            |
| <b>CSE6CJ01-D</b> | <b>SELECTS WITHOUT ( NAME ) KEYWORD MUST COME BEFORE SELECTS WITH ( NAME ) KEYWORD</b>                                                                     |
| Explanation:      | Format#2 SELECTs in format <b>SELECT IF NAME = data-name</b> must come after all other SELECTs using format#1 which uses other keywords with AND/OR logic. |
| User Action:      | Put all SELECT IF NAME control statements last and resubmit.                                                                                               |
| <b>CSE6RA04-E</b> | <b>WHEN PROVIDING SRA-TBL=control statement - THE VALUE FOLLOWING SRA-TBL= must BE EITHER 1M, 5M 9M 13M or 16M</b>                                         |
| Explanation:      | SRA-TBL= control statement is used to allow larger size TABLEs during processing and the value found is incorrect.                                         |
| User Action:      | Use value 1M 5M 9M 13M or 16M.                                                                                                                             |
| <b>CSE6RB03-C</b> | <b>FOUND UNIDENTIFIED CONTROL STATEMENT (XXXXXXXXXX) WITHIN //XXXXXX DD</b>                                                                                |
| Explanation:      | //SRAINFO DD has a control statement pointing to DD shown in message. Within that DD a control error was found.                                            |
| User Action:      | Verify the control statement shown and correct.                                                                                                            |
| <b>CSE6RCA1-E</b> | <b>CSEMSELE - AN INTERNAL TABLE HOLDING (COPY SELECT names) HAS BEEN EXCEEDED</b>                                                                          |
| Explanation:      | //COPYSELE DD contains too many SELECT names.                                                                                                              |
| User Action:      | Reduce number used or contact Marble Computer to have table expanded.                                                                                      |
| <b>CSE6RDA1-E</b> | <b>CSEMSELE - AN INTERNAL TABLE HOLDING (COPY BYPASS names) HAS BEEN EXCEEDED</b>                                                                          |
| Explanation:      | //COPYBYP DD contains too many BYPASS names.                                                                                                               |
| User Action:      | Reduce number used or contact Marble Computer to have table expanded.                                                                                      |
| <b>CSE6RS03-D</b> | <b>DD FOR SRAINFO IS MISSING AND REQUIRED WHEN A SYSTEM NAME IS PROVIDED IN DD //XXXXXX</b>                                                                |
| Explanation:      | SRA-TBL= control statement defined a DD name in a control statement and that specified DD was not found.                                                   |
| User Action:      | Insure that the DDNAME specified is there in the JCL.                                                                                                      |
| <b>CSE6RT03-E</b> | <b>DDs FROM CSEWK09 THROUGH CSEWK20, CSORTIN &amp; CSORTOUT REQUIRED AND NOT ALL WERE FOUND</b>                                                            |
| Explanation:      | Not all DDNAMEs specified above were found in the JCL.                                                                                                     |
| User Action:      | Insure that the DDNAMEs shown are all there.                                                                                                               |
| <b>CSE6UAC1-W</b> | <b>ACCEPTING (OMIT COPY=member-name) BEFORE FINDING ( ADD COPY=ALL )</b>                                                                                   |
| Explanation:      | An OMIT COPY= command was found before ADD COPY=ALL or ADD COPY=ALL not found.                                                                             |
| User Action:      | Insure ADD COPY=ALL is present and move OMIT COPY=member after ADD COPY=ALL.                                                                               |
| <b>CSE6UE01-E</b> | <b>(USERSEL ERROR MESSAGE INSERTED HERE)</b>                                                                                                               |
| Explanation:      | An error was found in an ADD, OMIT, or FORMAT command.                                                                                                     |
| User Action:      | See error message explanation and correct the ADD, OMIT, or FORMAT.                                                                                        |
| <b>CSEA2002-D</b> | <b>DDNAME (CSEWK01) MISSING</b>                                                                                                                            |
| Explanation:      | The running of CSE requires work files CSEWK01 and more. The DDNAME CSEWK01 was not found..                                                                |
| User Action:      | See JCL examples in the 'Alternate Compile Listing' section in the User's Manual and correct JCL.                                                          |
| <b>CSEA2P01-D</b> | <b>VS COBOL II LISTING FOUND, VS2 OPTION NOT IN EFFECT, USE PARM OPT ION (VS2) TO CORRECT</b>                                                              |
| Explanation:      | PARM Option VS2 is required when VS COBOL II or new COBOL releases are used.                                                                               |
| User Action:      | Use PARM Option VS2 (e.g. OTHER= 'VS')                                                                                                                     |
| <b>CSEA4008-D</b> | <b>DDNAME (COBOLIN) MISSING</b>                                                                                                                            |
| Explanation:      | In the JCL, the COBOLIN DD card is missing from the file being compiled.                                                                                   |
| User Action:      | Check JCL to ensure DD card for COBOLIN is there and correctly placed.                                                                                     |
| <b>CSEA4009-D</b> | <b>DDNAME (CSEWK01) MISSING</b>                                                                                                                            |
| Explanation:      | In the JCL, the DD card for CSEWK01 is missing.                                                                                                            |
| User Action:      | Check the JCL to ensure the DD card for CSEWK01 exists and is correctly placed.                                                                            |

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| <b>CSEA4040-D</b> | <b>EMPTY FILE FOUND FOR COBOL PROGRAM</b>                                                                                                                                             |
| Explanation:      | COBOL file exists but contains no records                                                                                                                                             |
| User Action:      | Check to ensure COBOL file contains records.                                                                                                                                          |
| <b>CSEA4B02-D</b> | <b>NO COBOL INPUT FOUND ON DDNAME (COBOLIN)</b>                                                                                                                                       |
| Explanation:      | COBOL file exists (used with BASIS option) but contains no records.                                                                                                                   |
| User Action:      | Check to ensure COBOL file contains records.                                                                                                                                          |
| <b>CSEB0015-D</b> | <b>DDNAME (COBOLIN) MISSING</b>                                                                                                                                                       |
| Explanation:      | In the JCL, the DD card for COBOLIN is missing.                                                                                                                                       |
| User Action:      | Check the JCL to ensure DD card for COBOLIN exists and is correctly placed.                                                                                                           |
| <b>CSEB0016-D</b> | <b>DDNAME (CSEWK01) MISSING</b>                                                                                                                                                       |
| Explanation:      | In the JCL, the DD card for CSEWK01 is missing.                                                                                                                                       |
| User Action:      | Check the JCL to ensure DD card for CSEWK01 exists and is correctly placed.                                                                                                           |
| <b>CSEB0022-D</b> | <b>CSEMULTI (program name) PROGRAM NOT FOUND ON (COBOLIN) INPUT FILE</b>                                                                                                              |
| Explanation:      | A logic error has occurred. Program member does not match the COBOLIN file.                                                                                                           |
| User Action:      | Check the JCL to ensure DD card member exists and is correctly placed.                                                                                                                |
| <b>CSEB0030-D</b> | <b>EMPTY FILE FOUND FOR COBOL PROGRAM</b>                                                                                                                                             |
| Explanation:      | COBOL file exists but contains no records.                                                                                                                                            |
| User Action:      | Check to ensure COBOL file contains records.                                                                                                                                          |
| <b>CSEB0040-E</b> | <b>(TRACE) OPTION available for first program found – Ignored for EXTRA programs</b>                                                                                                  |
| Explanation:      | Abend Analysis is only available for one program at a time. If more programs were inputted, then the extra programs will not have Abend Analysis done on them.                        |
| User Action:      | Limit Abend Analysis to one program at a time.                                                                                                                                        |
| <b>CSEB0041-E</b> | <b>(DIT) OPTION available for first program found – Ignored for EXTRA programs</b>                                                                                                    |
| Explanation:      | Direct Tracing of Literals is only available for one program at a time. If more programs were inputted, then the extra programs will not have Direct Tracing of Literals done on them |
| User Action:      | Limit Direct Tracing of Literals to one program at a time.                                                                                                                            |
| <b>CSEB0C01-W</b> | <b>START OF ASSEMBLER PROGRAM FOUND WITHIN PROGRAM</b>                                                                                                                                |
| Explanation:      | The start of an Assembler program was found when reading in COBOL programs.                                                                                                           |
| User Action:      | Review the input and ensure that only COBOL programs are being inputted.                                                                                                              |
| <b>CSEB0D02-W</b> | <b>COLUMN 7 OF LINE AFTER THE PROCEDURE DIVISION OF COBOL PROGRAM (XXXXXXXX) IS INVALID - SEE NEXT LINE</b>                                                                           |
| Explanation:      | Within the Procedure Division, a line was found which may be invalid.                                                                                                                 |
| User Action:      | Examine the line and take corrective action if necessary.                                                                                                                             |
| <b>CSEB0F01-D</b> | <b>USE OF PARM OPTION (LOR) REQUIRES COBOL RECS - FOUND COBOL PROGRAM INSTEAD</b>                                                                                                     |
| Explanation:      | A COBOL program was found as input when the PARM option LOR indicated Data Division records were being inputted.                                                                      |
| User Action:      | Review what was intended and correct.                                                                                                                                                 |
| <b>CSEB0XA6-C</b> | <b>COBOL PROGRAM (program name) WAS DUPLICATED</b>                                                                                                                                    |
| Explanation:      | More than one COBOL program was found with this program name.                                                                                                                         |
| User Action:      | Determine why duplicate programs are present and remove those that are not wanted.                                                                                                    |
| <b>CSEB0XA7-I</b> | <b>COBOL PROGRAM-ID (program) BEING PROCESSED - (nnnnn)</b>                                                                                                                           |
| Explanation:      | Informational message produced for every COBOL program.                                                                                                                               |
| User Action:      | None.                                                                                                                                                                                 |
| <b>CSEB0XA9-W</b> | <b>INVALID WORD IN PROCEDURE DIVISION</b>                                                                                                                                             |
| Explanation:      | Found a PIC, PICTURE or VALUE clause in the Procedure Division.                                                                                                                       |
| User Action:      | Check the program to find out why this condition occurred.                                                                                                                            |
| <b>CSECA010-D</b> | <b>DDNAME (CSEWK02) MISSING</b>                                                                                                                                                       |
| Explanation:      | The running of CSE requires work files CSEWK02 and others. The DDNAME CSEWK02 was not found.                                                                                          |
| User Action:      | See JCL examples in the 'Alternate Compile Listing' section in the User's Manual and correct JCL.                                                                                     |

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| <b>CSECA030-D</b> | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                                                                                                                       |
| Explanation:      | A work file being used is in a corrupted state.                                                                                                                                                                            |
| User Action:      | Try re-running. If necessary, contact Marble Computer.                                                                                                                                                                     |
| <b>CSECADD3-E</b> | <b>OVER 500 REPLACING TOKENS WITHIN ONE COPY REPLACING OPERAND - CHECK FOR ERROR IN CODE</b>                                                                                                                               |
| Explanation:      | More than 500 tokens were found when replacing the corresponding tokens in the COPY member before finding a delimiter within pseudo-text-1.                                                                                |
| User Action:      | Check the COPY member and the COPY REPLACING clauses to determine why excessive tokens are being replaced within one pseudo text. If this is a valid condition, contact MARBLE Computer, Inc.                              |
| <b>CSECADD4-I</b> | <b>(BY) MISSING IN COPY REPLACING</b>                                                                                                                                                                                      |
| Explanation:      | The COPY REPLACING statement at the compiler number shown is missing the word BY following identifier-1 and before identifier-2.                                                                                           |
| User Action:      | Inspect the COPY REPLACING clauses within the COBOL program and ensure the word BY is correctly placed.                                                                                                                    |
| <b>CSECADD6-C</b> | <b>OVER 500 REPLACING TOKENS WITHIN COPY REPLACING OPERAND - CHECK FOR ERROR IN CODE</b>                                                                                                                                   |
| Explanation:      | More than 500 tokens were found when replacing the corresponding tokens in the COPY member before finding a delimiter within pseudo-text-2.                                                                                |
| User Action:      | Check the COPY member and the COPY REPLACING clause to determine why excessive tokens are being replaced within one pseudo text. If this is a valid condition, contact MARBLE Computer, Inc.                               |
| <b>CSECADD9-C</b> | <b>OVER 150 REPLACING WITHIN ONE COPY</b>                                                                                                                                                                                  |
| Explanation:      | CSE has a limit of 150 REPLACING entries within one COPY statement.                                                                                                                                                        |
| User Action:      | Inspect the COPY statements to determine the cause of excessive REPLACING clauses and ensure there are less than 150 per COPY statement. If this is a valid condition, contact MARBLE Computer, Inc.                       |
| <b>CSECAH03-E</b> | <b>INTERNAL TABLE EXCEEDED</b>                                                                                                                                                                                             |
| Explanation:      | An internal table was exceeded when expanding COPY members.                                                                                                                                                                |
| User Action:      | Contact Marble Computer.                                                                                                                                                                                                   |
| <b>CSECAH06-E</b> | <b>DATA SET NAME FOR COPYLIB NOT SPECIFIED, RUN TERMINATED</b>                                                                                                                                                             |
| Explanation:      | A data set name (DSNAME=) was not provided on the //COPYLIB DD card.                                                                                                                                                       |
| User Action:      | Ensure that a DSN=clause is provided on the COPYLIB DD statement and check correct placement of the //COPYLIB card.                                                                                                        |
| <b>CSECAX01-W</b> | <b>COPY REPLACING OPTION IGNORED FOR NESTED COPIES (member-name)</b>                                                                                                                                                       |
| Explanation:      | COPY REPLACING is not allowed within NESTED COPYs.                                                                                                                                                                         |
| User Action:      | Determine why COPY REPLACING is used in NESTED COPYs and take any appropriate action.                                                                                                                                      |
| <b>CSECAX02-E</b> | <b>COPY MEMBER NAME (member-name) APPEARS EARLIER WITHIN THIS ENTIRE NESTED COPY</b>                                                                                                                                       |
| Explanation:      | Within nested COPYs, a COPY may not name a member already brought in through nested copies above it. The member-name shown is already brought in. If brought in again, it will result in generating endless lines of code. |
| User Action:      | Examine why this is happening and correct.                                                                                                                                                                                 |
| <b>CSECAX05-I</b> | <b>ERROR WHEN RESOLVING COPY MEMBER (member-name) SEE FOLLOWING MESSAGE</b>                                                                                                                                                |
| Explanation:      | CSE is unable to resolve the COPY member listed above.                                                                                                                                                                     |
| User Action:      | Look for another (more specific) message following this one.                                                                                                                                                               |
| <b>CSECAX06-E</b> | <b>COPY MEMBER (member-name) NOT FOUND IN COPYLIB SPECIFIED</b>                                                                                                                                                            |
| Explanation:      | When CSE attempted to read the COPY member in the COBOL program, it was not found in the partitioned data set specified by DSN= in the COPYLIB DD.                                                                         |
| User Action:      | Check the COPY member name to ensure it is valid and that the correct PDS file is specified within the DSN= in the COPYLIB DD.                                                                                             |
| <b>CSECAX07-D</b> | <b>//COPYLIB DD IS MISSING OR INCORRECT</b>                                                                                                                                                                                |
| Explanation:      | A data set name (DSNAME=) was not provided on the //COPYLIB DD card.                                                                                                                                                       |
| User Action:      | Ensure that a DSN= clause is provided on the COPYLIB DD statement and check to be sure the placement of the //COPYLIB card is correct.                                                                                     |
| <b>CSECAX08-E</b> | <b>UNSUCCESSFUL READ WHILE READING RECORD FROM COPY MEMBER (member-name)</b>                                                                                                                                               |

|                   |                                                                                                                                                               |
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| Explanation:      | The COPY member shown was found within the directory of the PDS specified, however, attempts to read it are unsuccessful.                                     |
| User Action:      | Ensure that a valid partitioned data set was provided in the COPYLIB DD statement and verify that the member specified is there and can be read successfully. |
| <b>CSECAX09-E</b> | <b>UNSUCCESSFUL READ WHEN READING DIRECTORY OF DSN SPECIFIED IN //COPYLIB DD</b>                                                                              |
| Explanation:      | A problem was encountered when reading the directory of the partitioned data set provided in the DSN= of the COPYLIB DD.                                      |
| User Action:      | Ensure the PDS specified in the DSN= field is a valid PDS and that the directory is able to be read.                                                          |
| <b>CSECAX10-E</b> | <b>NO RECORDS FOUND IN MEMBER (copy member name)</b>                                                                                                          |
| Explanation:      | When CSE attempted to resolve this COPY member, it found no records in the member.                                                                            |
| User Action:      | Check the COPY member and make corrections as necessary.                                                                                                      |
| <b>CSECCT01-I</b> | <b>WHEN HANDLING REPLACING WITHIN A COPY, A CONTINUATION TO A NEW LINE IS FORCED AT COMPILER # (compiler #)</b>                                               |
| Explanation:      | An informational message indicating that a new COBOL line was created to adequately handle the REPLACING on this line.                                        |
| User Action:      | None.                                                                                                                                                         |
| <b>CSECCY06-I</b> | <b>ERROR WHEN RESOLVING COPY MEMBER (copy-member-name)</b>                                                                                                    |
| Explanation:      | Indicates that an error has occurred in resolving a COPY member.                                                                                              |
| User Action:      | Look for an associated error message more descriptive in nature than this one.                                                                                |
| <b>CSECCY07-E</b> | <b>COPY MEMBER (copy-member) NOT FOUND IN COPYLIB SPECIFIED</b>                                                                                               |
| Explanation:      | The COPY member name specified was not found in the data sets provided within the COPYLIB DD.                                                                 |
| User Action:      | Either correct the spelling of the member name or determine why the member is missing.                                                                        |
| <b>CSECCY08-D</b> | <b>//COPYLIB DD IS MISSING OR INCORRECT</b>                                                                                                                   |
| Explanation:      | A DSN was not found in the JCL on the COPYLIB DD statement or the DD is missing.                                                                              |
| User Action:      | Correct the JCL and rerun.                                                                                                                                    |
| <b>CSECCY09-E</b> | <b>UNSUCCESSFUL READ WHILE READING RECORD FROM COPY MEMBER (copy-member)</b>                                                                                  |
| Explanation:      | An error occurred during the read of a record of the COPY member shown within the record.                                                                     |
| User Action:      | Determine if the COPY member in question has an I/O problem that can be easily fixed. If so, correct, otherwise, contact System Support at your installation. |
| <b>CSECCY0A-E</b> | <b>UNSUCCESSFUL READ WHEN READING DIRECTORY OF DSN SPECIFIED IN //COPYLIB DD</b>                                                                              |
| Explanation:      | An error occurred during the read of a directory of the data set specified within the COPYLIB DD.                                                             |
| User Action:      | Contact System Support at your installation for help.                                                                                                         |
| <b>CSECCY0B-E</b> | <b>NO RECORDS FOUND IN COPY MEMBER (copy member name)</b>                                                                                                     |
| Explanation:      | When CSE attempted to resolve this COPY member, it found no records in the member.                                                                            |
| User Action:      | Check the COPY member and make corrections as necessary.                                                                                                      |
| <b>CSECFE01-E</b> | <b>PROBLEM IN RESOLVING NESTED COPY MEMBER (member name) - CONTINUING...</b>                                                                                  |
| Explanation:      | When CSE attempted to resolve this COPY member, it could not find the member specified.                                                                       |
| User Action:      | Check to see why the COPY member is missing.                                                                                                                  |
| <b>CSECGX05-I</b> | <b>ERROR WHEN RESOLVING COPY MEMBER (member-name) SEE FOLLOWING MESSAGE</b>                                                                                   |
| Explanation:      | CSE is unable to resolve the COPY member listed above.                                                                                                        |
| User Action:      | Look for another (more specific) message following this one.                                                                                                  |
| <b>CSECGX06-E</b> | <b>COPY MEMBER (member-name) NOT FOUND IN COPYLIB SPECIFIED</b>                                                                                               |
| Explanation:      | When CSE attempted to read the COPY member in the COBOL program, it was not found in the partitioned data set specified by DSN= in the COPYLIB DD.            |
| User Action:      | Check the COPY member name to ensure it is valid and that the correct PDS file is specified within the DSN= in the COPYLIB DD.                                |
| <b>CSECGX07-D</b> | <b>//COPYLIB DD IS MISSING OR INCORRECT</b>                                                                                                                   |
| Explanation:      | A data set name (DSNAME=) was not provided on the //COPYLIB DD card.                                                                                          |
| User Action:      | Ensure that a DSN= clause is provided on the COPYLIB DD statement and check to be sure the placement of the //COPYLIB card is correct.                        |

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| <b>CSECGX08-E</b>                                                                | <b>UNSUCCESSFUL READ WHILE READING RECORD FROM COPY MEMBER (member-name)</b>                                                                                  |
| Explanation:                                                                     | The COPY member shown was found within the directory of the PDS specified, however, attempts to read it are unsuccessful.                                     |
| User Action:                                                                     | Ensure that a valid partitioned data set was provided in the COPYLIB DD statement and verify that the member specified is there and can be read successfully. |
| <b>CSECGX09-E</b>                                                                | <b>UNSUCCESSFUL READ WHEN READING DIRECTORY OF DSN SPECIFIED IN //COPYLIB DD</b>                                                                              |
| Explanation:                                                                     | A problem was encountered when reading the directory of the partitioned data set provided in the DSN= of the COPYLIB DD.                                      |
| User Action:                                                                     | Ensure the PDS specified in the DSN= field is a valid PDS and that the directory is able to be read.                                                          |
| <b>CSECGX10-E</b>                                                                | <b>NO RECORDS FOUND IN MEMBER (copy member name)</b>                                                                                                          |
| Explanation:                                                                     | When CSE attempted to resolve this COPY member, it found no records in the member.                                                                            |
| User Action:                                                                     | Check the COPY member and make corrections as necessary.                                                                                                      |
| <b>CSECR020-E</b>                                                                | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                                                          |
| Explanation:                                                                     | The first record of a work file being read does not contain a MARBLE header record.                                                                           |
| User Action:                                                                     | Look for possible previous messages to this one. Look for an error in the JCL used.                                                                           |
| <b>CSEEB040-D</b>                                                                | <b>ENTIRE COBOL PROGRAM INCLUDING PROCEDURE DIVISION WAS NOT FOUND</b>                                                                                        |
| Explanation:                                                                     | The PROCEDURE DIVISION was not found within this program.                                                                                                     |
| User Action:                                                                     | Determine why PROCEDURE DIVISION was not found and re-submit.                                                                                                 |
| <b>CSEEBM02-D</b>                                                                | <b>EXCEEDED MAXIMUM NUMBER OF COPYS THAT CAN BE HANDLED - CONTACT MARBLE COMPUTER</b>                                                                         |
| Explanation:                                                                     | A large internal table was exceeded. This is an unusual exception.                                                                                            |
| User Action:                                                                     | Contact Marble Computer.                                                                                                                                      |
| <b>CSEEF016-D<br/>&amp; CSEEF017-D<br/>&amp; CSEEF018-D<br/>&amp; CSEEF019-D</b> | <b>DDNAME (CSEWK0x) MISSING</b>                                                                                                                               |
| Explanation:                                                                     | The running of CSE requires work files for processing. The DDNAMEs CSEWK03, CSEWK04, CSEWK05, and CSEWK06 respectively were not found.                        |
| User Action:                                                                     | See JCL examples in the 'Alternate Compile Listing' section in the User's Manual and correct JCL.                                                             |
| <b>CSEEF030-C</b>                                                                | <b>PROGRAM-ID NOT FOUND IN INPUT FILE - LOOK FOR NON-COBOL FILE OR MISSING PROGRAM-ID IN MARGIN-A</b>                                                         |
| Explanation:                                                                     | The PROGRAM-ID clause with Program-id within the Identification Division was not found. Program-Id is used within internal processing of CSE and is needed.   |
| User Action:                                                                     | Check the program and see why this occurred.                                                                                                                  |
| <b>CSEEFB01-W</b>                                                                | <b>NO PERIOD PRECEDING LEVEL NUMBER (nn)</b>                                                                                                                  |
| Explanation:                                                                     | A period did not immediately precede this level number.                                                                                                       |
| User Action:                                                                     | Check the previous line for a missing period.                                                                                                                 |
| <b>CSEEFB02-C</b>                                                                | <b>DATA NAME DOES NOT FOLLOW LEVEL NUMBER (nn)</b>                                                                                                            |
| Explanation:                                                                     | A level number was found and an expected data name following level number was not found.                                                                      |
| User Action:                                                                     | Check the line and make corrections as necessary.                                                                                                             |
| <b>CSEEFB03-C</b>                                                                | <b>(01) FOUND IN MARGIN B - IGNORING</b>                                                                                                                      |
| Explanation:                                                                     | The 01 level number found is within margin B, in column 12 or beyond. This 01 is being ignored as being a valid 01 level number.                              |
| Action:                                                                          | Check the line and make corrections if this is really a 01 level number.                                                                                      |
| <b>CSEEFB66-W</b>                                                                | <b>NO PERIOD PRECEDING LEVEL NUMBER (66)</b>                                                                                                                  |
| Explanation:                                                                     | A period did not immediately precede this level number.                                                                                                       |
| Action:                                                                          | Check the previous line for a missing period.                                                                                                                 |
| <b>CSEEFB67-C</b>                                                                | <b>DATA-NAME DOES NOT FOLLOW 66 LEVEL - BYPASSING</b>                                                                                                         |
| Explanation:                                                                     | Level 66 found with no data name following it.                                                                                                                |
| Action:                                                                          | Check the line and make corrections if this is really a 66 level number.                                                                                      |
| <b>CSEEFB68-C</b>                                                                | <b>RENAMES EXPECTED WITHIN 66 LEVEL AND NOT FOUND - BYPASSING</b>                                                                                             |
| Explanation:                                                                     | The syntax of 66 (RENAME) statement requires a data name to follow RENAMES word.                                                                              |

|                   |                                                                                                                                           |
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| Action:           | Check the syntax of 66 level line.                                                                                                        |
| <b>CSEEFB69-C</b> | <b>TOKEN PAST RENAMES NOT ALPHANUMERIC</b>                                                                                                |
| Explanation:      | The 66 level clause at the compiler number shown contains data following the COBOL verb, RENAMES that is not alphanumeric.                |
| User Action:      | Check the line and make corrections as necessary.                                                                                         |
| <b>CSEEFB77-W</b> | <b>NO PERIOD PRECEDING LEVEL NUMBER (level #)</b>                                                                                         |
| Explanation:      | The 77 level number at the compiler number shown is not preceded by a period.                                                             |
| User Action:      | Check the line preceding the level number for a missing period and correct.                                                               |
| <b>CSEEFB78-C</b> | <b>DATA NAME DOES NOT FOLLOW LEVEL NUMBER (level #) - BYPASSING</b>                                                                       |
| Explanation:      | The 77 level number at the compiler number shown is not followed by a data name.                                                          |
| User Action:      | Check the line and make corrections as necessary.                                                                                         |
| <b>CSEEFB79-W</b> | <b>(77) FOUND IN MARGIN B – ACCEPTED</b>                                                                                                  |
| Explanation:      | The 77 level number found at the compiler number shown is in margin B. It should be to the left of margin B.                              |
| User Action:      | Move the level number to the left of margin B or check the line and make corrections as necessary.                                        |
| <b>CSEEFB88-W</b> | <b>NO PERIOD PRECEDING 88 LEVEL NUMBER (level #) - ACCEPTING</b>                                                                          |
| Explanation:      | The 88 level number at the compiler number shown is not preceded by a period.                                                             |
| User Action:      | Check the line preceding the level number for a missing period and correct.                                                               |
| <b>CSEEFB89-W</b> | <b>DATA NAME DOES NOT FOLLOW 88 LEVEL NUMBER (level #) - BYPASSING</b>                                                                    |
| Explanation:      | The 88 level number at the compiler number shown is not followed by a data name.                                                          |
| User Action:      | Check the line and make corrections as necessary.                                                                                         |
| <b>CSEEFB90-W</b> | <b>(88) FOUND IN MARGIN A – ACCEPTED</b>                                                                                                  |
| Explanation:      | The 88 level number found at the compiler number shown is in margin A. It should be to the right of margin A.                             |
| User Action:      | Move the level number to margin B or check the line and make corrections as necessary.                                                    |
| <b>CSEEFB92-E</b> | <b>VALUE CLAUSE MISSING IN 88 LEVEL - BYPASSING</b>                                                                                       |
| Explanation:      | The 88 level number and clause at the compiler number shown must contain the word VALUE.                                                  |
| User Action:      | Check the line and make corrections as necessary.                                                                                         |
| <b>CSEEFB93-E</b> | <b>CANNOT FIND LITERAL AFTER (VALUE) - BYPASSING</b>                                                                                      |
| Explanation:      | The 88 level number and clause at the compiler number shown must contain a literal following the word VALUE.                              |
| User Action:      | Check the line and make corrections as necessary.                                                                                         |
| <b>CSEEFB23-E</b> | <b>PROBLEM IN RESOLVING OCCURS AT COMPILER # (compiler #) **SEE BELOW**</b>                                                               |
|                   | <b>LEVEL NUMBER = (level #)                      PRIOR END LOCATION = (location)</b>                                                      |
|                   | <b>NUMBER OF OCCURS = (nnn)                      CURRENT END LOCATION = (location)</b>                                                    |
| Explanation:      | An error was found in resolving an OCCURS clause. More information will be displayed underneath this message.                             |
| User Action:      | Look for a syntax error. If none can be found, contact MARBLE Computer, Inc. for support.                                                 |
| <b>CSEEFB32-C</b> | <b>GROUP LEVEL NAME BYPASSED FOR PURPOSES OF CALCULATING RECORD POSITIONS DUE TO SYNTAX ERROR</b>                                         |
| Explanation:      | A problem was encountered in resolving the record positions for a group item. More information will be displayed underneath this message. |
| User Action:      | Look for a syntax error. If none can be found, contact MARBLE Computer, Inc. for support.                                                 |
| <b>CSEEH01A-E</b> | <b>(SYNTAX) ERROR - (MOVE)</b>                                                                                                            |
| Explanation:      | The MOVE statement found at the compiler number shown has the reserved word TO missing or misplaced.                                      |
| User Action:      | Look at the line in question and make any necessary corrections.                                                                          |
| <b>CSEEH01B-C</b> | <b>THE END OF A (MOVE) STATEMENT IS INCOMPLETE OR CONTAINS AN UNRECOGNIZED SPECIAL REGISTER</b>                                           |
| Explanation:      | The MOVE statement found at the compiler number is incomplete.                                                                            |
| User Action:      | Look at the line in question and make any necessary corrections.                                                                          |
| <b>CSEEH03A-C</b> | <b>FILENAME FOLLOWING A (READ) VERB IS NOT ALPHANUMERIC – ACCEPTED AS IS</b>                                                              |



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| Explanation:      | A valid file name following the COBOL verb READ is expected at the compiler number shown.<br>The file name found is in question because it is not alphanumeric. |
| User Action:      | Check the file name and correct as necessary.                                                                                                                   |
| <b>CSEEH03B-E</b> | <b>NO FD ENTRIES FOUND FOR THE FILENAME (FD name)</b>                                                                                                           |
| Explanation:      | CSE has no FILE FDs in its internal table to match to the file name found in the READ statement at the compiler number shown.                                   |
| User Action:      | Check spelling and if necessary, check the Environment and Data Divisions for a valid FD or SD to match the name used.                                          |
| <b>CSEEH03C-E</b> | <b>NO MATCHING FILE-NAME FOR (filename)</b>                                                                                                                     |
| Explanation:      | The file name found after the READ statement at the compiler number shown does not match to a FD file name within the Data Division.                            |
| User Action:      | Check the file name and correct to match a file name in the Environment and Data Divisions.                                                                     |
| <b>CSEEH03D-C</b> | <b>(INTO IDENTIFIER-1) IDENTIFIER-1 NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                                       |
| Explanation:      | The record name following the word INTO in a READ statement is not alphanumeric at the compiler number shown.                                                   |
| User Action:      | Check the record name and correct as necessary.                                                                                                                 |
| <b>CSEEH04A-C</b> | <b>NAME FOLLOWING (WRITE) IS NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                                              |
| Explanation:      | The record name following the verb WRITE is not alphanumeric at the compiler number shown.                                                                      |
| User Action:      | Check the record name and correct as necessary.                                                                                                                 |
| <b>CSEEH04B-C</b> | <b>(FROM IDENTIFIER-1) IDENTIFIER -1 NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                                      |
| Explanation:      | The identifier that follows the word FROM in a WRITE statement is not alphanumeric at the compiler number shown.                                                |
| User Action:      | Check the identifier and make corrections as necessary.                                                                                                         |
| <b>CSEEH05A-C</b> | <b>IDENTIFIER FOLLOWING (ACCEPT) NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                                          |
| Explanation:      | The identifier that follows the COBOL verb ACCEPT at the compiler number shown is not alphanumeric.                                                             |
| User Action:      | Check the identifier and make corrections as necessary.                                                                                                         |
| <b>CSEEH06A-E</b> | <b>THE (ADD) STATEMENT REQUIRES A (TO) OR (GIVING) AND NEITHER WAS FOUND – BYPASSING</b>                                                                        |
| Explanation:      | The ADD statement at the compile number shown is missing the word, TO or GIVING.                                                                                |
| User Action:      | Check the ADD statement and correct as necessary.                                                                                                               |
| <b>CSEEH06B-E</b> | <b>THE END OF THE (ADD) STATEMENT IS INCOMPLETE OR CONTAINS AN UNRECOGNIZED SPECIAL REGISTER - BYPASSING</b>                                                    |
| Explanation:      | The ADD statement at the compiler number shown is incomplete.                                                                                                   |
| User Action:      | Check the ADD statement and correct as necessary.                                                                                                               |
| <b>CSEEH07A-E</b> | <b>THE (SUBTRACT) STATEMENT HERE REQUIRES THE WORD (FROM) AND IT WAS NOT FOUND – BYPASSING</b>                                                                  |
| Explanation:      | The SUBTRACT statement at the compiler number shown requires the word FROM to ensure correct syntax.                                                            |
| User Action:      | Check the SUBTRACT statement and correct as necessary.                                                                                                          |
| <b>CSEEH07B-E</b> | <b>THE END OF THIS (SUBTRACT) STATEMENT IS INCOMPLETE OR CONTAINS AN UNRECOGNIZED SPECIAL REGISTER - BYPASSING</b>                                              |
| Explanation:      | The SUBTRACT statement at the compiler number shown appears to be incomplete.                                                                                   |
| User Action:      | Check the SUBTRACT statement and correct as necessary.                                                                                                          |
| <b>CSEEH08A-E</b> | <b>THE (MULTIPLY) STATEMENT REQUIRES (BY) - BYPASSING</b>                                                                                                       |
| Explanation:      | The MULTIPLY statement at the compiler number shown is missing the word BY.                                                                                     |
| User Action:      | Check the MULTIPLY statement and correct as necessary.                                                                                                          |
| <b>CSEEH08B-E</b> | <b>THE (MULTIPLY) STATEMENT IS INCOMPLETE - BYPASSING</b>                                                                                                       |
| Explanation:      | The MULTIPLY statement at the compiler number shown is incomplete.                                                                                              |
| User Action:      | Check the MULTIPLY statement and correct as necessary.                                                                                                          |
| <b>CSEEH09A-E</b> | <b>THE (DIVIDE) STATEMENT REQUIRES (BY) OR (INTO) - BYPASSING</b>                                                                                               |
| Explanation:      | The DIVIDE statement at the compiler number shown requires the word BY or INTO to ensure correct syntax.                                                        |
| User Action:      | Check the DIVIDE statement and make corrections as necessary.                                                                                                   |

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| <b>CSEEH09B-E</b>                  | <b>THE (DIVIDE) STATEMENT IS INCOMPLETE - BYPASSING</b>                                                                                      |
| Explanation:                       | The DIVIDE statement at the compiler number shown is incomplete.                                                                             |
| User Action:                       | Check the DIVIDE statement and make corrections as necessary.                                                                                |
| <b>CSEEH10A-E</b>                  | <b>THE (COMPUTE) STATEMENT REQUIRES (=) AND THIS WAS NOT FOUND – BYPASSING</b>                                                               |
| Explanation:                       | The COMPUTE statement at the compiler number shown is incomplete and requires the symbol (=) or the word EQUAL or EQUALS for correct syntax. |
| User Action:                       | Check the COMPUTE statement and correct.                                                                                                     |
| <b>CSEEH10B-E</b>                  | <b>THE (COMPUTE) STATEMENT IS INCOMPLETE - BYPASSING</b>                                                                                     |
| Explanation:                       | The COMPUTE statement at the compiler number shown is incomplete.                                                                            |
| User Action:                       | Check the COMPUTE statement and correct.                                                                                                     |
| <b>CSEEH11A-C</b>                  | <b>FILE-NAME AFTER CLOSE (file-name) NOT ALPHANUMERIC - ACCEPTED</b>                                                                         |
| Explanation:                       | The file name following the COBOL verb CLOSE at the compiler number shown is not alphanumeric.                                               |
| User Action:                       | Check the CLOSE statement and make corrections as necessary.                                                                                 |
| <b>CSEEH11B-C</b>                  | <b>FILE -NAME AFTER CLOSE (file-name) NOT ALPHANUMERIC - ACCEPTED</b>                                                                        |
| Explanation:                       | The file name following the COBOL verb CLOSE at the compiler number shown is not alphanumeric.                                               |
| User Action:                       | Check the CLOSE statement and make corrections as necessary.                                                                                 |
| <b>CSEEH12A-C</b>                  | <b>FILE-NAME AFTER DELETE (file-name) NOT ALPHANUMERIC - ACCEPTED</b>                                                                        |
| Explanation:                       | The file name following the COBOL verb DELETE at the compiler number shown is not alphanumeric.                                              |
| User Action:                       | Check the DELETE statement and make corrections as necessary.                                                                                |
| <b>CSEEH14A-C</b>                  | <b>IDENTIFIER AFTER EXAMINE (field-contents) NOT ALPHANUMERIC - ACCEPTED</b>                                                                 |
| Explanation:                       | The field name found after the COBOL verb EXAMINE at the compiler number shown is not alphanumeric.                                          |
| User Action:                       | Check the EXAMINE statement and correct as necessary.                                                                                        |
| <b>CSEEH14B-C</b>                  | <b>(EXAMINE) FOUND (field-contents) FOR (TALLYING) OR (REPLACING) - BYPASSED</b>                                                             |
| Explanation:                       | The EXAMINE statement at the compiler number shown is missing the word TALLYING, REPLACING or is incorrect.                                  |
| User Action:                       | Check the EXAMINE statement and correct as necessary.                                                                                        |
| <b>CSEEH14C-C</b>                  | <b>EXAMINE WITH JUST REPLACING REQUIRES (BY); FOUND (field-contents) BYPASSING</b>                                                           |
| Explanation:                       | The EXAMINE statement at the compiler number shown is missing the word BY.                                                                   |
| User Action:                       | Check the EXAMINE statement and correct as necessary.                                                                                        |
| <b>CSEEH15A-C</b>                  | <b>(EXHIBIT) REQUIRES (NAMED) OR (CHANGED) - ACCEPTED AS IS</b>                                                                              |
| Explanation:                       | The EXHIBIT statement at the compiler number shown requires the word NAMED, CHANGED or both to ensure correct syntax.                        |
| User Action:                       | Check the EXHIBIT statement and correct as necessary.                                                                                        |
| <b>CSEEH22A-C</b>                  | <b>THE SYNTAX FOR AN OPEN STATEMENT IS INCOMPLETE</b>                                                                                        |
| Explanation:                       | The syntax found for the OPEN statement at this compiler line number is invalid.                                                             |
| User Action:                       | Look at the OPEN statement and determine the cause of the error.                                                                             |
| <b>CSEEH22B-C</b>                  | <b>EXPECTING INPUT, OUTPUT, I-O OR EXTEND - FOUND (field-contents) -TREATED AS (OUTPUT)</b>                                                  |
| Explanation:                       | The field shown was found after the verb OPEN.                                                                                               |
| User Action:                       | If this is correct, ignore or contact MARBLE Computer, Inc. If not, correct as necessary.                                                    |
| <b>CSEEH22C-C &amp; CSEEH22D-C</b> | <b>THE FILE-NAME (file-name) IS NOT ALPHANUMERIC – ACCEPTED AS IS</b>                                                                        |
| Explanation:                       | The file name found after the COBOL verb OPEN at the compiler number shown is not alphanumeric.                                              |
| User Action:                       | Check the OPEN statement and correct as necessary.                                                                                           |
| <b>CSEEH23A-E</b>                  | <b>THE FORMAT OF THIS (SET) STATEMENT IS UNRECOGNIZED - BYPASSING</b>                                                                        |
| Explanation:                       | Two forms of the SET statement are recognized: (SET index-name TO ?) and (SET index-name UP [or DOWN] BY ?).                                 |
| User Action:                       | Correct this SET statement as necessary.                                                                                                     |
| <b>CSEEH24A-C</b>                  | <b>IDENTIFIER AFTER (INSPECT) - (field-contents) NOT ALPHANUMERIC - ACCEPTED</b>                                                             |

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| Explanation:      | The identifier found after the COBOL verb INSPECT at the compiler number shown is not alphanumeric.                                              |
| User Action:      | Check the INSPECT statement and correct as necessary.                                                                                            |
| <b>CSEEH24B-C</b> | <b>EXPECTING (TALLYING) OR (REPLACING) - FOUND (field-contents) – BYPASSING</b>                                                                  |
| Explanation:      | At the compiler number shown, the item found after the first identifier in the INSPECT statement is not REPLACING, TALLYING or CONVERTING.       |
| User Action:      | Check the INSPECT statement and correct as necessary.                                                                                            |
| <b>CSEEH24C-C</b> | <b>IDENTIFIER AFTER INSPECT TALLYING (field-contents) NOT ALPHANUMERIC - ACCEPTED</b>                                                            |
| Explanation:      | In the INSPECT statement at the compiler number shown, the identifier following the word TALLYING was not alphanumeric.                          |
| User Action:      | Check the INSPECT statement and correct as necessary.                                                                                            |
| <b>CSEEH24D-C</b> | <b>(FOR) MISSING IN INSPECT TALLYING, FOUND (field-contents) - RESULTS UNPREDICTABLE</b>                                                         |
| Explanation:      | The INSPECT statement at the compiler number shown is missing the word FOR following the second identifier.                                      |
| User Action:      | Check the INSPECT statement and correct as necessary.                                                                                            |
| <b>CSEEH24E-C</b> | <b>EXPECTING (CHARACTERS), (ALL) OR (LEADING) FOUND (field-contents)</b>                                                                         |
| Explanation:      | The INSPECT statement at the compiler number shown is missing the word ALL, CHARACTERS or LEADING following the word FOR.                        |
| User Action:      | Check the INSPECT statement and correct as necessary.                                                                                            |
| <b>CSEEH24F-C</b> | <b>EXPECTING ALL, LEADING, FIRST, OR CHARACTERS; FOUND (field-contents)</b>                                                                      |
| Explanation:      | The INSPECT . . . REPLACING statement at the compiler number shown is missing a COBOL word.                                                      |
| User Action:      | Check the INSPECT statement and correct as necessary.                                                                                            |
| <b>CSEEH24G-C</b> | <b>INSPECT WITH (CONVERTING) REQUIRES (TO); FOUND (field-contents)</b>                                                                           |
| Explanation:      | The INSPECT . . . CONVERTING statement found at the compiler number shown requires the word TO following the second identifier.                  |
| User Action:      | Check the INSPECT statement and correct as necessary.                                                                                            |
| <b>CSEEH24H-C</b> | <b>EXPECTING (BY) AFTER (CHARACTERS) - FOUND (field-contents)</b>                                                                                |
| Explanation:      | The INSPECT . . . REPLACING CHARACTERS statement at the compiler number shown requires the word BY after the word CHARACTERS for correct syntax. |
| User Action:      | Check the INSPECT statement and correct as necessary.                                                                                            |
| <b>CSEEH24I-C</b> | <b>INSPECT WITH (REPLACING) REQUIRES (BY); FOUND (field-contents) - CONTINUING</b>                                                               |
| Explanation:      | The INSPECT . . . REPLACING statement at the compiler number shown requires the word BY after the identifier that follows REPLACING.             |
| User Action:      | Check the INSPECT statement and correct as necessary.                                                                                            |
| <b>CSEEH25A-C</b> | <b>EXPECTING ALPHANUMERIC FILE-NAME; FOUND (file-name) - ACCEPTED AS IS</b>                                                                      |
| Explanation:      | The file name following the COBOL verb MERGE at the compiler number shown is not alphanumeric.                                                   |
| User Action:      | Check the MERGE statement and make corrections as necessary.                                                                                     |
| <b>CSEEH25B-E</b> | <b>NO SD ENTRIES FOUND FOR (SD data-name)</b>                                                                                                    |
| Explanation:      | The file name used at the compiler number shown does not match a file name in the Data Division.                                                 |
| User Action:      | Check the file name and make corrections as necessary.                                                                                           |
| <b>CSEEH25C-E</b> | <b>NO MATCHING FILE-NAME FOUND FOR (file-name)</b>                                                                                               |
| Explanation:      | The file name used at the compiler number shown does not match a file name in the Data Division.                                                 |
| User Action:      | Check the file name and make corrections as necessary.                                                                                           |
| <b>CSEEH25D-C</b> | <b>EXPECTING (ASCENDING) OR (DESCENDING) FOUND (field-contents)</b>                                                                              |
| Explanation:      | The MERGE . . . ON statement at the compiler number shown must be followed by the word ASCENDING or DESCENDING.                                  |
| User Action:      | Check the MERGE statement and make the corrections as necessary.                                                                                 |
| <b>CSEEH25E-E</b> | <b>EXPECTING (USING) IN (MERGE) STMT-FOUND (field-contents) - BYPASSING</b>                                                                      |
| Explanation:      | The MERGE statement at the compiler number shown must be followed by the word, GIVING.                                                           |
| User Action:      | Check the MERGE statement and make corrections as necessary.                                                                                     |
| <b>CSEEH25F-E</b> | <b>EXPECTING (OUTPUT) OR (GIVING) - FOUND (field-contents)</b>                                                                                   |
| Explanation:      | The MERGE statement at the compiler number shown must be followed by the words, OUTPUT or GIVING, for this statement to have correct syntax.     |

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| User Action:      | Check the MERGE statement and make corrections as necessary.                                                                                      |
| <b>CSEEH25G-C</b> | <b>(PROCEDURE) IS MISSING AFTER (OUTPUT) - CONTINUING</b>                                                                                         |
| Explanation:      | The MERGE . . . OUTPUT statement at the compiler number shown is missing the word, PROCEDURE after OUTPUT.                                        |
| User Action:      | Check the MERGE statement and make corrections as necessary.                                                                                      |
| <b>CSEEH25H-C</b> | <b>MERGE KEY IS NOT ALPHANUMERIC (key) - ACCEPTED</b>                                                                                             |
| Explanation:      | The MERGE statement at the compiler number shown contains a key which is not alphanumeric.                                                        |
| User Action:      | Check the MERGE statement and make corrections as necessary.                                                                                      |
| <b>CSEEH26A-C</b> | <b>FILE NAME FOLLOWING (RECEIVE) IS NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                         |
| Explanation:      | The RECEIVE statement at the compiler number shown contains a file name which is not alphanumeric.                                                |
| User Action:      | Check the RECEIVE statement and make corrections as necessary.                                                                                    |
| <b>CSEEH26B-E</b> | <b>NO FD ENTRIES FOR (file-name)</b>                                                                                                              |
| Explanation:      | The File name found at the compiler number shown does not match a file name in the FD section of the Data Division.                               |
| User Action:      | Check the RECEIVE statement at the compiler number shown and make corrections as necessary.                                                       |
| <b>CSEEH26C-E</b> | <b>NO MATCHING FILE-NAME FOR (file-name)</b>                                                                                                      |
| Explanation:      | The file name found at the compiler number shown does not match a file name in the Data Division.                                                 |
| User Action:      | Check the RECEIVE statement at the compiler number shown and make corrections as necessary.                                                       |
| <b>CSEEH26D-C</b> | <b>(INTO IDENTIFIER-1) IDENTIFIER-1 NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                         |
| Explanation:      | The identifier found at the compiler number shown is not alphanumeric.                                                                            |
| User Action:      | Check the RECEIVE . . . INTO statement and correct as necessary.                                                                                  |
| <b>CSEEH27A-C</b> | <b>(SEARCH) OPERAND IS NOT ALPHANUMERIC – ACCEPTED AS IS</b>                                                                                      |
| Explanation:      | The operand or identifier following the COBOL verb SEARCH at the compiler number shown is not alphanumeric.                                       |
| User Action:      | Check the SEARCH statement and correct as necessary.                                                                                              |
| <b>CSEEH28A-C</b> | <b>RECORD NAME FOLLOWING (SEND) NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                             |
| Explanation:      | The SEND statement at the compiler number shown contains a record name which is not alphanumeric.                                                 |
| User Action:      | Check the SEND statement and correct as necessary.                                                                                                |
| <b>CSEEH28B-C</b> | <b>(FROM IDENTIFIER-1) IDENTIFIER-1 NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                         |
| Explanation:      | The SEND . . . FROM statement at the compiler number shown contains an identifier following the word FROM that is not alphanumeric.               |
| User Action:      | Check the SEND statement and correct as necessary.                                                                                                |
| <b>CSEEF29A-C</b> | <b>FILE NAME (file-name) IS NOT ALPHANUMERIC AFTER (SORT) - ACCEPTED AS IS</b>                                                                    |
| Explanation:      | The SORT statement at the compiler number shown contains a non-alphanumeric file name.                                                            |
| User Action:      | Check the SORT statement and correct as necessary.                                                                                                |
| <b>CSEEF29B-E</b> | <b>NO MATCHING SD ENTRIES FOUND FOR (SD name)</b>                                                                                                 |
| Explanation:      | The SORT statement at the compiler number shown contains a file name for the sort that does not match a file name for an SD in the Data Division. |
| User Action:      | Check the SORT statement and correct as necessary.                                                                                                |
| <b>CSEEH29C-E</b> | <b>NO MATCHING FILE-NAME FOUND FOR (file-name)</b>                                                                                                |
| Explanation:      | The SORT statement at the compiler number shown contains a file name that does not match a file name in the Data Division.                        |
| User Action:      | Check the SORT statement and correct as necessary.                                                                                                |
| <b>CSEEH29D-C</b> | <b>EXPECTING (ASCENDING) OR (DESCENDING) - FOUND (field-contents)</b>                                                                             |
| Explanation:      | The SORT statement at the compiler number shown is missing the word ASCENDING or DESCENDING following the name of the sort file and the word ON.  |
| User Action:      | Check the SORT statement and correct as necessary.                                                                                                |
| <b>CSEEH29E-E</b> | <b>EXPECTING (USING) or (INPUT) - FOUND (field-contents)</b>                                                                                      |
| Explanation:      | The SORT statement at the compiler number shown is missing the word INPUT or USING.                                                               |
| User Action:      | Check the SORT statement and correct as necessary.                                                                                                |
| <b>CSEEH29F-E</b> | <b>(OUTPUT) OR (GIVING) NOT FOUND WITHIN (SORT)</b>                                                                                               |

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| Explanation:                           | The SORT statement at the compiler number shown is missing the word GIVING or OUTPUT.                                                                             |
| User Action:                           | Check the SORT statement and correct as necessary.                                                                                                                |
| <b>CSEEH29G-C</b>                      | <b>PROCEDURE) IS MISSING AFTER (OUTPUT) - CONTINUING</b>                                                                                                          |
| Explanation:                           | The SORT statement at the compiler number shown is missing the word PROCEDURE after OUTPUT.                                                                       |
| User Action:                           | Check the SORT statement and correct as necessary                                                                                                                 |
| <b>CSEEH29H-C</b>                      | <b>SORT KEY IS NOT ALPHANUMERIC (sort-key) - ACCEPTED</b>                                                                                                         |
| Explanation:                           | The SORT statement at the compiler number shown contains a sort key that is not alphanumeric.                                                                     |
| User Action:                           | Check the SORT statement and correct as necessary.                                                                                                                |
| <b>CSEEH30A-C</b>                      | <b>EXPECTING ALPHANUMERIC FILE NAME AFTER (START) - FOUND (file-name)</b>                                                                                         |
| Explanation:                           | The START statement at the compiler number shown contains a file name that is not alphanumeric.                                                                   |
| User Action:                           | Check the START statement and make corrections as necessary.                                                                                                      |
| <b>CSEEH30B-E<br/>&amp; CSEEH30C-E</b> | <b>NO MATCHING FD ENTRY FOUND FOR (file-name)</b>                                                                                                                 |
| Explanation:                           | The START statement at the compiler number shown contains a file name that does not match a file name in the FD section of the Data Division.                     |
| User Action:                           | Check the START statement and make corrections as necessary.                                                                                                      |
| <b>CSEEH30D-C</b>                      | <b>(OR) WITHIN (START) REQUIRES (=), FOUND (field-contents)</b>                                                                                                   |
| Explanation:                           | The START statement at the compiler number shown contains the word OR which must be followed by the phrase EQUAL TO for correct syntax.                           |
| User Action:                           | Check the START statement and make corrections as necessary.                                                                                                      |
| <b>CSEEH31A-C</b>                      | <b>FILE-NAME FOLLOWING (SEEK) NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                                               |
| Explanation:                           | The SEEK statement at the compiler number shown contains a file name that is not alphanumeric.                                                                    |
| User Action:                           | Check the SEEK statement and make corrections as necessary.                                                                                                       |
| <b>CSEEH31B-E<br/>&amp; CSEEH31C-E</b> | <b>NO MATCHING FD ENTRIES FOUND FOR (file-name)</b>                                                                                                               |
| Explanation:                           | The SEEK statement at the compiler number shown contains a file name that does not match a file name in the FD section of the Data Division.                      |
| User Action:                           | Check the SEEK statement and make corrections as necessary.                                                                                                       |
| <b>CSEEH32A-C</b>                      | <b>EXPECTING (INTO) FOUND (field-contents)</b>                                                                                                                    |
| Explanation:                           | The STRING statement at the compiler number shown is missing the word INTO after the items that are being strung together.                                        |
| User Action:                           | Check the STRING statement and make corrections as necessary.                                                                                                     |
| <b>CSEEH32B-C</b>                      | <b>DATA-NAME AFTER (INTO) NOT ALPHANUMERIC - ACCEPTED</b>                                                                                                         |
| Explanation:                           | The STRING statement at the compiler number shown contains a non-alphanumeric data name following the word INTO.                                                  |
| User Action:                           | Check the STRING statement and make corrections as necessary.                                                                                                     |
| <b>CSEEH32C-C</b>                      | <b>VALID DATA -NAME SHOULD FOLLOW (WITH POINTER) IN (STRING)</b>                                                                                                  |
| Explanation:                           | The STRING statement at the compiler number shown contains a non-alphanumeric data name following the WITH POINTER clause or the data name is missing or invalid. |
| User Action:                           | Check the STRING statement and make corrections as necessary.                                                                                                     |
| <b>CSEEH33A-C</b>                      | <b>IDENTIFIER AFTER TRANSFORM (field-contents) NOT ALPHANUMERIC - ACCEPTED</b>                                                                                    |
| Explanation:                           | The TRANSFORM statement at the compiler number shown contains an identifier that is not alphanumeric.                                                             |
| User Action:                           | Check the TRANSFORM statement and make corrections as necessary.                                                                                                  |
| <b>CSEEH33B-E</b>                      | <b>(FROM) EXPECTED - FOUND (field-contents) BYPASSING</b>                                                                                                         |
| Explanation:                           | Expecting the word FROM at this point within the TRANSFORM statement.                                                                                             |
| User Action:                           | Check the TRANSFORM statement and make corrections as necessary.                                                                                                  |
| <b>CSEEH33C-E</b>                      | <b>EXPECTING (TO) - FOUND (field-contents)</b>                                                                                                                    |
| Explanation:                           | Expecting the word TO at this point within the TRANSFORM statement.                                                                                               |
| User Action:                           | Check the TRANSFORM statement and make corrections as necessary.                                                                                                  |
| <b>CSEEH34A-C</b>                      | <b>IDENTIFIER (field-contents) IS NOT ALPHANUMERIC</b>                                                                                                            |
| Explanation:                           | The UNSTRING statement at the compiler number shown contains an identifier which is not alphanumeric.                                                             |
| User Action:                           | Check the UNSTRING statement and make corrections as necessary.                                                                                                   |

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| <b>CSEEH34B-E</b>                      | <b>(INTO) FOR (UNSTRING) NOT FOUND</b>                                                                                                     |
| Explanation:                           | The UNSTRING statement at the compiler number shown is missing the word INTO or has the word misplaced.                                    |
| User Action:                           | Check the UNSTRING statement and make corrections as necessary.                                                                            |
| <b>CSEEH35A-C<br/>&amp; CSEEH35B-C</b> | <b>NAME AFTER (USING) NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                                |
| Explanation:                           | The ENTRY statement at the compiler number shown contains a data name following the word USING which is not alphanumeric.                  |
| User Action:                           | Check the ENTRY statement and make corrections as necessary.                                                                               |
| <b>CSEEH40A-C</b>                      | <b>THE DATA-NAME FOLLOWING INITIALIZE (identifier) IS NOT ALPHANUMERIC-ACCEPTED AS IS</b>                                                  |
| Explanation:                           | The INITIALIZE statement at the compiler number shown contains an identifier that is not alphanumeric.                                     |
| User Action:                           | Check the INITIALIZE statement and make corrections as necessary.                                                                          |
| <b>CSEEH40B-E</b>                      | <b>THE OPERAND AFTER REPLACING (field-contents) IS UNKNOWN - BYPASSING INITIALIZE</b>                                                      |
| Explanation:                           | The INITIALIZE statement at the compiler number shown contains an operand following the word REPLACING that is misspelled or unrecognized. |
| User Action:                           | Check the INITIALIZE statement and make corrections as necessary.                                                                          |
| <b>CSEEH40C-E</b>                      | <b>EXPECTING (BY) AFTER REPLACING, FOUND (field-contents) - BYPASSING INITIALIZE</b>                                                       |
| Explanation:                           | The INITIALIZE statement at the compile number shown contains an unrecognized word following the word REPLACING.                           |
| User Action:                           | Check the INITIALIZE statement and make corrections as necessary.                                                                          |
| <b>CSEEH46A-C</b>                      | <b>EXPECTING ALPHANUMERIC FIELD IN MARGIN B AFTER (EXEC field-contents) -FOUND (field-contents) ACCEPTED</b>                               |
| Explanation:                           | The EXEC statement at the compiler number shown contains a data name that is not alphanumeric or is not in the correct margin.             |
| User Action:                           | Check the EXEC statement and make corrections as necessary.                                                                                |
| <b>CSEEH46B-C</b>                      | <b>EXPECTING ALPHANUMERIC FIELD PRIOR TO LEFT PARENTHESIS - FOUND (Field-contents)</b>                                                     |
| Explanation:                           | The EXEC statement at the compiler number shown contains a field to the left of the left parenthesis that is not alphanumeric.             |
| User Action:                           | Check the EXEC statement and make corrections as necessary.                                                                                |
| <b>CSEEH46C-E</b>                      | <b>EXCESSIVE PARAMETERS BYPASSED IN (EXEC) STMT</b>                                                                                        |
| Explanation:                           | An excessive number of parameters were used within one EXEC statement.                                                                     |
| User Action:                           | Determine why an excessive number was used and correct. If already correct, contact MARBLE Computer, Inc.                                  |
| <b>CSEEH46D-E</b>                      | <b>EXPECTING QUALIFIER NAME AFTER (OF) OR (IN) (EXEC) STMT -BYPASSING QUALIFICATION</b>                                                    |
| Explanation:                           | The EXEC statement at the compile number shown is missing a qualifier name after OF or IN.                                                 |
| User Action:                           | Check the EXEC statement and make corrections as necessary.                                                                                |
| <b>CSEEH46E-C</b>                      | <b>EXCESSIVE QUALIFICATION FOR (EXEC) STATEMENT FOUND – PROCESSING CONTINUING</b>                                                          |
| Explanation:                           | An excessive number of qualifiers were used within one EXEC statement.                                                                     |
| User Action:                           | Determine why an excessive number was used and correct. If already correct, contact MARBLE Computer, Inc.                                  |
| <b>CSEEH51A-E</b>                      | <b>ALTER STATEMENT MISSING WORD (TO)</b>                                                                                                   |
| Explanation:                           | The ALTER statement at the compiler number shown is missing the word TO after the first procedure name.                                    |
| User Action:                           | Check the ALTER statement and make corrections as necessary.                                                                               |
| <b>CSEEH51B-E</b>                      | <b>ALTER STATEMENT MISSING PROCEDURE-NAME-2</b>                                                                                            |
| Explanation:                           | The ALTER statement at the compiler number shown is missing procedure-name-2 following the word TO.                                        |
| User Action:                           | Check the ALTER statement and make corrections as necessary.                                                                               |

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| <b>CSEEH57A-C</b>                                              | <b>(STOP) REQUIRES (RUN) OR (LITERAL)</b>                                                                                   |
| Explanation:                                                   | The STOP statement at the compiler number shown is missing the word RUN or a literal following it.                          |
| User Action:                                                   | Check the STOP statement and make corrections as necessary.                                                                 |
| <b>CSEEH60A-C</b>                                              | <b>DATA-NAME FOLLOWING (INITIATE) NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                     |
| Explanation:                                                   | The REPORT WRITER verb INITIATE requires an alphanumeric operand following it. This was not found.                          |
| User Action:                                                   | Check the statement and make necessary corrections.                                                                         |
| <b>CSEEH61A-C</b>                                              | <b>DATA-NAME FOLLOWING (GENERATE) NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                     |
| Explanation:                                                   | The REPORT WRITER verb GENERATE requires an alphanumeric operand following it. This was not found.                          |
| User Action:                                                   | Check the statement and make necessary corrections.                                                                         |
| <b>CSEEH62A-C</b>                                              | <b>DATA-NAME FOLLOWING (TERMINATED) NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                   |
| Explanation:                                                   | The REPORT WRITER verb TERMINATE requires an alphanumeric operand following it. This was not found.                         |
| User Action:                                                   | Check the statement and make necessary corrections.                                                                         |
| <b>CSEEEJ10A-I</b>                                             | <b>CONDITIONAL STATEMENT IS INCOMPLETE - IF 88 LEVEL INTENDED, CHECK SPELLING</b>                                           |
| Explanation:                                                   | A conditional statement is incomplete. If an 88 level was intended, a matching 88 level in the Data Division was not found. |
| User Action:                                                   | Check the conditional statement and make necessary corrections.                                                             |
| <b>CSEEEJ100-I</b>                                             | <b>PARSING CANNOT FIND THE BEGIN OF SECOND PART OF NON-88 CONDITIONAL</b>                                                   |
| Explanation:                                                   | A conditional statement is incomplete. If an 88 level was intended, a matching 88 level in the Data Division was not found. |
| User Action:                                                   | Check the conditional statement and make necessary corrections.                                                             |
| <b>CSEEEJ300-C /<br/>&amp; CSEEEJ400-C</b>                     | <b>(IF) EXCEEDED 125 OPERANDS FOR 1 CONDITION</b>                                                                           |
| Explanation:                                                   | An IF (or IF type) statement contains more than 125 operands within just 1 condition.                                       |
| User Action:                                                   | If this is a valid condition, contact MARBLE Computer, Inc.                                                                 |
| <b>CSEEEJAPA-E<br/>&amp; CSEEEJAPB-E<br/>&amp; CSEEEJS1A-C</b> | <b>AN INTERNAL TABLE HAS EXCEEDED 125 DATA-NAMES FOR 1 CONDITION</b>                                                        |
| Explanation:                                                   | An IF (or IF type) statement contains more than 125 operands within just 1 condition.                                       |
| User Action:                                                   | If this is a valid condition, contact MARBLE Computer, Inc.                                                                 |
| <b>CSEENASA-C</b>                                              | <b>EXCEEDED 75 QUALIFIERS FOR OPERANDS WITHIN JUST 1 CONDITION</b>                                                          |
| Explanation:                                                   | More than 75 qualifiers were used within just 1 condition.                                                                  |
| User Action:                                                   | If this is a valid condition, contact MARBLE Computer, Inc.                                                                 |
| <b>CSEERW0A-W</b>                                              | <b>NO PERIOD PRECEDING LEVEL NUMBER (level #)</b>                                                                           |
| Explanation:                                                   | The level number at the compiler number shown does not have a period preceding it on a previous line.                       |
| User Action:                                                   | Check the lines above the level number for a missing period and make corrections as necessary.                              |
| <b>CSEERW0B-C</b>                                              | <b>EXPECTING (ZERO) AFTER (BLANK)</b>                                                                                       |
| Explanation:                                                   | The word BLANK at the compiler number shown is missing the word ZERO after it.                                              |
| User Action:                                                   | Check the line and make corrections as necessary.                                                                           |
| <b>CSEERW0C-C<br/>&amp; CSEERW0D-C</b>                         | <b>EXPECTING NUMERIC INTEGER AFTER (COLUMN)</b>                                                                             |
| Explanation:                                                   | The word COLUMN at the compiler number shown is missing a numeric integer following it.                                     |
| User Action:                                                   | Check the line and make corrections as necessary.                                                                           |
| <b>CSEERW0E-C<br/>&amp; CSEERW0F-C</b>                         | <b>EXPECTING NUMERIC INTEGER AFTER (LINE)</b>                                                                               |
| Explanation:                                                   | The word LINE at the compiler number shown is missing a numeric integer following it.                                       |
| User Action:                                                   | Check the line and make corrections as necessary.                                                                           |
| <b>CSEERW0G-C</b>                                              | <b>EXPECTING (GROUP) AFTER (NEXT)</b>                                                                                       |
| Explanation:                                                   | The word NEXT at the compiler number shown is missing the word GROUP following it.                                          |
| User Action:                                                   | Check the line and make corrections as necessary.                                                                           |

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| <b>CSEERW0H-C<br/>&amp; CSEERW0I-C</b> | <b>EXPECTING NUMERIC INTEGER AFTER (NEXT GROUP)</b>                                                         |
| Explanation:                           | The phrase NEXT GROUP at the compiler number shown is missing a numeric integer following it.               |
| User Action:                           | Check the line and make corrections as necessary.                                                           |
| <b>CSEERW0J-C</b>                      | <b>CANNOT FIND VALID PICTURE CLAUSE</b>                                                                     |
| Explanation:                           | Expecting valid PICTURE clause to follow the word PICTURE and instead found data within the margin a field. |
| User Action:                           | Check the line and make corrections as necessary.                                                           |
| <b>CSEERW0K-E</b>                      | <b>EXPECTING (TALLY) OR IDENTIFIER AFTER (SUM)</b>                                                          |
| Explanation:                           | Expecting a valid data name within the SUM clause within REPORT WRITER.                                     |
| User Action:                           | Check the line and make corrections as necessary.                                                           |
| <b>CSEERW0L-C</b>                      | <b>EXPECTING IDENTIFIER AFTER (UPON)</b>                                                                    |
| Explanation:                           | Expecting a valid data name within the SUM UPON clause.                                                     |
| User Action:                           | Check the line and make corrections as necessary.                                                           |
| <b>CSEERW0M-E<br/>&amp; CSEERW0N-E</b> | <b>EXPECTING (HEADING) OR (FOOTING) AFTER (field-contents)</b>                                              |
| Explanation:                           | Expecting the word HEADING or FOOTING within REPORT WRITER at this line.                                    |
| User Action:                           | Check the line and make corrections as necessary.                                                           |
| <b>CSEERW0P-E</b>                      | <b>EXPECTING VALID TYPE AFTER (TYPE IS) - FOUND (field-contents)</b>                                        |
| Explanation:                           | An invalid entry was found after the TYPE IS clause.                                                        |
| User Action:                           | Check the line and make corrections as necessary.                                                           |
| <b>CSEERW0Q-C</b>                      | <b>EXPECTING (FINAL) OR IDENTIFIER AFTER (TYPE IS) CLAUSE</b>                                               |
| Explanation:                           | Expecting reserved word FINAL or a valid data name to follow the TYPE IS clause in REPORT WRITER.           |
| User Action:                           | Check the line and make corrections as necessary.                                                           |
| <b>CSEERW0R-C</b>                      | <b>EXPECTING VALID OPERAND FOR USAGE CLAUSE - FOUND (field-contents)</b>                                    |
| Explanation:                           | The USAGE clause is in error or contains a type usage unknown to CSE.                                       |
| User Action:                           | Correct USAGE clause or contact MARBLE Computer, Inc. if the USAGE clause is valid.                         |
| <b>CSEERW0S-E</b>                      | <b>EXPECTING LITERAL AFTER (VALUE) - FOUND (field-contents)</b>                                             |
| Explanation:                           | The entry following VALUE does not complete the VALUE clause within the REPORT SECTION.                     |
| User Action:                           | Determine why the entry is not valid and correct.                                                           |
| <b>CSEERWRA-C</b>                      | <b>MNEMONIC-NAME AFTER CODE MISSING</b>                                                                     |
| Explanation:                           | The operand following WITH CODE is missing.                                                                 |
| User Action:                           | Look at listing and correct.                                                                                |
| <b>CSEERWRB-C</b>                      | <b>EXPECTING INTEGER FOR PAGE CLAUSE</b>                                                                    |
| Explanation:                           | One of the PAGE clauses is missing a number following it.                                                   |
| User Action:                           | Consult the line indicated and correct the format of the PAGE clause.                                       |
| <b>CSEERWRC-C</b>                      | <b>EXPECTING INTEGER AFTER (field-contents)</b>                                                             |
| Explanation:                           | One of the PAGE clauses is missing a number following it.                                                   |
| User Action:                           | Consult the line indicated and correct the format of the PAGE clause.                                       |
| <b>CSEESDDB-E</b>                      | <b>NUMERIC INTEGER DOES NOT FOLLOW OCCURS - BYPASSING</b>                                                   |
| Explanation:                           | The OCCURS clause at the compiler number shown is not followed by a numeric integer.                        |
| User Action:                           | Check the OCCURS clause for a missing integer and make corrections as necessary.                            |
| <b>CSEESDDC-E</b>                      | <b>CANNOT FIND VALID ENTRY TO COMPLETE PICTURE CLAUSE - BYPASSING</b>                                       |
| Explanation:                           | The PICTURE clause is either continued in an invalid column or is incomplete or incorrect.                  |
| User Action:                           | Check the line and make corrections as necessary.                                                           |
| <b>CSEESDDD-E</b>                      | <b>ALPHANUMERIC DATA-NAME NOT FOUND AFTER REDEFINES - BYPASSING</b>                                         |
| Explanation:                           | The data name found after the REDEFINES clause in the Data Division is not alphanumeric.                    |
| User Action:                           | Check the line and make corrections as necessary.                                                           |
| <b>CSEESDDF-E</b>                      | <b>ALPHANUMERIC DATA-NAME NOT FOUND AFTER RENAMES - BYPASSING</b>                                           |
| Explanation:                           | The data name that follows the COBOL verb, RENAMES is not alphanumeric.                                     |



## Control/DCD – Error Messages

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| User Action:      | Check the RENAMEs clause and make corrections as necessary.                                                                                          |
| <b>CSEESDDG-W</b> | <b>ENTRY FOUND WITHIN USAGE CLAUSE IS EITHER INVALID OR UNRECOGNIZED BYPASSING</b>                                                                   |
| Explanation:      | The word following the USAGE IS clause is either incorrect or unrecognized.                                                                          |
| User Action:      | Check the USAGE IS clause and make corrections as necessary.                                                                                         |
| <b>CSEESDDH-E</b> | <b>CANNOT FIND LITERAL AFTER (VALUE) - BYPASSING</b>                                                                                                 |
| Explanation:      | The level number and clause at the compiler number shown must contain a literal following the word VALUE.                                            |
| User Action:      | Check the line indicated and make any necessary corrections.                                                                                         |
| <b>CSEESDDI-E</b> | <b>INDEX-NAME IS MISSING OR IS NOT ALPHANUMERIC AFTER (INDEXED BY) CLAUSE-BYPASSING</b>                                                              |
| Explanation:      | The INDEXED BY clause at the compiler number shown contains an index name that is not alphanumeric or is missing.                                    |
| User Action:      | Check the line and make corrections as necessary.                                                                                                    |
| <b>CSEESDDJ-C</b> | <b>ENTRY FOR PICTURE CLAUSE HAS NON-NUMERIC VALUE WITHIN PARENTHESES - (picture)</b>                                                                 |
| Explanation:      | The PICTURE clause at the compiler number shown must contain a numeric value within its parentheses.                                                 |
| User Action:      | Check the PICTURE clause and make corrections as necessary.                                                                                          |
| <b>CSEESDDL-C</b> | <b>EXPECTING ALPHANUMERIC NAME FOR (REPORT IS) CLAUSE</b>                                                                                            |
| Explanation:      | The REPORT IS clause at the compiler number shown contains a word following it that is not alphanumeric.                                             |
| User Action:      | Check the line and make corrections as necessary.                                                                                                    |
| <b>CSEESYLA-E</b> | <b>EXPECTING QUALIFIER TO FOLLOW (OF) OR (IN) - FOUND (field-contents)</b>                                                                           |
| Explanation:      | Expecting qualifier to follow OF or IN.                                                                                                              |
| User Action:      | Examine listing and insert qualifier at correct location.                                                                                            |
| <b>CSEGBA11-E</b> | <b>TABLE LIMITS EXCEEDED REGION</b>                                                                                                                  |
| Explanation:      | An internal table was not large enough to handle the program being documented.                                                                       |
| User Action:      | Rerun the job with a larger region.                                                                                                                  |
| <b>CSEGBB10-E</b> | <b>AN UNMATCHED RECORD IS BEING BYPASSED WHEN MATCHING FILES - LOOK FOR SYNTAX ERROR</b>                                                             |
| Explanation:      | Match merging of internal files is either out of sequence or an unmatched record is present. This may be due to a syntax error in the input program. |
| User Action:      | Try compiling the program to see if it compiles cleanly. If unsolved, contact MARBLE Computer, Inc.                                                  |
| <b>CSEGDZ10-D</b> | <b>DDNAME (CSEWKT2) IS MISSING WHEN PARM OPTION ( DIT ) IS SPECIFIED</b>                                                                             |
| Explanation:      | A necessary DD is missing for an internal work file.                                                                                                 |
| User Action:      | Insure that DDnames CSEWKT1 through CSEWKT4 are present within the JCL similar to DDnames CSEWK01, CSEWK02, etc.                                     |
| <b>CSEGDZ20-D</b> | <b>OVER nnnn CTLDLTCC CONTROL CARDS WERE USED – TABLE EXCEEDED</b>                                                                                   |
| Explanation:      | Too many control statements were specified.                                                                                                          |
| User Action:      | Limit the number of control statements to the number shown in the message printed.                                                                   |
| <b>CSEGDZ30-D</b> | <b>OVER 150 CONTROL CARDS WERE ADDED TO THE DIT CONTROL STATEMENT FILE – TABLE EXCEEDED</b>                                                          |
| Explanation:      | Too many control statements were specified.                                                                                                          |
| User Action:      | Use less control statements.                                                                                                                         |
| <b>CSEGDZ40-D</b> | <b>OVER 999 DATA NAMES WERE FOUND FOR DOING TRACING ON – TABLE EXCEEDED</b>                                                                          |
| Explanation:      | When tracing literals one data name with a literal directly to 1000 or more data names, an unusual condition.                                        |
| User Action:      | This condition if found and valid may be resolved by contacting MARBLE Computer, Inc.                                                                |
| <b>CSEGF002-D</b> | <b>DDNAME (CSEWK08) MISSING</b>                                                                                                                      |
| Explanation:      | The running of CSE requires work files CSEWK08. The DDNAME CSEWK08 was not found.                                                                    |
| User Action:      | See JCL examples in the 'Alternate Compile Listing' section in the User's Manual and correct JCL.                                                    |
| <b>CSEGJB04-C</b> | <b>EXCESSIVE QUALIFICATION AND/OR SUBSCRIPTING FOUND</b>                                                                                             |

## Control/DCD – Error Messages

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| Explanation:      | Excessive qualification and/or subscripting was found while handling a CORRESPONDING statement at this line number.                                                                                                                                                                                                                                                                                                                                                                                              |
| User Action:      | Determine why excessive qualification and/or subscripting is used and attempt to correct. If necessary, contact MARBLE Computer, Inc.                                                                                                                                                                                                                                                                                                                                                                            |
| <b>CSEGN02-W</b>  | <b>EXCESSIVE QUALIFICATION AND/OR SUBSCRIPTING FOUND</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Explanation:      | Excessive qualification and/or subscripting was found while handling a CORRESPONDING statement at this line number.                                                                                                                                                                                                                                                                                                                                                                                              |
| User Action:      | Determine why excessive qualification and/or subscripting was used and attempt to correct. If necessary, contact MARBLE Computer, Inc.                                                                                                                                                                                                                                                                                                                                                                           |
| <b>CSEGKB04-C</b> | <b>EXCESSIVE QUALIFICATION AND/OR SUBSCRIPTING FOUND</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Explanation:      | Excessive qualification and/or subscripting was found while handling a CORRESPONDING statement at this line number.                                                                                                                                                                                                                                                                                                                                                                                              |
| User Action:      | Determine why excessive qualification and/or subscripting was used and attempt to correct. If necessary, contact MARBLE Computer, Inc.                                                                                                                                                                                                                                                                                                                                                                           |
| <b>CSEGGF02-D</b> | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Explanation:      | The first record of a work file being read does not contain a MARBLE header record.                                                                                                                                                                                                                                                                                                                                                                                                                              |
| User Action:      | Look for possible previous message to this one. Look for an error in the JCL used.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>CSEGGH07-C</b> | <b>INSUFFICIENT SPACE TO HANDLE INITIALIZE DATA DIVISION NAMES (H070) - BYPASSING EXCESS NAMES</b>                                                                                                                                                                                                                                                                                                                                                                                                               |
| Explanation:      | A table for Data Division NAMES was not large enough to handle the program being documented.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| User Action:      | Contact MARBLE Computer, Inc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>CSEGN02-C</b>  | <b>EXCESSIVE QUALIFICATION AND/OR SUBSCRIPTING FOUND</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Explanation:      | Excessive qualification and/or subscripting was found while handling a CORRESPONDING statement at this line number.                                                                                                                                                                                                                                                                                                                                                                                              |
| User Action:      | Determine why excessive qualification and/or subscripting was used and attempt to correct. If necessary, contact MARBLE Computer, Inc.                                                                                                                                                                                                                                                                                                                                                                           |
| <b>CSEGSA05-E</b> | <b>TABLE LIMITS EXCEEDED REGION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Explanation:      | An internal table was not large enough to handle the program run through CSE.                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| User Action:      | Rerun the job with a larger region.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>CSEGS012-C</b> | <b>An Unconditional STOP RUN, GOBACK, or EXIT PROGRAM was not found within the program. Software will make a reasonable assumption to correct. To remove this Warning in future runs insert a *CAT STOP RUN as a comment line in the COBOL program at a place to establish correct end of mainline for use by software in building the Quick View Window.</b>                                                                                                                                                    |
| Explanation:      | This message will not occur within CSE, but in CAT software which uses some CSE scanning. It occurs when there is no STOP RUN and there is a CALL or other means to externally STOP the RUN.                                                                                                                                                                                                                                                                                                                     |
| User Action:      | Examine program to see if correct AND insert *CAT STOP RUN starting in column 7 where you think STOP RUN would normally be inserted in the program.                                                                                                                                                                                                                                                                                                                                                              |
| <b>CSEGS015-C</b> | <b>The mainline code from PROCEDURE DIVISION begin to first found unconditional program ending verb found nnnnn SET(s) of routines that were performed and reside within this range of code. If this is okay, ignore this warning! If there is an unrecognized CALL or other (non STOP RUN, GOBACK or EXIT PROGRAM) code that ends the mainline routine, see 'Create CAT Stop Run' option under Narrative Selection tab and consider checking that box to establish a CAT corrected end of mainline routine.</b> |
| Explanation:      | This message will not occur within CSE, but in CAT software which uses some CSE scanning. It may occur when there is no or a misplaced STOP RUN type verb and the mainline routine shows performed routines that possibly should not be there.                                                                                                                                                                                                                                                                   |
| User Action:      | Examine program to see if correct AND possibly use 'Create CAT Stop Run' checkbox under Narrative Selection tab where Quick View Window resides.                                                                                                                                                                                                                                                                                                                                                                 |
| <b>CSEGSAC0-E</b> | <b>MORE THAN 7000 SECTIONS - EXCESS IGNORED IN PAR2 PROGRAM</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Explanation:      | More than 7000 SECTIONS were found within one COBOL program.                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| User Action:      | If this is a valid condition, contact Marble Computer.                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>CSEGSB10-E</b> | <b>TABLE LIMITS EXCEEDED REGION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Explanation:      | An internal table was not large enough to handle the program run through CSE.                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| User Action:      | Rerun the job with a larger region.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>CSEGSE02-E</b> | <b>PROGRAM ERROR ON MATCH - CHECK FOR PRIOR TABLE EXCEEDED MESSAGE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                           |

## Control/DCD – Error Messages

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| Explanation:                       | An internal error has occurred in matching paragraph names. This is probably caused by a previously printed out table exceeded message.       |
| User Action:                       | If no other error messages are shown, contact MARBLE Computer, Inc.                                                                           |
| <b>CSEGSFP0-W</b>                  | <b>THE PARAGRAPH (paragraph-name) USED HERE IS NOT FOUND WITHIN THE PROGRAM</b>                                                               |
| Explanation:                       | A matching paragraph name to the one used here is not found within the program.                                                               |
| User Action:                       | Check for a missing name or a spelling error.                                                                                                 |
| <b>CSEGSFS0-W</b>                  | <b>THE SECTION (section-name) USED HERE IS NOT FOUND WITHIN THE PROGRAM</b>                                                                   |
| Explanation:                       | A matching section name to the one used is not found within the program.                                                                      |
| User Action:                       | Check for a missing name or a spelling error.                                                                                                 |
| <b>CSESG03-W / CSESG11-W</b>       | <b>A MATCH WAS NOT FOUND FOR PARAGRAPH NAME (paragraph-name)</b>                                                                              |
| Explanation:                       | A matching paragraph name to the one used here is not found within the program.                                                               |
| User Action:                       | Check for a missing name or a spelling error.                                                                                                 |
| <b>CSEGWA03-E</b>                  | <b>EXCESSIVE DYNAMIC CALLS FOUND AT THIS LINE NUMBER – REMAINING BYPASSED</b>                                                                 |
| Explanation:                       | Over 3000 dynamic CALLs were found in one program. Those over 3000 will be bypassed.                                                          |
| User Action:                       | Determine why such an excessive number of dynamic CALLs were used in one program and attempt to reduce this number.                           |
| <b>CSEGWB02-E &amp; CSEGWD02-E</b> | <b>EXCESSIVE MATCHING LITERALS TO DYNAMIC CALLS FOUND THIS LINE NUMBER</b>                                                                    |
| Explanation:                       | The number of VALUE and/or MOVE literals matching to names used in dynamic CALLs exceeds 2000.                                                |
| User Action:                       | Determine why excessive MOVES of literal to dynamic CALLs was used in one program and attempt to reduce this number.                          |
| <b>CSEHS041-D</b>                  | <b>INCREASE SORTREG= to larger value and rerun</b>                                                                                            |
| Explanation:                       | SORTREG is too small.                                                                                                                         |
| User Action:                       | Insure SORTREG is 810000, or 1024000, 1536000 & use a corresponding region as follows:<br>REG=8192K, REG=12288K OR REG=20480K                 |
| <b>CSEHSB11-E</b>                  | <b>MORE THAN (NNNNN) DATA NAMES USED IN THE PROCEDURE DIVISION</b>                                                                            |
| Explanation:                       | An internal table was exceeded within CSE and this table needed to be made larger.                                                            |
| User Action:                       | Contact Marble Computer, Inc.                                                                                                                 |
| <b>CSEIBCB1-I</b>                  | <b>TRACING TABLE EXCEEDED – SOME TRACING WILL BE LOST</b>                                                                                     |
| Explanation:                       | An internal table was exceeded within CSE and this table needed to be made larger.                                                            |
| User Action:                       | Contact Marble Computer, Inc.                                                                                                                 |
| <b>CSEIBMA0-E</b>                  | <b>INTERNAL 88 LEVEL TABLE EXCEEDED – SOME TRACING MAY BE LOST</b>                                                                            |
| Explanation:                       | An internal table was exceeded within CSE and this table needed to be made larger.                                                            |
| User Action:                       | Contact Marble Computer, Inc.                                                                                                                 |
| <b>CSEIF030-I</b>                  | <b>NO RECORDS WERE PASSED TO THE SORT FOR THE PROGRAM xxxxxxxx</b>                                                                            |
| Explanation:                       | No records were selected for the program shown for Direct Tracing of Literals                                                                 |
| User Action:                       | If this is a small program or a small Direct Literal report was anticipated, this may be normal.                                              |
| <b>CSEJA040-I</b>                  | <b>NO DATA NAMES INTO SORT</b>                                                                                                                |
| Explanation:                       | Probably a very small program was processed resulting in no PROCEDURE DIVISION verbs (Transfer of Control) or (Data Manipulation) were found. |
| User Action:                       | None.                                                                                                                                         |
| <b>CSEJC030-I</b>                  | <b>DOING REGULAR SORT DUE TO SIZE NEEDED - INCREASE SORTREG &amp; REGION TO ALLOW SHELL SORT</b>                                              |
| Explanation:                       | A SHELL sort would have been done if more region was available.                                                                               |
| User Action:                       | Consider using more SORTREG and corresponding REGION.                                                                                         |
| <b>CSEJC040-I</b>                  | <b>NO DATA-NAMES INTO SORT</b>                                                                                                                |
| Explanation:                       | This program contains no figurative constants, special registers, CALLs, COPY members or literals referenced from the Procedure Division.     |
| User Action:                       | None.                                                                                                                                         |
| <b>CSEJCTA0-C</b>                  | <b>DYNAMIC CALL TABLE EXCEEDED FOR CALL REPORT</b>                                                                                            |
| Explanation:                       | An internal Marble table is exceeded.                                                                                                         |
| User Action:                       | Contact Marble Computer, Inc.                                                                                                                 |

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| <b>CSEJE011-I</b>                                                                | <b>DOING REGULAR SORT DUE TO SIZE NEEDED - INCREASE</b>                                                                                                                     |
| Explanation:                                                                     | An internal SHELL Sort was attempted and aborted due to not enough table size.                                                                                              |
| User Action:                                                                     | Consider increasing SORTREG from 810000 to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.                                                 |
| <b>CSEJE020-I</b>                                                                | <b>NO DATA-NAMES INTO SORT</b>                                                                                                                                              |
| Explanation:                                                                     | No data names were passed out to the SORT. If the NOUNREF option was used, then unreferenced names were found to pass out to the SORT.                                      |
| User Action:                                                                     | None.                                                                                                                                                                       |
| <b>CSEJE021-W</b>                                                                | <b>NO DATA-NAMES WERE AVAILABLE FROM COBOL PROGRAM TO INCLUDE ON INTERNAL TABLE</b>                                                                                         |
| Explanation:                                                                     | No data names were included on an internal table. If the NOUNREF option was used, then no referenced names were found.                                                      |
| User Action:                                                                     | None.                                                                                                                                                                       |
| <b>CSEJED02-E<br/>&amp; CSEJED03-E<br/>&amp; CSEJED04-E<br/>&amp; CSEJED05-E</b> | <b>OVER 49 QUALIFIERS WERE FOUND FOR ONE USE OF A DATA NAME</b>                                                                                                             |
| Explanation:                                                                     | A data name with more than 49 qualifiers was found by CSE.                                                                                                                  |
| User Action:                                                                     | If this is a valid condition, contact MARBLE Computer, Inc.                                                                                                                 |
| <b>CSEJG031-I</b>                                                                | <b>DOING REGULAR SORT DUE TO SIZE NEEDED - INCREASE</b>                                                                                                                     |
| Explanation:                                                                     | An internal SHELL Sort was attempted and aborted due to not enough table size.                                                                                              |
| User Action:                                                                     | Consider increasing SORTREG from 810000 to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.                                                 |
| <b>CSEJG040-I</b>                                                                | <b>NO DATA-NAME INTO SORT</b>                                                                                                                                               |
| Explanation:                                                                     | There were no references in the Procedure Division to data names in the Data Division.                                                                                      |
| User Action:                                                                     | None.                                                                                                                                                                       |
| <b>CSEJI031-D</b>                                                                | <b>INCREASE SORTREG TO LARGER VALUE AND RERUN</b>                                                                                                                           |
| Explanation:                                                                     | SORTREG specified is too small.                                                                                                                                             |
| User Action:                                                                     | Use SORTREG=810000 or increase to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.                                                          |
| <b>CSEJI040-I</b>                                                                | <b>NO PARAGRAPH OR SECTION NAMES INTO SORT - IF (NOUNREF) USED, NO PARAGRAPHS WERE REFERENCED</b>                                                                           |
| Explanation:                                                                     | There were no references in the Procedure Division to paragraph or section names. If PARM option NOUNREF was used, then no paragraph names were referenced.                 |
| User Action:                                                                     | None.                                                                                                                                                                       |
| <b>CSEJPA34-E</b>                                                                | <b>SR-SECT-RANGE-TABLE EXCEEDED IN NOPARAS PROGRAM</b>                                                                                                                      |
| Explanation:                                                                     | An internal table was exceeded and needs to be fixed by Marble Computer, Inc.                                                                                               |
| User Action:                                                                     | Contact Marble Computer.                                                                                                                                                    |
| <b>CSEJPX01-I</b>                                                                | <b>NO PARAGRAPH OR SECTION NAMES INTO SORT</b>                                                                                                                              |
| Explanation:                                                                     | No paragraphs or sections were found.                                                                                                                                       |
| User Action:                                                                     | If a small program with none present, ignore message.                                                                                                                       |
| <b>CSEKBS02-C</b>                                                                | <b>INDEXES EXCEEDED 125 FOR ONE OCCURS</b>                                                                                                                                  |
| Explanation:                                                                     | CSE has a limit of 124 indexes present for 1 OCCURS. Documentation is lost.                                                                                                 |
| User Action:                                                                     | Check the OCCURS to determine the cause of excessive use and ensure there are less than 125 indexes per OCCURS. If this is a valid condition, contact MARBLE Computer, Inc. |
| <b>CSEKFA02-D</b>                                                                | <b>FILE EMPTY – NO MARBLE HEADER</b>                                                                                                                                        |
| Explanation:                                                                     | The first record of a work file being read does not contain a MARBLE header record.                                                                                         |
| User Action:                                                                     | Look for possible previous messages to this one. Look for an error in the JCL used.                                                                                         |
| <b>CSEKFB07-D</b>                                                                | <b>SELECTED MORE THAN 1000 ENTRIES – REDUCE SELECT</b>                                                                                                                      |
| Explanation:                                                                     | Over 1000 entries were SELECTED from the SELECT control statements entered.                                                                                                 |
| User Action:                                                                     | Reduce the number of SELECTs used, and resubmit the run.                                                                                                                    |
| <b>CSEKFBU1-E</b>                                                                | <b>TRACE TABLE (DIR-) EXCEEDED</b>                                                                                                                                          |

## Control/DCD – Error Messages

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| Explanation:                                                                     | An internal table, which holds detail from cumulative SELECTs, was exceeded.                                                                                                                                                     |
| User Action:                                                                     | Consider using less SELECTs or less ANDs and ORs in SELECTs.                                                                                                                                                                     |
| <b>CSEKFM02-D</b>                                                                | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                                                                                                                             |
| Explanation:                                                                     | The first record of a work file being read does not contain a MARBLE header record.                                                                                                                                              |
| User Action:                                                                     | Look for possible previous messages to this one. Look for an error in the JCL used.                                                                                                                                              |
| <b>CSEKFP06-E</b>                                                                | <b>OVER 9999 MATCHES - PROBABLE ERROR</b>                                                                                                                                                                                        |
| Explanation:                                                                     | With Trace Option, on one SELECT more than 9999 matches were found.                                                                                                                                                              |
| User Action:                                                                     | Look at SELECT and determine why this happened and fix.                                                                                                                                                                          |
| <b>CSEKFY1A-D</b>                                                                | <b>DDNAME (CSEWK09) MISSING</b>                                                                                                                                                                                                  |
| Explanation:                                                                     | The DDNAME CSEWK09 is required by CSE for program CSESYSTEM.                                                                                                                                                                     |
| User Action:                                                                     | Provide missing DDNAME. See JCL examples in User's Manual.                                                                                                                                                                       |
| <b>CSEKH040-D</b>                                                                | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                                                                                                                             |
| Explanation:                                                                     | An internal work file was found to be empty.                                                                                                                                                                                     |
| User Action:                                                                     | Try rerunning.                                                                                                                                                                                                                   |
| <b>CSEKH050-D</b>                                                                | <b>FILE EMPTY - NO DATA RECORDS</b>                                                                                                                                                                                              |
| Explanation:                                                                     | An internal work file was found to be empty.                                                                                                                                                                                     |
| User Action:                                                                     | Try rerunning.                                                                                                                                                                                                                   |
| <b>CSEM5020-I</b>                                                                | <b>NO DATA-NAMES INTO SORT</b>                                                                                                                                                                                                   |
| Explanation:                                                                     | No data names were found in the Data Division to be included on an internal table for building COBOL narrative from.                                                                                                             |
| User Action:                                                                     | None.                                                                                                                                                                                                                            |
| <b>CSEM5021-W</b>                                                                | <b>NO DATA-NAMES ON TABLE</b>                                                                                                                                                                                                    |
| Explanation:                                                                     | No data names were found in the Data Division to be included on an internal table for building COBOL narrative from.                                                                                                             |
| User Action:                                                                     | None.                                                                                                                                                                                                                            |
| <b>CSEM5031-I</b>                                                                | <b>DOING REGULAR SORT DUE TO SIZE NEEDED - INCREASE</b>                                                                                                                                                                          |
| Explanation:                                                                     | An internal SHELL Sort was attempted and aborted due to not enough table size.                                                                                                                                                   |
| User Action:                                                                     | Consider increasing SORTREG from 810000 to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.                                                                                                      |
| <b>CSEM5D02-C<br/>&amp; CSEM5D03-C<br/>&amp; CSEM5D04-C<br/>&amp; CSEM5D05-C</b> | <b>OVER 49 QUALIFIERS WERE FOUND FOR ONE DATA NAME</b>                                                                                                                                                                           |
| Explanation:                                                                     | A data name with more than 49 qualifiers was found by CSE.                                                                                                                                                                       |
| User Action:                                                                     | If this is a valid condition, contact MARBLE Computer, Inc.                                                                                                                                                                      |
| <b>CSEM5FA0-C</b>                                                                | <b>QUALIFICATION USED IN LINE #nnnnn IS NOT WITHIN 01 RECORD</b>                                                                                                                                                                 |
| Explanation:                                                                     | A MOVE or other verb is using qualification and one data name is not within the 01 record.                                                                                                                                       |
| User Action:                                                                     | Replace the data name not within the 01 record to a name within the 01 record.                                                                                                                                                   |
| <b>CSEM5J01-W</b>                                                                | <b>THE NAME (reference-name) DOES NOT MATCH TO A DATA DIVISION NAME</b>                                                                                                                                                          |
| Explanation:                                                                     | A Procedure Division reference was made to a Data Division name that does not exist.                                                                                                                                             |
| User Action:                                                                     | Check for a spelling error. If the name shown is a special register, notify MARBLE Computer, Inc. Then, ignore the message.                                                                                                      |
| <b>CSEM6000-I</b>                                                                | <b>//PRINT DD points to Alternate Compile report OR use Compiler listing to match on expanded sequence numbers</b>                                                                                                               |
| Explanation:                                                                     | The numeric value in previous message points to an expanded Sequence Number after COPY members have been expanded in listing. Either use ACL listing or Compiler Listing must be used to match on this expanded sequence number. |
| User Action:                                                                     | Be aware where to find where this sequence number.                                                                                                                                                                               |
| <b>CSEM6080-I</b>                                                                | <b>Use PARM (INV) or ISPF ERRORS option (I) to show nnn possible INVALID DATA messages</b>                                                                                                                                       |
| Explanation:                                                                     | There were nnn INFORMATIONAL message showing possible conflict with literal value in an alphanumeric field AND/OR a DISPLAY numeric field that it may reach AND/OR no value for a DISPLAY Numeric field.                         |
| User Action:                                                                     | Optional turn on INVALID-DATA option.                                                                                                                                                                                            |
| <b>CSEM6051-I</b>                                                                | <b>DOING REGULAR SORT DUE TO SIZE NEEDED - INCREASE</b>                                                                                                                                                                          |

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| Explanation:      | An internal SHELL Sort was attempted and aborted due to not enough table size.                                                                                                            |
| User Action:      | Consider increasing SORTREG from 810000 to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.                                                               |
| <b>CSEM6H01-I</b> | <b>WORKING-STORAGE Numeric USAGE DISPLAY Field has NO VALUE</b>                                                                                                                           |
| Explanation:      | A Numeric field with usage DISPLAY within the WORKING-STORAGE section does not have a VALUE assigned.                                                                                     |
| User Action:      | Assign a VALUE clause unless for some reason NO VALUE is wanted.                                                                                                                          |
| <b>CSEM6I30-I</b> | <b>NO VALUE here overlaps 1 or more Numeric fields at nnnnn in //PRINT DD</b>                                                                                                             |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>The field here has no VALUE clause and overlaps one or more redefined Numeric field(s).                    |
| User Action:      | Consider assigning a VALUE with all DISPLAY numeric characters here.                                                                                                                      |
| <b>CSEM6IA1-I</b> | <b>VALUE SPACES has REDEFINED Numeric field at nnnnn in //PRINT DD</b>                                                                                                                    |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>The field here has VALUE SPACES and redefines one or more DISPLAY Numeric field(s).                        |
| User Action:      | Consider changing VALUE clause to be consistent with DISPLAY numeric characters.                                                                                                          |
| <b>CSEM6IA2-I</b> | <b>VALUE SPACES has REDEFINED Numeric Overlapping Pos at nnnnn in //PRINT DD</b>                                                                                                          |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>The field here has VALUE SPACES and this overlaps a redefined DISPLAY Numeric field(s).                    |
| User Action:      | Consider changing VALUE clause to be consistent with DISPLAY numeric characters.                                                                                                          |
| <b>CSEM6IA3-I</b> | <b>VALUE SPACES is a part of a Numeric field at nnnnn in //PRINT DD</b>                                                                                                                   |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>The field here has VALUE SPACES and this overlaps a redefined DISPLAY Numeric field(s).                    |
| User Action:      | Consider changing VALUE clause to be consistent with DISPLAY numeric characters.                                                                                                          |
| <b>CSEM6IA5-I</b> | <b>VALUE SPACES may reach Numeric field at nnnnn in //PRINT DD</b>                                                                                                                        |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>The field here has VALUE SPACES and this overlaps a redefined DISPLAY Numeric field(s).                    |
| User Action:      | Consider changing VALUE clause to be consistent with DISPLAY numeric characters.                                                                                                          |
| <b>CSEM6IB2-I</b> | <b>FIGURATIVE CONSTANT VALUE bad for REDEFINED field at nnnnn in //PRINT DD</b>                                                                                                           |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>The field here has a figurative constant (like HIGH-VALUES) that conflicts with a redefined Numeric field. |
| User Action:      | Consider changing VALUE clause to be consistent with DISPLAY numeric characters.                                                                                                          |
| <b>CSEM6IB5-I</b> | <b>VALUE FIGURATIVE CONSTANT may reach Numeric field at nnnnn in //PRINT DD</b>                                                                                                           |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>The field here has a figurative constant (like HIGH-VALUES) that conflicts with a redefined Numeric field. |
| User Action:      | Consider changing VALUE clause to be consistent with DISPLAY numeric characters.                                                                                                          |
| <b>CSEM6ID3-I</b> | <b>VALUE ALL 'x' overlaps DISPLAY Numeric fields at nnnnn in //PRINT DD</b>                                                                                                               |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>The literal in VALUE ALL is not 0-9 and this field has a redefined Numeric field.                          |
| User Action:      | Look at why this is happening and consider appropriate changes.                                                                                                                           |
| <b>CSEM6ID4-I</b> | <b>VALUE ALL 'x' overlaps DISPLAY Numeric fields at nnnnn in //PRINT DD</b>                                                                                                               |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>The literal in VALUE ALL is not 0-9 and this field OVERLAPS a redefined Numeric field.                     |
| User Action:      | Look at why this is happening and consider appropriate changes.                                                                                                                           |
| <b>CSEM6ID5-I</b> | <b>VALUE ALL 'x' conflicts with DISPLAY Numeric fields at nnnnn in //PRINT DD</b>                                                                                                         |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>The literal in VALUE ALL is not 0-9 and this field has a redefined Numeric field.                          |
| User Action:      | Look at why this is happening and consider appropriate changes.                                                                                                                           |
| <b>CSEM6ID6-I</b> | <b>VALUE ALL 'x' may reach Numeric field at nnnnn in //PRINT DD with MOVE from field at nnnnn</b>                                                                                         |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>A MOVE was found that moves this VALUE ALL literal to another field that has a redefined Numeric field.    |
| User Action:      | Look at why this is happening and consider appropriate changes.                                                                                                                           |

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| <b>CSEM6IE3-I</b> | <b>VALUE 'xxx' OVERLAPS Numeric Positions in field at nnnnn in //PRINT DD</b>                                                                                                                                |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>This VALUE literal has a redefined Numeric field where this VALUE is not all numeric.                                         |
| User Action:      | Look at why this is happening and consider appropriate changes.                                                                                                                                              |
| <b>CSEM6IE4-I</b> | <b>VALUE 'xxx' INVALID for field at nnnnn in //PRINT DD</b>                                                                                                                                                  |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>This VALUE literal has a redefined Numeric field where this VALUE is not all numeric.                                         |
| User Action:      | Look at why this is happening and consider appropriate changes.                                                                                                                                              |
| <b>CSEM6IE5-I</b> | <b>VALUE 'xxx' INVALID for field at nnnnn in //PRINT DD</b>                                                                                                                                                  |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>This VALUE literal has a redefined Numeric field where this VALUE is not all numeric.                                         |
| User Action:      | Look at why this is happening and consider appropriate changes.                                                                                                                                              |
| <b>CSEM6IE7-I</b> | <b>VALUE 'xxx' covers Numeric field at nnnnn in //PRINT DD with field at nnnnn</b>                                                                                                                           |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>A MOVE was found that moves this VALUE literal to another field that has a redefined Numeric field.                           |
| User Action:      | Look at why this is happening and consider appropriate changes.                                                                                                                                              |
| <b>CSEM6KA1-I</b> | <b>MOVE (figurative constant) may be INVALID for field at nnnnn in //PRINT DD</b>                                                                                                                            |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>A MOVE (figurative constant) is made to a field that has a redefined Numeric field.                                           |
| User Action:      | Look at why this is happening and consider appropriate changes.                                                                                                                                              |
| <b>CSEM6KA2-I</b> | <b>MOVE (figurative constant) may be INVALID for field at nnnnn in //PRINT DD</b>                                                                                                                            |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>A MOVE (figurative constant) is made to a field that has a redefined Numeric field.                                           |
| User Action:      | Look at why this is happening and consider appropriate changes.                                                                                                                                              |
| <b>CSEM6KA3-I</b> | <b>MOVE (figurative constant) may be reach field at nnnnn in //PRINT DD via MOVE at nnnnn</b>                                                                                                                |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>A MOVE (figurative constant) is made to a field that has its field moved to another field that has a redefined Numeric field. |
| User Action:      | Look at why this is happening and consider appropriate changes.                                                                                                                                              |
| <b>CSEM6KC1-I</b> | <b>MOVE 'xxx' may be invalid for REDEFINED field at nnnnn in //PRINT DD</b>                                                                                                                                  |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>A MOVE literal may be INVALID for REDEFINED field at nnnnn.                                                                   |
| User Action:      | Look at why this is happening and consider appropriate changes.                                                                                                                                              |
| <b>CSEM6KC3-I</b> | <b>MOVE 'xxx' may reach field at (nnnnn) in //PRINT DD via MOVE at nnnnn</b>                                                                                                                                 |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>A MOVE literal is made to a field that has its field moved to another field that has a redefined Numeric field.               |
| User Action:      | Look at why this is happening and consider appropriate changes.                                                                                                                                              |
| <b>CSEM6KD1-I</b> | <b>MOVE 'xxx' to field where REDEFINES covers nn fields</b>                                                                                                                                                  |
| Explanation:      | A MOVE literal may be INVALID for REDEFINED fields at nnn Numeric DISPLAY fields.                                                                                                                            |
| User Action:      | Look at why this is happening and consider appropriate changes.                                                                                                                                              |
| <b>CSEM6KD3-I</b> | <b>MOVE 'xxx' may reach field at (nnnnn) via MOVE at nnnnn in //PRINT DD</b>                                                                                                                                 |
| Explanation:      | See following error CSEM6000 for explanation of //PRINT DD in this message.<br>A MOVE literal is made to a field that has its field moved to another field that has a redefined Numeric field.               |
| User Action:      | Look at why this is happening and consider appropriate changes.                                                                                                                                              |
| <b>CSEM8021-I</b> | <b>DOING REGULAR SORT DUE TO SIZE NEEDED - INCREASE</b>                                                                                                                                                      |
| Explanation:      | An internal SHELL Sort was attempted and aborted due to not enough table size.                                                                                                                               |
| User Action:      | Consider increasing SORTREG from 810000 to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.                                                                                  |
| <b>CSEM8031-D</b> | <b>INCREASE SORTREG TO LARGER VALUE AND RERUN</b>                                                                                                                                                            |
| Explanation:      | SORTREG specified is too small.                                                                                                                                                                              |
| User Action:      | Use SORTREG=810000 or increase to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.                                                                                           |
| <b>CSEM8U20-I</b> | <b>NO DATA NAMES INTO SORT</b>                                                                                                                                                                               |

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| Explanation:      | A program processing Indirect References had no data names to sort.                                                         |
| User Action:      | Similar to error message above, if program is small, ignore this error message.                                             |
| <b>CSEM9021-D</b> | <b>INCREASE SORTREG TO LARGER VALUE AND RERUN</b>                                                                           |
| Explanation:      | SORTREG specified is too small.                                                                                             |
| User Action:      | Use SORTREG=810000 or increase to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.          |
| <b>CSEM9A02-I</b> | <b>NO INDIRECT REFERENCES IN PROGRAM WERE FOUND</b>                                                                         |
| Explanation:      | No indirect references were found within the entire COBOL.                                                                  |
| User Action:      | If program is small with very few references, ignore this error message.                                                    |
| <b>CSEM9U20-I</b> | <b>NO DATA NAMES INTO SORT</b>                                                                                              |
| Explanation:      | A program processing Indirect References had no data names to sort.                                                         |
| User Action:      | Similar to error message above, if program is small, ignore this error message.                                             |
| <b>CSEMB030-I</b> | <b>DOING REGULAR SORT DUE TO SIZE NEEDED - INCREASE</b>                                                                     |
| Explanation:      | An internal SHELL Sort was attempted and aborted due to not enough table size.                                              |
| User Action:      | Consider increasing SORTREG from 810000 to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively. |
| <b>CSEMG051-I</b> | <b>DOING REGULAR SORT DUE TO SIZE NEEDED - INCREASE</b>                                                                     |
| Explanation:      | An internal SHELL Sort was attempted and aborted due to not enough table size.                                              |
| User Action:      | Consider increasing SORTREG from 810000 to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively. |
| <b>CSEMH03F-D</b> | <b>INCREASE SORTREG TO LARGER VALUE AND RERUN</b>                                                                           |
| Explanation:      | SORTREG specified is too small.                                                                                             |
| User Action:      | Use SORTREG=810000 or increase to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.          |
| <b>CSEMH03P-I</b> | <b>DOING REGULAR SORT DUE TO SIZE NEEDED - INCREASE</b>                                                                     |
| Explanation:      | An internal SHELL Sort was attempted and aborted due to not enough table size.                                              |
| User Action:      | Consider increasing SORTREG from 810000 to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively. |
| <b>CSEMH051-I</b> | <b>DOING REGULAR SORT DUE TO SIZE NEEDED - INCREASE</b>                                                                     |
| Explanation:      | An internal SHELL Sort was attempted and aborted due to not enough table size.                                              |
| User Action:      | Consider increasing SORTREG from 810000 to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively. |
| <b>CSEMJ035-I</b> | <b>DOING REGULAR SORT DUE TO SIZE NEEDED - INCREASE</b>                                                                     |
| Explanation:      | An internal SHELL Sort was attempted and aborted due to not enough table size.                                              |
| User Action:      | Consider increasing SORTREG from 810000 to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively. |
| <b>CSEMJM85-E</b> | <b>AN INTERNAL ERROR HAS OCCURED - Contact Marble Computer</b>                                                              |
| Explanation:      | An internal error occurred.                                                                                                 |
| User Action:      | Contact Marble Computer for assistance.                                                                                     |
| <b>CSEMJM86-E</b> | <b>AN INTERNAL ERROR HAS OCCURED - Contact Marble Computer</b>                                                              |
| Explanation:      | An internal error occurred.                                                                                                 |
| User Action:      | Contact Marble Computer for assistance.                                                                                     |
| <b>CSEMJM95-E</b> | <b>AN INTERNAL ERROR HAS OCCURED - Contact Marble Computer</b>                                                              |
| Explanation:      | An internal error occurred.                                                                                                 |
| User Action:      | Contact Marble Computer for assistance.                                                                                     |
| <b>CSEMKB02-I</b> | <b>TABLE TOO SMALL - Contact MARBLE Computer</b>                                                                            |
| Explanation:      | An internal table was exceeded for an exceptionally large program.                                                          |
| User Action:      | Contact Marble Computer.                                                                                                    |
| <b>CSEMN002-D</b> | <b>DDNAME (CSEWK07) MISSING</b>                                                                                             |
| Explanation:      | The running of CSE requires work files CSEWK07 and others. The DDNAME CSEWK07 was not found.                                |
| User Action:      | See JCL examples in the 'Alternate Compile Listing' section in the User's Manual and correct JCL.                           |



|                                                                                  |                                                                                                                                          |
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| <b>CSEMN011-D</b>                                                                | <b>INCREASE SORTREG TO LARGER VALUE AND RERUN</b>                                                                                        |
| Explanation:                                                                     | SORTREG specified is too small.                                                                                                          |
| User Action:                                                                     | Use SORTREG=810000 or increase to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.                       |
| <b>CSEMR051-D</b>                                                                | <b>INCREASE SORTREG= TO LARGER VALUE AND RERUN</b>                                                                                       |
| Explanation:                                                                     | SORTREG specified is too small.                                                                                                          |
| User Action:                                                                     | Use SORTREG=810000 or increase to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.                       |
| <b>CSEMRB10-E</b>                                                                | <b>AN INTERNAL ERROR HAS OCCURED - Contact Marble Computer</b>                                                                           |
| Explanation:                                                                     | An internal error occurred.                                                                                                              |
| User Action:                                                                     | Contact Marble Computer for assistance.                                                                                                  |
| <b>CSEMSC02-E</b>                                                                | <b>INTERNAL EPT TABLE EXCEEDED - Contact Marble Computer</b>                                                                             |
| Explanation:                                                                     | An internal table size was exceeded.                                                                                                     |
| User Action:                                                                     | Contact Marble Computer for assistance.                                                                                                  |
| <b>CSEMW090-I</b>                                                                | <b>DOING REGULAR SORT DUE TO SIZE NEEDED - INCREASE</b>                                                                                  |
| Explanation:                                                                     | An internal SHELL Sort was attempted and aborted due to not enough table size.                                                           |
| User Action:                                                                     | Consider increasing SORTREG from 810000 to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.              |
| <b>CSEMWH01-E</b>                                                                | <b>Error BLDNARR - WT-TABLE exceeded - Contact Marble Computer</b>                                                                       |
| Explanation:                                                                     | An internal table size was exceeded.                                                                                                     |
| User Action:                                                                     | Contact Marble Computer for assistance.                                                                                                  |
| <b>CSEMUC02-W</b>                                                                | <b>FILE EMPTY - NO DATA OR PARAGRAPH RECORDS</b>                                                                                         |
| Explanation:                                                                     | An internal work file found no Data or Paragraph records for this COBOL program. This may be a valid condition for a very small program. |
| User Action:                                                                     | Check program and if very small ignore this message.                                                                                     |
| <b>CSEMWU20-W</b>                                                                | <b>NO DATA-NAMES INTO SORT</b>                                                                                                           |
| Explanation:                                                                     | This program contains no sequence numbers of names referenced from the Procedure Division.                                               |
| User Action:                                                                     | None.                                                                                                                                    |
| <b>CSEMWU21-W</b>                                                                | <b>NO DATA-NAMES ON TABLE</b>                                                                                                            |
| Explanation:                                                                     | This program contains no sequence numbers of names referenced from the Procedure Division.                                               |
| User Action:                                                                     | If this is a small program, none, otherwise investigate why no sequence numbers were picked up.                                          |
| <b>CSEMXJ01-E</b>                                                                | <b>INDIRECT TABLE FOR REPORT EXCEEDED</b>                                                                                                |
| Explanation:                                                                     | An internal table was exceeded.                                                                                                          |
| User Action:                                                                     | Contact Marble Computer.                                                                                                                 |
| <b>CSENHD02-C<br/>&amp; CSENHD03-C<br/>&amp; CSENHD04-C<br/>&amp; CSENHD05-C</b> | <b>OVER 49 QUALIFIERS WERE FOUND FOR ONE DATA NAME</b>                                                                                   |
| Explanation:                                                                     | A data name with 49 qualifiers was found by CSE.                                                                                         |
| User Action:                                                                     | If this is a valid condition, contact MARBLE Computer, Inc.                                                                              |
| <b>CSENHJ01-W</b>                                                                | <b>THE NAME (reference-name) DOES NOT MATCH TO A DATA DIVISION NAME</b>                                                                  |
| Explanation:                                                                     | A Procedure Division reference was made to a Data Division name that does not exist.                                                     |
| User Action:                                                                     | Check for a spelling error. If the name shown is a special register, notify MARBLE Computer, Inc. Then, ignore the message.              |
| <b>CSEP1R10-E</b>                                                                | <b>EXCESSIVE SELECTIONS FOUND IN TRACING ALL POSSIBLE NAMES -TURN OFF YAP OPTION AND EXAMINE FIELDS SELECTED</b>                         |
| Explanation:                                                                     | Excessive SELECTIONs caused one or more internal tables to be exceeded.                                                                  |
| User Action:                                                                     | Turn off TRACING option to get run to continue to end, then examine to see how SELECTs can be limited.                                   |
| <b>CSEP1SBA-E</b>                                                                | <b>RFP-TABLE NBR ENTRIES EXCEEDED – SELECT LESS ENTRIES OR CONTACT MARBLE COMPUTER</b>                                                   |
| Explanation:                                                                     | An internal SELECT table for Abend Analysis was exceeded.                                                                                |
| User Action:                                                                     | Use less SELECTs in an attempt to have program run.                                                                                      |

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| <b>CSEP1Y70-I</b>                      | <b>NO DIRECT SELECTED NAMES WERE FOUND - TRACING FOR PROGRAM (progrname) NOT DONE</b>                                                                                                            |
| Explanation:                           | An option was on indicating that TRACING should be done, however no names were selected.                                                                                                         |
| User Action:                           | Specify one or more names for SELECTION with SELECT statements.                                                                                                                                  |
| <b>CSEP2031-D</b>                      | <b>INCREASE SORTREG TO LARGER VALUE AND RERUN</b>                                                                                                                                                |
| Explanation:                           | SORTREG specified is too small.                                                                                                                                                                  |
| User Action:                           | Use SORTREG=810000 or increase to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.                                                                               |
| <b>CSEPBB03-E</b>                      | <b>BYPASS TABLE EXCEEDED –USE 1000 OR LESS BYPASS COMMANDS</b>                                                                                                                                   |
| Explanation:                           | Over 1000 BYPASS table entries were found.                                                                                                                                                       |
| User Action:                           | Correct the number of BYPASS control statements to limit it to 1000 entries.                                                                                                                     |
| <b>CSEPBG01-E</b>                      | <b>BYPASS TABLE EXCEEDED - USE 1000 OR LESS BYPASS COMMANDS</b>                                                                                                                                  |
| Explanation:                           | The number of BYPASS control statements must be limited to 1000.                                                                                                                                 |
| User Action:                           | Reduce the number of BYPASS control statements.                                                                                                                                                  |
| <b>CSEPBG02-D</b>                      | <b>RANGE= REQUIRES nnnnnn-NNNNN AND FOUND RANGE=XXXXXXXXXXXX</b>                                                                                                                                 |
| Explanation:                           | The RANGE control statement used is invalid.                                                                                                                                                     |
| User Action:                           | Insure the RANGE=NNNNN-NNNNN format is used and resubmit.                                                                                                                                        |
| <b>CSEPBG03-E</b>                      | <b>BYPASS FILE – INVALID DATA NAME FOUND (xxxxxxx)</b>                                                                                                                                           |
| Explanation:                           | The first character of the name is a space.                                                                                                                                                      |
| User Action:                           | Correct Bypass name and resubmit.                                                                                                                                                                |
| <b>CSEPBG04-E</b>                      | <b>BYPASS NAME TABLE EXCEEDED -USE 1000 OR LESS BYPASS COMMANDS</b>                                                                                                                              |
| Explanation:                           | The number of BYPASS control statements must be limited to 1000.                                                                                                                                 |
| User Action:                           | Reduce the number of BYPASS control statements.                                                                                                                                                  |
| <b>CSEPBH01-W</b>                      | <b>THE BYPASS CONTROL STATEMENT ( user-name ) WAS NOT FOUND IN THIS PROGRAM</b>                                                                                                                  |
| Explanation:                           | The user-data-name was either misspelled or not found within the COBOL program.                                                                                                                  |
| User Action:                           | If name was expected to be found, correct spelling or determine why name is missing. If not all names were expected to be found, optionally use NODNB option to turn these warning messages off. |
| <b>CSEPEY30-D</b>                      | <b>MARBLE HEADER MISSING - CONTACT MARBLE COMPUTER</b>                                                                                                                                           |
| Explanation:                           | A header is missing on an internal work file.                                                                                                                                                    |
| User Action:                           | If this message occurs more than once and rerunning does not eliminate, contact Marble Computer.                                                                                                 |
| <b>CSEPEY40-D</b>                      | <b>NO PROGRAM HEADER FOUND FOR PROGRAM ( programe )</b>                                                                                                                                          |
| Explanation:                           | A header is missing on internal work file 09.                                                                                                                                                    |
| User Action:                           | If this message occurs more than once and rerunning does not eliminate, contact Marble Computer.                                                                                                 |
| <b>CSEPEY60-E<br/>&amp; CSEPEY90-E</b> | <b>TOTAL TRACE ENTRIES EXCEED nnnnn MAX ENTRIES FOR TABLE FOR PROGRAM programe - SELECT LESS ENTRIES</b>                                                                                         |
| Explanation:                           | Too many entries were SELECTed by the SELECT control statements and a table was exceeded.                                                                                                        |
| User Action:                           | Redo the SELECTs used and resubmit to select less entries.                                                                                                                                       |
| <b>CSEPF040-D</b>                      | <b>MARBLE HEADER MISSING - CONTACT MARBLE COMPUTER</b>                                                                                                                                           |
| Explanation:                           | A header is missing on an internal work file.                                                                                                                                                    |
| User Action:                           | If this message occurs more than once and rerunning does not eliminate, contact Marble Computer.                                                                                                 |
| <b>CSEPF055-D</b>                      | <b>NO PROGRAM HEADER FOUND FOR PROGRAM ( programe )</b>                                                                                                                                          |
| Explanation:                           | A header is missing on internal work file.                                                                                                                                                       |
| User Action:                           | If this message occurs more than once and rerunning does not eliminate, contact Marble Computer.                                                                                                 |
| <b>CSEPFC02-E</b>                      | <b>TOTAL TRACE ENTRIES EXCEEDS nnnnn MAX ENTRIES FOR TABLE FOR PROGRAM programe</b>                                                                                                              |
| Explanation:                           | All entries either directly selected for TRA entries or added through TRACING exceeds the maximum number available in table space.                                                               |
| User Action:                           | Select less entries so the amount of table space is reduced.                                                                                                                                     |
| <b>CSEPFC03-D</b>                      | <b>DIRECT ENTRY MISSING FROM INTERNAL TABLE - CONTACT MARBLE COMPUTER</b>                                                                                                                        |
| Explanation:                           | This may be an internal logic error.                                                                                                                                                             |
| User Action:                           | Try rerunning, then if this message still appears, contact Marble Computer.                                                                                                                      |

## Control/DCD – Error Messages

|                   |                                                                                                                                                                                                                                 |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CSEPNP05-W</b> | <b>UNABLE TO GAUGE CORRECT USE OF FLOATING POINT COMP-1 OR COMP-2 - USER MUST CHECK CAREFULLY</b>                                                                                                                               |
| Explanation:      | During Abend Analysis that follows data fields from one field to another via From-To positions with an 01 record, a field is being traced through Floating point fields where From-To positions may not be accurately followed. |
| User Action:      | User should look at results carefully and not rely entirely on results given.                                                                                                                                                   |
| <b>CSEPNP06-W</b> | <b>FIELD WITH (xxxxxx ) USAGE AT CMPLR NBR nnnnn HAS DIFFERENT LENGTH FROM FIELD WITH SAME USAGE AT CMPLR NBR nnnnn</b>                                                                                                         |
| Explanation:      | During Abend Analysis that tracing using From-To positions are linking two fields with different lengths together. Our processing will follow only From-To positions from original field through new field.                     |
| User Action:      | This is a warning for user clarification. No further action required except to notice difference, unless user wants to make program changes to rectify length difference.                                                       |
| <b>CSEPNP08-W</b> | <b>BINARY FIELD AT CMPLR NBR nnnnn IS NOT A HALFWORD, FULLWORD, OR DOUBLEWORD</b>                                                                                                                                               |
| Explanation:      | A binary (BINARY or COMPUTATIONAL) field is found where the real calculated positions for the field in question is outside the normal length of 2, 4, or 8 bytes for a halfword, fullword, or doubleword.                       |
| User Action:      | User should look at usage and make any change deemed necessary or ignore this message.                                                                                                                                          |
| <b>CSEPNP09-W</b> | <b>BINARY FIELD AT CMPLR NBR nnnnn IS TOO SMALL FOR FIELD AT CMPLR nnnnn</b>                                                                                                                                                    |
| Explanation:      | Within Abend Analysis, the binary field being traced into, is too small for the record positions of the other field.                                                                                                            |
| User Action:      | This is a warning only, however the user may want to analysis why this is happening.                                                                                                                                            |
| <b>CSEPNP0A-W</b> | <b>BINARY FIELD AT CMPLR NBR nnnnn IS TOO LARGE FOR FIELD AT CMPLR nnnnn</b>                                                                                                                                                    |
| Explanation:      | Within Abend Analysis, the binary field being traced into, is too large for the record positions of the other field.                                                                                                            |
| User Action:      | This is a warning only, however the user may want to analysis why this is happening.                                                                                                                                            |
| <b>CSEPNP0B-W</b> | <b>FIELD AT CMPLR NBR IS NOT EXACT SIZE AS FIELD AT CMPLR nnnnn</b>                                                                                                                                                             |
| Explanation:      | During Abend Analysis that follows data fields from one field to another via From-To positions with an 01 record, a field is being traced through Binary fields where From-To positions may not be accurately followed.         |
| User Action:      | This is a warning only, however the user may want to analysis why this is happening.                                                                                                                                            |
| <b>CSEPNY80-E</b> | <b>NSD – TABLE EXCEEDED - REDO SELECT STMTS TO SELECT LESS DATA NAMES</b>                                                                                                                                                       |
| Explanation:      | An internal table was exceeded.                                                                                                                                                                                                 |
| User Action:      | Reduce the number of SELECTs to select less data names so internal table will be reduced in size.                                                                                                                               |
| <b>CSEPQC06-I</b> | <b>TRACING IGNORED AS THE FLAG POSITIONS WERE FOUND OUTSIDE THE MOVE OR COMPARE</b>                                                                                                                                             |
| Explanation:      | A PROCEDURE DIVISION instruction was found with a field that should be traced; however, the field, when being moved or compared, was truncated due to the size of the other field, and tracing is being ignored.                |
| User Action:      | No action is necessary.                                                                                                                                                                                                         |
| <b>CSEPQU30-D</b> | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                                                                                                                            |
| Explanation:      | An internal work file was found to be empty.                                                                                                                                                                                    |
| User Action:      | Try rerunning. If necessary, contact Marble Computer.                                                                                                                                                                           |
| <b>CSEPQUA0-E</b> | <b>INTERNAL TABLE ( RFC-) EXCEEDED - CONTACT MARBLE COMPUTER</b>                                                                                                                                                                |
| Explanation:      | An internal table was exceeded.                                                                                                                                                                                                 |
| User Action:      | Reduce the number of SELECTs to select less data names so internal table will be reduced in size.                                                                                                                               |
| <b>CSEPTP06-E</b> | <b>INTERNAL DATA NAME TABLE EXCEEDED - CONTACT MARBLE COMPUTER</b>                                                                                                                                                              |
| Explanation:      | An internal data name table was exceeded.                                                                                                                                                                                       |
| User Action:      | Look at the SELECTs statement used and reduce them to reduce table space.                                                                                                                                                       |
| <b>CSEPTP07-E</b> | <b>OVER 9999 MATCHES - PROBABLE ERROR</b>                                                                                                                                                                                       |
| Explanation:      | Tracing included over 9999 matches.                                                                                                                                                                                             |
| User Action:      | Look at the SELECTs statements used and change or reduce the number used to correct this error.                                                                                                                                 |
| <b>CSEPTP08-D</b> | <b>DATA-NAME TABLE EXCEEDED - RUN WITH SMALLER NBR OF CONTROL STATEMENTS OR TURN OFF OPTION ( YAP )</b>                                                                                                                         |
| Explanation:      | An internal tracing table was exceeded. This is probably due to an excessive number of SELECTs being used.                                                                                                                      |
| User Action:      | Reduce the number of SELECTs or turn off the Tracing Option.                                                                                                                                                                    |

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| <b>CSEPTY10-D</b>                      | <b>DDNAME ( CSEWK09 ) MISSING</b>                                                                                                   |
| Explanation:                           | A DD statement is missing.                                                                                                          |
| User Action:                           | Inspect the JCL and add the DD statement.                                                                                           |
| <b>CSEPTY50-D</b>                      | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                                |
| Explanation:                           | An internal work file was found to be empty.                                                                                        |
| User Action:                           | Try rerunning.                                                                                                                      |
| <b>CSEPTY60-D</b>                      | <b>EXCEEDED INTERNAL TABLE - USE LESS CONTROL STATEMENTS</b>                                                                        |
| Explanation:                           | An internal table was exceeded.                                                                                                     |
| User Action:                           | Look at the SELECTs statement used and reduce them to reduce table space.                                                           |
| <b>CSET0080-C</b>                      | <b>NARRATIVE ONLY ALLOWED FOR ONE PROGRAM AT A TIME</b>                                                                             |
| Explanation:                           | Narrative will only allow one program at a time for Layout Reports.                                                                 |
| User Action:                           | CSE will print narrative alongside the first program.                                                                               |
| <b>CSETB015-I</b>                      | <b>COBOL SORT CALLED FOR PROGRAM (XXXXXXXX) DUE TO INSUFFICIENT GETMAIN SPACE</b>                                                   |
| Explanation:                           | The size of the COBOL program was larger than the table space necessary to do an internal shell sort, so the COBOL sort was called. |
| User Action:                           | None.                                                                                                                               |
| <b>CSETBC02-D</b>                      | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                                |
| Explanation:                           | The first record of a work file being read does not contain a MARBLE header record.                                                 |
| User Action:                           | Look for possible previous message to this one. Look for an error in the JCL used.                                                  |
| <b>CSETDC18-E</b>                      | <b>TABLE LIMITS EXCEEDED REGION</b>                                                                                                 |
| Explanation:                           | An internal table was not large enough to handle the program run through CSE.                                                       |
| User Action:                           | Rerun the job with a larger region.                                                                                                 |
| <b>CSEUBB01 -D</b>                     | <b>THE NBR OF RECORDS SELECTED BY SRA CTL CARDS EXCEEDS 775</b>                                                                     |
| Explanation:                           | Too many control cards were used for DD CTLCDRA.                                                                                    |
| User Action:                           | Use less control statements.                                                                                                        |
| <b>CSEUD020 -I</b>                     | <b>NO DATA-NAME INTO SORT</b>                                                                                                       |
| Explanation:                           | There were no references in the Procedure Division to data names in the Data Division.                                              |
| User Action:                           | None.                                                                                                                               |
| <b>CSEUDA02 -W</b>                     | <b>EARLY EOF ON INFO-FILE-2</b>                                                                                                     |
| Explanation:                           | An early end of file was found on an internal work file.                                                                            |
| User Action:                           | Check results to see if everything is correct. If in doubt, contact MARBLE Computer, Inc.                                           |
| <b>CSEUDA11-E<br/>&amp; CSEUDA13-E</b> | <b>TABLE LIMITS EXCEEDED REGION</b>                                                                                                 |
| Explanation:                           | An internal table was not large enough to handle the program run through CSE.                                                       |
| User Action:                           | Rerun the job with a larger region.                                                                                                 |
| <b>CSEUFB05-E</b>                      | <b>TABLE LIMITS EXCEEDED REGION</b>                                                                                                 |
| Explanation:                           | An internal table was not large enough to handle the program being documented.                                                      |
| User Action:                           | Rerun the job with a larger region.                                                                                                 |
| <b>CSEUHB05-E</b>                      | <b>TABLE LIMITS EXCEEDED REGION</b>                                                                                                 |
| Explanation:                           | An internal table was not large enough to handle the program being documented.                                                      |
| User Action:                           | Rerun the job with a larger region.                                                                                                 |
| <b>CSEV3050-I</b>                      | <b>COBOL MEMBER (program name) NOT FOUND</b>                                                                                        |
| Explanation:                           | COBOL program name was not found. This occurs when using PARM option READPDS.                                                       |
| User Action:                           | Check to ensure program name is correctly spelled and is there.                                                                     |
| <b>CSEV3051-D</b>                      | <b>DDNAME (CSEREPDS) MISSING</b>                                                                                                    |
| Explanation:                           | In the JCL, the DDNAME for CSEREPDS is missing.                                                                                     |
| User Action:                           | Check in the JCL to ensure the DDNAME is there and correctly placed.                                                                |
| <b>CSEV3052-D</b>                      | <b>COBOL MEMBER (program name) NOT FOUND</b>                                                                                        |
| Explanation:                           | COBOL program name was not found. This occurs when using PARM option READPDS.                                                       |
| User Action:                           | Check to ensure program name is correctly spelled and is there.                                                                     |

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| <b>CSEV3053-D</b>                      | <b>COPY MEMBER NOT FOUND IN COPYLIB SPECIFIED</b>                                                                                                                                                                                                                                           |
| Explanation:                           | When CSE attempted to read the COPY member in the COBOL program, it was not found in the partitioned data set specified by DSN= in the COPYLIB DD.                                                                                                                                          |
| User Action:                           | Check the COPY member name to ensure it is valid and that the correct PDS file specified within the DSN= in the COPYLIB DD.                                                                                                                                                                 |
| <b>CSEV3054-D</b>                      | <b>NO RECORDS FOUND IN MEMBER (copy member name)</b>                                                                                                                                                                                                                                        |
| Explanation:                           | When CSE attempted to resolve this COPY member, it found no records in the member.                                                                                                                                                                                                          |
| User Action:                           | Check the COPY member and make corrections as necessary.                                                                                                                                                                                                                                    |
| <b>CSEV3A02-I</b>                      | <b>WORK FILES FOR PROGRAM (XXXXXXXX) DID NOT HAVE OPTION (XXX) IN LAST (WRITPDS) RUN</b>                                                                                                                                                                                                    |
| Explanation:                           | When the READPDS option is used, all files on the data set referenced with the DDNAME of CSEREPDS must have been created with all the same PARM options, which are used in this run using the READPDS option. These work files did not have those options turned on and are being bypassed. |
| User Action:                           | Ignore these messages or re-create the CSEPDS files using the WRITPDS option along with the option shown in the message.                                                                                                                                                                    |
| <b>CSEV3A03-E</b>                      | <b>WORK FILE FOR PROGRAM (XXXXXXXX) IS INCOMPLETE FOR OPTION (XXX) - THIS OPTION IS BEING TURNED OFF</b>                                                                                                                                                                                    |
| Explanation:                           | See explanation for message CSEV3A02-I. Multiple options for reports were used during this READPDS run and not all the options correspond to what was used during the WRITPDS run. This option is being turned off.                                                                         |
| User Action:                           | Review process, rethink and possibly re-create CSEPDS file.                                                                                                                                                                                                                                 |
| <b>CSEVA020-D</b>                      | <b>DDNAME (CSEPDS) MISSING</b>                                                                                                                                                                                                                                                              |
| Explanation:                           | In the JCL, the card for CSEPDS is missing.                                                                                                                                                                                                                                                 |
| User Action:                           | Check the JCL to ensure the DD card for CSEPDS exists and is correctly placed.                                                                                                                                                                                                              |
| <b>CSEX1050-I</b>                      | <b>NO RECORDS WERE PASSED INTO THE SORT FOR THE JCL PROC ANALYSIS REPORT</b>                                                                                                                                                                                                                |
| Explanation:                           | Either no DDNAMEs were found or the entire JCL is missing.                                                                                                                                                                                                                                  |
| User Action:                           | Check to see what JCL was used and examine.                                                                                                                                                                                                                                                 |
| <b>CSEX1A04-C</b>                      | <b>OVER 500 EXCLUDE DDNAMES WERE USED-THE REMAINING EXCLUDE DDNAMES ARE IGNORED</b>                                                                                                                                                                                                         |
| Explanation:                           | Too many control cards were used.                                                                                                                                                                                                                                                           |
| User Action:                           | Reduce the number of control statements.                                                                                                                                                                                                                                                    |
| <b>CSEX1FR0-C</b>                      | <b>EXCESSIVE REFERBACKS (OVER 500) WERE USED IN ONE PROC - THOSE OVER LIMIT ARE IGNORED</b>                                                                                                                                                                                                 |
| Explanation:                           | More refer backs were present in one PROC than this software can handle.                                                                                                                                                                                                                    |
| User Action:                           | Find out why excessive refer backs were used and see if this number can be reduced. If this is a valid condition, contact Marble Computer.                                                                                                                                                  |
| <b>CSEX1FS0-C</b>                      | <b>EXCESSIVE SYMBOLICS (OVER 2000) WERE USED IN ONE PROC - THOSE OVER LIMIT ARE IGNORED</b>                                                                                                                                                                                                 |
| Explanation:                           | More symbolics were present in one PROC than this software can handle.                                                                                                                                                                                                                      |
| User Action:                           | Find out why excessive symbolics were used and see if this number can be reduced.                                                                                                                                                                                                           |
| <b>CSEX1QA0-W</b>                      | <b>TABLE EXCEEDED - ONLY THE FIRST (nnnnn) PROC NAMES WILL BE SHOWN IN THE LIST OF PROC NAMES</b>                                                                                                                                                                                           |
| Explanation:                           | A table used to hold PROC names for later printing out the names of PROCs used has been exceeded.                                                                                                                                                                                           |
| User Action:                           | The main report used to report on the JCL is accurate. The sub-report used to show which PROCs were inputted will be truncated.                                                                                                                                                             |
| <b>CSEX2050-I</b>                      | <b>NO RECORDS WERE PASSED INTO THE SORT FOR THE JCLLIB ANALYSIS REPORT</b>                                                                                                                                                                                                                  |
| Explanation:                           | Insufficient JCL was found or the entire JCL is missing.                                                                                                                                                                                                                                    |
| User Action:                           | Check to see what JCL was used.                                                                                                                                                                                                                                                             |
| <b>CSEX6M01I</b>                       | <b>DOING REGULAR SORT DUE TO SIZE NEEDED - INCREASE</b>                                                                                                                                                                                                                                     |
| Explanation:                           | An internal SHELL Sort was attempted and aborted due to not enough table size.                                                                                                                                                                                                              |
| User Action:                           | Consider increasing SORTREG from 810000 to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.                                                                                                                                                                 |
| <b>CSEYA030-I<br/>&amp; CSEYB030-I</b> | <b>NO DATA-NAMES INTO SORT</b>                                                                                                                                                                                                                                                              |

**& CSEYC040-I  
& CSEYE030-I**

Explanation: For VERB, RECORDS, SRA, or COPY report respectively, no data names were found or sorted. This indicates no entries were found to be reported on for the report selected.  
User Action: No required action.

**CSEYG040-I NO DATA NAMES INTO SORT**

Explanation: There were no records passed in to the CALL Report.  
User Action: None.

**CSEYH050-I NO RECORDS WERE PASSED INTO THE SORT FOR THE CALL HIERARCHY REPORT**

Explanation: No records were passed out to the SORT.  
User Action: None.

**CSEYH060-D UNABLE TO DETERMINE ONE MAIN PROGRAM - SEE PRIOR MESSAGES - UNABLE TO PRODUCE REPORT**

Explanation: When determining the order of hierarchy for the CALL Hierarchy Report, a program was called in a fashion that makes it impossible to complete the hierarchy. For example, program A calls program B, which calls program C, which then calls program A.  
User Action: Determine why this is happening and either correct or do not run this report.

**CSEYHD17-W OVER nnnn DIFFERENT CALLS FOUND IN PROGRAM (xxxxxxx) – EXCESS IGNORED**

Explanation: More CALLs were found in one program than can be handled.  
User Action: Determine why excess CALLs are used. Possibly try using a DELETE control card to reduce this number.

**CSEYHD30-C THE HIERARCHY EXCEEDED 23 LEVELS DEEP FOR SYSTEM (xxxxxxx) - EXCESS LEVELS IGNORED**

Explanation: The CALL Hierarchy Report is designed to handle CALLs to a level of 23 deep. CALLs going deeper than that are ignored.  
User Action: Determine why CALLs are going to this depth. If necessary, contact MARBLE Compute, Inc.

**CSEYHD31-E CANNOT ADD CALL TO (xxxxxxx) AS THIS IS WITHIN CURRENT STRING - SEE NOTE BELOW**

Explanation: When determining the trace of CALLs, a CALL to a program was found that itself is found earlier within this chain.  
User Action: See following messages which show the order of the trace established so far. Then determine why this is happening and either correct or do not run this report.

**CSEYHD80-I xxxxxxxx xxxxxxxx xxxxxxxx**

Explanation: This message appears after message CSEYHD31-E, showing the order of CALLs which caused that message. If necessary, more than one of these messages will appear.  
User Action: See error message CSEYHD31-E.

**CSEYHFA0-E EXCEEDED nnnn PROGRAMS FOR CALL HIERARCHY CHART - WILL BE INCOMPLETE**

Explanation: The number specified is the maximum number of programs that may be submitted for this report.  
User Action: Determine if a smaller number of programs may be used when running this report.

**CSEYG040-I NO RECORDS WERE PASSED INTO THE SORT FOR THE CALL ANALYSIS REPORT**

Explanation: No selected records were found to report on for CALL Analysis Report.  
User Action: Determine if CALLs were not present, then ignore this message.

**CSEYIA04-E CONTROL CARDS FOR CTLCAHCC MUST BEGIN WITH (ADD) OR (DELETE)**

Explanation: Control cards for the CALL Hierarchy Report begin with either ADD or DELETE.  
User Action: Correct the control statement in error and resubmit.

**CSEYIA06-E FIRST PROGRAM NAME MUST BE ALPHANUMERIC FIELD FROM 1 TO 30 CHARACTERS LONG – BYPASSING**

Explanation: The program name used in a control statement exceeded 30 characters in length.  
User Action: Enter a correct program name and resubmit.

**CSEYIA08-E THE THIRD FIELD ON CTLCAHCC CONTROL CARDS MUST BE THE CONSTANT (CALLS) – BYPASSING**

Explanation: The third field on control cards when used must be the constant (CALLS).  
User Action: Determine what format was desired for this control card, correct and resubmit.

|                                        |                                                                                                       |
|----------------------------------------|-------------------------------------------------------------------------------------------------------|
| <b>CSEYIA10-E</b>                      | <b>SECOND PROGRAM NAME MUST BE ALPHANUMERIC FIELD FROM 1 TO 30 CHARACTERS LONG – BYPASSING</b>        |
| Explanation:                           | Any program name used in a control card must not exceed 30 characters in length.                      |
| User Action:                           | Enter a Correct program name within control statement and resubmit.                                   |
| <b>CSEYIA11-E</b>                      | <b>MORE CONTROL CARDS WERE SPECIFIED THAN PERMITTED – REDUCE NUMBER OF CTL CARDS</b>                  |
| Explanation:                           | More than 500 control statements were submitted for the CALL Hierarchy Report.                        |
| User Action:                           | Use less control statements.                                                                          |
| <b>CSEYIE01-E</b>                      | <b>AN EXPECTED FIELD WITHIN A CONTROL CARD IS MISSING</b>                                             |
| Explanation:                           | The format of the control statement requires one more field and this field is missing.                |
| User Action:                           | Determine the correct format and resubmit with the correct control card.                              |
| <b>CSEYK040-I</b>                      | <b>NO DATA-NAME INTO SORT</b>                                                                         |
| Explanation:                           | There were no records passed into the PARAGRAPH Report                                                |
| User Action:                           | None.                                                                                                 |
| <b>CSEYL030-I</b>                      | <b>NO DATA NAMES INTO SORT</b>                                                                        |
| Explanation:                           | There were no records passed out to the DATA Report.                                                  |
| User Action:                           | None.                                                                                                 |
| <b>CSEYN100-I<br/>&amp; CSEYN110-I</b> | <b>NO RECORDS WERE PASSED INTO SORT FOR THE ABEND ANALYSIS REPORT</b>                                 |
| Explanation:                           | No records were passed to an internal sort. This is an informational message.                         |
| User Action:                           | It may be that no records were selected, which will cause this message. Check SELECT statements used. |
| <b>CSEYN115-I</b>                      | <b>NO RECORDS WERE SELECTED FOR PRODUCING ABEND ANALYSIS REPORT</b>                                   |
| Explanation:                           | The SELECTs used did not find any matches within this program.                                        |
| User Action:                           | If processing only one program, insure the correct SELECT is used.                                    |
| <b>CSEYNA01-D</b>                      | <b>MISSING HEADER RECORD FOR CSEWK09 IN PROGRAM CSETARPT</b>                                          |
| Explanation:                           | An internal header record is missing from the internal file name shown.                               |
| User Action:                           | Try resubmitting run.                                                                                 |
| <b>CSEYNB11-E</b>                      | <b>OVER 250 SELECTIONS FOUND WITHIN RECORD (record-name)</b>                                          |
| Explanation:                           | Within one record, more than 250 fields were selected.                                                |
| User Action:                           | Go back and change the SELECTs used to select less fields. Be more specific in selecting fields.      |
| <b>CSEYPB01-C</b>                      | <b>INVALID FIELD FOUND - BYPASSING</b>                                                                |
| Explanation:                           | A field on an internal work file has a field which should be numeric but is not.                      |
| User Action:                           | If this happens continuously, contact MARBLE Computer.                                                |
| <b>CSEYPB02-D</b>                      | <b>MATCHING SOURCE LINE NOT FOUND - RUN ENDING</b>                                                    |
| Explanation:                           | Internal work files for doing code changing require a source code work file and this file is missing. |
| User Action:                           | Possible logic error. Try resubmitting.                                                               |
| <b>CSEYPE03-D</b>                      | <b>INTERNAL TABLE EXCEEDED - CONTACT MARBLE COMPUTER</b>                                              |
| Explanation:                           | An internal table was exceeded.                                                                       |
| User Action:                           | Contact Marble Computer.                                                                              |
| <b>CSEYT030-I</b>                      | <b>NO DATA-NAMES INTO SORT</b>                                                                        |
| Explanation:                           | There were no records passed into the PARAGRAPH Report                                                |
| User Action:                           | None.                                                                                                 |
| <b>CSEYU030-I</b>                      | <b>NO DATA-NAMES INTO SORT</b>                                                                        |
| Explanation:                           | There were no records passed into the PARAGRAPH RANGE Report                                          |
| User Action:                           | None.                                                                                                 |
| <b>CSEYWG04-E</b>                      | <b>RECORD LOCATIONS ARE OFF</b>                                                                       |
| Explanation:                           | Record locations are off due to incorrect use of an ( * ) within the control statements.              |
| User Action:                           | Check the JCL control statements to ensure it is the correct logic.                                   |
| <b>CSEYY030-I</b>                      | <b>NO DATA-NAMES INTO SORT</b>                                                                        |
| Explanation:                           | There were no records passed in to the LAYOUT Report.                                                 |
| User Action:                           | None.                                                                                                 |
| <b>CSEZP031-I</b>                      | <b>DOING REGULAR SORT DUE TO SIZE NEEDED - INCREASE</b>                                               |
| Explanation:                           | An internal SHELL Sort was attempted and aborted due to not enough table size.                        |

## Control/DCD – Error Messages

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|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| User Action:      | Consider increasing SORTREG from 810000 to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.                                                                                                                                                                       |
| <b>CSEZTK02-D</b> | <b>DDNAME (CSEWK07 ) MISSING</b>                                                                                                                                                                                                                                                                  |
| Explanation:      | DDNAME CSEWK07 is missing.                                                                                                                                                                                                                                                                        |
| User Action:      | Insure that this DDNAMEs is in the JCL.                                                                                                                                                                                                                                                           |
| <b>CSEZTZZ1-D</b> | <b>CSEWK07 WITH PASSED TOKENS IS EMPTY</b>                                                                                                                                                                                                                                                        |
| Explanation:      | An internal error occurred.                                                                                                                                                                                                                                                                       |
| User Action:      | Contact Marble Computer.                                                                                                                                                                                                                                                                          |
| <b>CSEZTZZ2-D</b> | <b>CSEWK07 TOKENS FILE IS NOT IN SETS OF 3 RECORD</b>                                                                                                                                                                                                                                             |
| Explanation:      | An internal error occurred.                                                                                                                                                                                                                                                                       |
| User Action:      | Contact Marble Computer.                                                                                                                                                                                                                                                                          |
| <b>CSEZUS10-I</b> | <b>DOING REGULAR SORT DUE TO SIZE NEEDED - INCREASE</b>                                                                                                                                                                                                                                           |
| Explanation:      | An internal SHELL Sort was attempted and aborted due to not enough table size.                                                                                                                                                                                                                    |
| User Action:      | Consider increasing SORTREG from 810000 to 1024000 or 1536000 and increase REGION to REG=12288K or REG=20480K respectively.                                                                                                                                                                       |
| <b>CSEZZ099-D</b> | <b>See SYSOUT for MISSING DD or other error</b>                                                                                                                                                                                                                                                   |
| Explanation:      | An error has occurred in one of Marble's work files CSEWK01 through CSEWK12                                                                                                                                                                                                                       |
| User Action:      | To see more information on this error, look at messages near the end of the SYSOUT DD.                                                                                                                                                                                                            |
| <b>DCD5E035-D</b> | <b>//CONTROL DD DATE AND/OR MATCHING VERFICATION CODE IS INCORRECT - SEE SYSOUT FOR REASON</b>                                                                                                                                                                                                    |
| Explanation:      | The Control date and matching verification code in PDS member (DCDCNTRL) is incorrect.                                                                                                                                                                                                            |
| User Action:      | Look on Install information provided by Marble Computer or contact Marble Computer.                                                                                                                                                                                                               |
| <b>DCD5E071-C</b> | <b>Option for COBOL 68 may NOT be used with VS2 option or with //VERSION DD</b>                                                                                                                                                                                                                   |
| Explanation:      | PARM option C68 for 1968 COBOL, when used, must have PARM option VS2 off and must not have a specified entry in //VERSION DD.                                                                                                                                                                     |
| User Action:      | Remove PARM option C68 or turn off VS2 option and remove //VERSION DD.                                                                                                                                                                                                                            |
| <b>DCD5E071-C</b> | <b>Option VR3 for COBOL 74 may NOT be used with VS2 option or with //VERSION DD</b>                                                                                                                                                                                                               |
| Explanation:      | PARM option VR3 for 1968 COBOL, when used, must have PARM option VS2 off and must not have a specified entry in //VERSION DD.                                                                                                                                                                     |
| User Action:      | Remove PARM option VR3 or turn off VS2 option and remove //VERSION DD.                                                                                                                                                                                                                            |
| <b>DCD5E040-C</b> | <b>PARM LENGTH GREATER THAN 100 - ACCEPTED</b>                                                                                                                                                                                                                                                    |
| Explanation:      | The number of characters in the total PARM field is greater than 100 characters. Only the first 100 characters are meaningful to DCD IV. The characters over 100 are ignored.                                                                                                                     |
| User Action:      | Make adjustments to the PARM field to reduce the total length to be under 100 characters.                                                                                                                                                                                                         |
| <b>DCD5E052-I</b> | <b>PARM (R3N) OPTION TURNS OFF (PMO) OPTION ELIMINATING PRINTING OF OFFSETS TO THE FAR RIGHT OF SOURCE CODE</b>                                                                                                                                                                                   |
| Explanation:      | Parm option R3N is inconsistent with parm option PMO. Option R3N carries PL and SL information from the right hand side of the compile listing into right side of DCD IV listing, while option PMO traps information from the compile OFFSET option and prints into right side of DCD IV listing. |
| User Action:      | Determine whether PMO option is needed, and if not needed turn that options off, or turn option R3N off.                                                                                                                                                                                          |
| <b>DCD5E056-W</b> | <b>PARM OPTION ( NIS ) MAY NOT BE USED WITH OPTION ( IREFS ) - OPTION ( IREFS ) IS TURNED OFF</b>                                                                                                                                                                                                 |
| Explanation:      | Parm option NIS (which is used to provide a sequential sequence) for Procedure Division Narrative is not compatible with the IREFS option which provides indirect References.                                                                                                                     |
| User Action:      | The IREFS option is being turned off. To turn it back on, do not use PARM option NIS. Determine whether NIS option is needed, and if not, turn that options off.                                                                                                                                  |
| <b>DCD5E060-D</b> | <b>PARM OPTION (LOR) MAY NOT BE USED WHEN OTHER REPORTS ARE ALSO TURNED ON</b>                                                                                                                                                                                                                    |
| Explanation:      | The option LOR indicates that non-COBOL programs are being used as input for creating the Layouts Reports.                                                                                                                                                                                        |
| User Action:      | Do not use this option when other report options are also turned on.                                                                                                                                                                                                                              |
| <b>DCD5E061-W</b> | <b>PARM OPTION (LHR) TREATED AS (LHX) WHEN OPTION (LNR) FOR NARRATIVE IS IN EFFECT</b>                                                                                                                                                                                                            |



## Control/DCD – Error Messages

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| Explanation:      | Options LHR and LNR are incompatible. See these options in this User's Manual.                                                                                                                                                                                |
| User Action:      | Do not use these options together.                                                                                                                                                                                                                            |
| <b>DCD5E062-D</b> | <b>PARM OPTION (TRACE) NOT ALLOWED WHEN OPTIONS (WRITPDS OR READPDS) ARE USED</b>                                                                                                                                                                             |
| Explanation:      | Option TRACE is incompatible with option WRITPDS or READPDS. See these options in this User's Manual.                                                                                                                                                         |
| User Action:      | Do not use these options together. Eliminate TRACE or eliminate READPDS or WRITPDS.                                                                                                                                                                           |
| <b>DCD5E063-D</b> | <b>AT LEAST ONE PRINT REPORT OPTION MUST BE TURNED ON WHEN RUNNING THE OTHER COBOL REPORTS</b>                                                                                                                                                                |
| Explanation:      | No PARM options were specified (DATA, LAYOUT, etc...) for printing of reports or for the specification of the Data Dictionary file. Even when using WRITPDS or READPDS options, report options must be specified.                                             |
| User Action:      | Specify one or more report options.                                                                                                                                                                                                                           |
| <b>DCD5E065-D</b> | <b>(WRITPDS) PARM OPTION ALSO REQUIRES (BEGIN) OR (CONTINUE) PARM OPTION</b>                                                                                                                                                                                  |
| Explanation:      | Parm option WRITPDS requires either option BEG or CON. See these options in this User's Manual.                                                                                                                                                               |
| User Action:      | Add parm option BEGIN or parm option CONTINUE.                                                                                                                                                                                                                |
| <b>DCD5E067-D</b> | <b>PARM OPTION (S03), (S15) OR (S50) MAY NOT BE USED WITH (LAYOUT) OR (RECORDS) OPTION</b>                                                                                                                                                                    |
| Explanation:      | PARM options S03, S15, S50, S3H and S1T alter the maximum size of OCCURS within a record which contains an OCCUR clause for use with the System Record Analysis Report. Using these options with the RECORD or LAYOUT reports will produce incorrect results. |
| User Action:      | Turn off the RECORD and LAYOUT options or remove the S03, S15, S50, S3H and S1T options being used.                                                                                                                                                           |
| <b>DCD5E800-I</b> | <b>(STOP) PARM OPTION IN EFFECT</b>                                                                                                                                                                                                                           |
| Explanation:      | The PARM option STOP was entered and processing in DCD IV is halted.                                                                                                                                                                                          |
| User Action:      | None. To process with DCD IV, remove the STOP option.                                                                                                                                                                                                         |
| <b>DCD5EA11-E</b> | <b>PARM OPTION (parm field) INVALID WHEN FOLLOWING (option) AND IS IGNORED</b>                                                                                                                                                                                |
| Explanation:      | The two PARM fields shown in the message conflict with each other. The first PARM option will be used and the second one will be ignored.                                                                                                                     |
| User Action:      | Remove either of the two options shown.                                                                                                                                                                                                                       |
| <b>DCD5EA20-C</b> | <b>INTERNAL ERROR FOR PARM (parm field)</b>                                                                                                                                                                                                                   |
| Explanation:      | An internal error has occurred during the storing of PARM fields.                                                                                                                                                                                             |
| User Action:      | Save printed output and contact MARBLE Computer, Inc.                                                                                                                                                                                                         |
| <b>DCD5EA50-D</b> | <b>FIELD IN PARM RECORD TOO LARGE (parm field)</b>                                                                                                                                                                                                            |
| Explanation:      | The PARM field displayed is in excess of 10 characters. All valid PARM fields are 10 characters or under in length.                                                                                                                                           |
| User Action:      | Determine what PARM field was intended and correct.                                                                                                                                                                                                           |
| <b>DCD5EA70-D</b> | <b>PARM-FIELD IS INVALID (parm field)</b>                                                                                                                                                                                                                     |
| Explanation:      | The first three characters of the PARM field displayed do not match to a valid PARM field.                                                                                                                                                                    |
| User Action:      | Consult the User's Manual if necessary and then re-enter a valid PARM field.                                                                                                                                                                                  |
| <b>DCD5EA78-C</b> | <b>FOUND MORE THAN 1 PARM OPTION IN THE RANGE IR1 - IR6 –USING LAST FOUND</b>                                                                                                                                                                                 |
| Explanation:      | More than one parm option (IR1, IR2, IR3, IR4, IR5, IR6) was used.                                                                                                                                                                                            |
| User Action:      | Remove one or more parm options, so that only one is present.                                                                                                                                                                                                 |
| <b>DCD5EA90-W</b> | <b>PARM OPTION (parm field) MISCODED. ACCEPTED AS (parm field)</b>                                                                                                                                                                                            |
| Explanation:      | The first three characters of the PARM field matches with a valid PARM option, however, the remaining characters do not match.                                                                                                                                |
| User Action:      | Check to be sure the PARM option used was the one intended. Correct the PARM field for later runs.                                                                                                                                                            |
| <b>DCD5EC01-E</b> | <b>PARM OPTION (parm field) NOT FOLLOWED BY (=) AND (VALUE)</b>                                                                                                                                                                                               |
| Explanation:      | The PARM field displayed is a keyword type option which requires both an (=) sign and value after the (=) character. Either the (=) character is missing or the value after the (=) character is miscoded or missing.                                         |
| User Action:      | Ensure that the fully coded PARM field contains the (=) character and a valid value. It may also help to ensure that the entire keyword and value are enclosed in single apostrophes.                                                                         |
| <b>DCD5EF02-C</b> | <b>PROBLEM WITH LNC= (USING LNC=60)</b>                                                                                                                                                                                                                       |

## Control/DCD – Error Messages

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|-------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Explanation:      | The value found after LNC= was not numeric or was numerically greater than 999.                                                       |
| User Action:      | Correct by using a valid number. For this run a default of 60 is used.                                                                |
| <b>DCD5EF03-C</b> | <b>PROBLEM WITH SOR= (USING SOR=600000)</b>                                                                                           |
| Explanation:      | The value found after SOR= was not numeric or was 10 million or greater.                                                              |
| User Action:      | Use a valid number for SORT region. Make sure the overall REGION is 3072 to 5192K- larger than the SORT region.                       |
| <b>DCD5EF04-C</b> | <b>PROBLEM WITH DLT= (USING MAXIMUM OF DLT=017)</b>                                                                                   |
| Explanation:      | The PARM option DLT= is greater than 17.                                                                                              |
| User Action:      | Reenter DLT= value.                                                                                                                   |
| <b>DCD5EF25-C</b> | <b>PROBLEM WITH TAC= (USING TAC=025)</b>                                                                                              |
| Explanation:      | The value found after TAC = was not numeric or was numerically greater than 999.                                                      |
| User Action:      | Correct by using a valid number. For this run, default of 025 is used.                                                                |
| <b>DCD5G010-D</b> | <b>DDNAME (CONTROL) MISSING</b>                                                                                                       |
| Explanation:      | A DD card is missing from the user JCL.                                                                                               |
| User Action:      | See the User's Manual and Installation Addendum for instructions on adding a CONTROL DD card.                                         |
| <b>DCD5G025-D</b> | <b>//CONTROL DD CONTROL INFO MISSING</b>                                                                                              |
| Explanation:      | The CONTROL DD file is empty. One control record is required.                                                                         |
| User Action:      | See the Installation Addendum for format and provide the control record required.                                                     |
| <b>DCD5G030-D</b> | <b>//CONTROL DD CONTROL INFO . MUST BE IN VALID FORMAT (MMYY). FOUND (xxxx)</b>                                                       |
| Explanation:      | The password control information contains invalid information in columns 1-4. MMYT for month and year is expected.                    |
| User Action:      | Enter the information in correct format (MMYY) and run again. If necessary consult the Installation Addendum for further information. |
| <b>DCD5G046-D</b> | <b>CONTROL MONTH/YEAR EXPIRED - MM/YYYY = XX/XXXX</b>                                                                                 |
| Explanation:      | Six characters of control information matching to MMYYYY are invalid.                                                                 |
| User Action:      | See the Installation Addendum or contact MARBLE Computer, Inc.                                                                        |
| <b>DCD5G048-D</b> | <b>SIX CHARACTER CODE (6-char) IN //CONTROL DD CONTROL INFO IS INVALID.</b>                                                           |
| Explanation:      | Six characters of control information are invalid.                                                                                    |
| User Action:      | See the Installation Addendum or contact MARBLE Computer, Inc.                                                                        |
| <b>DCD5H050-E</b> | <b>(TRACEIN) COMMANDS MUST BEGIN WITH AN (AFTER) COMMAND</b>                                                                          |
| Explanation:      | When using the debugging control statements under direction of Marble Computer, each command must begin with the word ( AFTER )       |
| User Action:      | Check the TRACEIN DD statements and make corrections to the TRACEIN commands as necessary.                                            |
| <b>DCD5H070-D</b> | <b>ONE OR MORE ERRORS FOUND IN (TRACEIN) COMMANDS</b>                                                                                 |
| Explanation:      | One or more errors occurred in processing the debugging control statements.                                                           |
| User Action:      | Check the related error messages and make corrections to the TRACEIN commands as necessary.                                           |
| <b>DCD5HA01-E</b> | <b>PROGRAM-NAME MISSING AFTER (AFTER) COMMAND IN (TRACEIN) FILE</b>                                                                   |
| Explanation:      | The program name must be used in the TRACEIN file. It was not there.                                                                  |
| User Action:      | Check the TRACEIN file and make corrections as necessary.                                                                             |
| <b>DCD5HA02-E</b> | <b>EXPECTING WORD (PRINT) WITHIN (TRACEIN) FILE FOUND (field-contents)</b>                                                            |
| Explanation:      | The word PRINT must be used in the TRACEIN file. It could not be found.                                                               |
| User Action:      | Check the TRACEIN file and make corrections as necessary.                                                                             |
| <b>DCD5HA03-E</b> | <b>EXPECTING (DCDWK01) THRU (DCDWK06) WITHIN (TRACEIN) FILE - FOUND (field-contents)</b>                                              |
| Explanation:      | The file names to be TRACEed must be DCDWK01 through DCDWK06.                                                                         |
| User Action:      | Check the file names and correct as necessary.                                                                                        |
| <b>DCD5HA05-E</b> | <b>ONLY 10 CONTROL CARDS ALLOWED WITHIN (TRACEIN) FILE</b>                                                                            |
| Explanation:      | The number of control cards in the TRACEIN file exceeds 10.                                                                           |
| User Action:      | Check the TRACEIN file and delete excess cards so there are a total of 10 cards or less.                                              |
| <b>DCD5HA06-E</b> | <b>EXPECTING NEW (AFTER) COMMAND</b>                                                                                                  |

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| Explanation:      | The end of one command in the TRACEIN file was found. The next token (if present) must be the start of a new command.                                                                  |
| User Action:      | If multiple commands are used, make sure each new command starts with the word AFTER.                                                                                                  |
| <b>DCD5HA31-E</b> | <b>DCDWKXX NUMBER MUST BE 01 TO 06 WITHIN (TRACEIN) FILE</b>                                                                                                                           |
| Explanation:      | The DCDWKXX file that has been specified in the TRACEIN file does not exist.                                                                                                           |
| User Action:      | Check the file names and make corrections as necessary.                                                                                                                                |
| <b>DCD5HA35-E</b> | <b>PROGRAM OR FILE NUMBER IN CONTROL CARD IS INVALID</b>                                                                                                                               |
| Explanation:      | The program-id did not match or the record length was not numeric.                                                                                                                     |
| User Action:      | Check the control card and make corrections as necessary.                                                                                                                              |
| <b>DCD5HA90-I</b> | <b>BYPASSING TOKENS WITHIN (TRACEIN) FILE UNTIL NEXT (AFTER) OR END OF FILE</b>                                                                                                        |
| Explanation:      | A previous documented syntax error was found while scanning an AFTER command within the TRACEIN file. Further scanning for errors will not be done until a new AFTER command is found. |
| User Action:      | None.                                                                                                                                                                                  |
| <b>DCD5X001-C</b> | <b>EXCESSIVE ERROR MESSAGES IN HSKPG</b>                                                                                                                                               |
| Explanation:      | The table of error messages was exceeded for the first phase of processing within DCD IV.                                                                                              |
| User Action:      | Examine the previous error messages and make corrections as necessary to eliminate the errors.                                                                                         |
| <b>DCD63070-E</b> | <b>THE VALUES USED WITHIN SELECT CARDS ESTABLISHES A RANGE THAT IS NEGATIVE</b>                                                                                                        |
| Explanation:      | Control cards used to select records for Layout Reports by record size are incorrect.                                                                                                  |
| User Action:      | Correct either the SELECT> or the SELECT< card.                                                                                                                                        |
| <b>DCD63080-I</b> | <b>USING CONTROL CARDS FOR SELECTION BY DATA-NAME FOR LAYOUTS</b>                                                                                                                      |
| Explanation:      | This is an informational message reminding the user that control cards are being used for the selection of Layout Reports.                                                             |
| User Action:      | None.                                                                                                                                                                                  |
| <b>DCD63081-I</b> | <b>USING CONTROL CARDS FOR SELECTION BY RECORD-SIZE FOR LAYOUTS</b>                                                                                                                    |
| Explanation:      | This is an informational message reminding the user that control cards are being used for the selection of Layout Reports.                                                             |
| User Action:      | None.                                                                                                                                                                                  |
| <b>DCD63A03-I</b> | <b>DATA NAME IS GREATER THAN 30 CHARACTERS</b>                                                                                                                                         |
| Explanation:      | Programmer-supplied names must be 30 characters or less in length.                                                                                                                     |
| User Action:      | Check the data name to make sure that it less than 30 characters.                                                                                                                      |
| <b>DCD63A06-E</b> | <b>UNIDENTIFIED FIELD AFTER DATA NAME ( record-name )</b>                                                                                                                              |
| Explanation:      | Field in control statement after data name indicated is in error.                                                                                                                      |
| User Action:      | Check the control statement, correct, and re-submit.                                                                                                                                   |
| <b>DCD63A07-E</b> | <b>ONLY 750 CONTROL CARDS ALLOWED WITHIN FILE</b>                                                                                                                                      |
| Explanation:      | There are too many control statements used.                                                                                                                                            |
| User Action:      | Check the file and eliminate excess cards so there are a total of 750 statements or less.                                                                                              |
| <b>DCD63AA1-E</b> | <b>CONFLICTS WITH A PREVIOUS (SELECT) CONTROL CARD</b>                                                                                                                                 |
| Explanation:      | The control card conflicts with a previous SELECT control card.                                                                                                                        |
| User Action:      | Check the control cards and make necessary changes.                                                                                                                                    |
| <b>DCD63AA2-E</b> | <b>CONFLICTS WITH A PREVIOUS (SELECT) CONTROL CARD</b>                                                                                                                                 |
| Explanation:      | The control card conflicts with a previous SELECT control card.                                                                                                                        |
| User Action:      | Check the control cards and make necessary changes.                                                                                                                                    |
| <b>DCD63AA3-E</b> | <b>SYNTAX ERROR IN SELECT CARD</b>                                                                                                                                                     |
| Explanation:      | The SELECT card has a non-numeric field or a number over 6 characters in length.                                                                                                       |
| User Action:      | The correct format requires positions 1-6 to be numeric, columns 7 to be a dash, and 8-13 to be numeric.                                                                               |
| <b>DCD66003-D</b> | <b>DDNAME (CTLCDRA) IS MISSING</b>                                                                                                                                                     |
| Explanation:      | In the JCL, the DD card for CTLCDRA is missing.                                                                                                                                        |
| User Action:      | Check JCL to ensure the DD card for CTLCDRA is there and correctly placed. This control card is needed when PARM option DICT or SRA is used.                                           |
| <b>DCD66A03-E</b> | <b>PROGRAM-ID IN EXCESS OF 8 CHARACTERS</b>                                                                                                                                            |
| Explanation:      | The program name/record name control card statement is invalid.                                                                                                                        |

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| User Action:      | A 1-8-character program name must begin in column 1. If SRCOPY= is used, to select by COPY Member names, turn on PARM option SRC to allow SRCOPY= control statements. In ISPF, add SRC PARM option on PARM panel under ( 11. USER - ) as in ( 11. USER - <b>SRC</b> ) |
| <b>DCD66A04-E</b> | <b>RECORD NAME OR LENGTH IN A CONTROL CARD IS MISSING</b>                                                                                                                                                                                                             |
| Explanation:      | The control card is missing either the record name or length.                                                                                                                                                                                                         |
| User Action:      | Check the control card for the record name or length to ensure one is present.                                                                                                                                                                                        |
| <b>DCD66A05-E</b> | <b>RECORD NAME IN EXCESS OF 30 CHARACTERS</b>                                                                                                                                                                                                                         |
| Explanation:      | The program name/record name control card statement is invalid.                                                                                                                                                                                                       |
| User Action:      | A 1 - 8 character program name must begin in column 1. A 1 - 30 character 01 record name must follow after one or more spaces.                                                                                                                                        |
| <b>DCD66A06-E</b> | <b>NUMERIC FIELD IS IN EXCESS OF 6 CHARACTERS</b>                                                                                                                                                                                                                     |
| Explanation:      | A control card field used for the System Record Analysis Report has a numeric field greater than 6 digits in length.                                                                                                                                                  |
| User Action:      | Shorten the number to 6 digits.                                                                                                                                                                                                                                       |
| <b>DCD66A07-E</b> | <b>MAXIMUM NUMBER OF CONTROL CARDS WITHIN A FILE HAS BEEN EXCEEDED</b>                                                                                                                                                                                                |
| Explanation:      | The number of control cards in the file has been exceeded.                                                                                                                                                                                                            |
| User Action:      | Check the file and delete excess cards.                                                                                                                                                                                                                               |
| <b>DCD66AB2-E</b> | <b>A FIELD IS IN EXCESS OF 6 CHARACTERS OR NOT NUMERIC</b>                                                                                                                                                                                                            |
| Explanation:      | A numeric field within an SRA control statement range is too big or not numeric.                                                                                                                                                                                      |
| User Action:      | Correct the control statement and rerun.                                                                                                                                                                                                                              |
| <b>DCD66AB3-E</b> | <b>THE RANGE OF NUMBERS IN SRA CTL CD IS INVALID</b>                                                                                                                                                                                                                  |
| Explanation:      | A range of numbers found in an SRA control statement was found to be invalid.                                                                                                                                                                                         |
| User Action:      | Determine what should be entered, fix, and rerun.                                                                                                                                                                                                                     |
| <b>DCD6AB01-D</b> | <b>POSITIONS 33 THROUGH 72 IN CONTROL CARD MUST BE BLANK</b>                                                                                                                                                                                                          |
| Explanation:      | Control Statements for option DIT must have positions 33 up through position 72 blank.                                                                                                                                                                                |
| User Action:      | Look at control statements used, consult manual if need be, and correct.                                                                                                                                                                                              |
| <b>DCD6AC01-D</b> | <b>LEADING SPACES ARE NOT PERMITTED FOR THESE CONTROL STATEMENTS</b>                                                                                                                                                                                                  |
| Explanation:      | Control Statements for option DIT must have the command used start in column 1.                                                                                                                                                                                       |
| User Action:      | Look at control statements used and correct.                                                                                                                                                                                                                          |
| <b>DCD6AD10-D</b> | <b>DDNAME (CTLCDLTL) IS MISSING WHEN PARM OPTION ( DIT ) IS SPECIFIED</b>                                                                                                                                                                                             |
| Explanation:      | Option DIT was used indicating control statements for Literal Tracing, however the required DDNAME CTLCDLTL is missing.                                                                                                                                               |
| User Action:      | Remove option DIT, or add DDNAME CTLCDLTL with valid control statements.                                                                                                                                                                                              |
| <b>DCD6AD20-D</b> | <b>DDNAME (DCDWKT1) IS MISSING WHEN PARM OPTION ( DIT ) IS SPECIFIED</b>                                                                                                                                                                                              |
| Explanation:      | Option DIT requires an extra work file DCDWKT1 and this file was not found.                                                                                                                                                                                           |
| User Action:      | Add an extra work file, similar to work file DCDWK01, 02, etc. with the name DCDWKT1. Also insure that DD names DCDWKT2, DCDWKT3, and DCDWKT4 are added similar to DCDWKT1.                                                                                           |
| <b>DCD6C030-D</b> | <b>DDNAME (SELECT) IS MISSING WHEN PARM OPTION (TRACE) IS SPECIFIED</b>                                                                                                                                                                                               |
| Explanation:      | Parm Option TRACE indicates SELECTs are used for 'Follow a Data Field' report and DD SELECT is required.                                                                                                                                                              |
| User Action:      | Inspect JCL and add DDNAME <b>SELECT</b> with SELECTs to produce report.                                                                                                                                                                                              |
| <b>DCD6C031-D</b> | <b>DDNAME (DCDWK08) MISSING</b>                                                                                                                                                                                                                                       |
| Explanation:      | A DDNAME (DCDWK08) is missing from JCL.                                                                                                                                                                                                                               |
| User Action:      | Inspect JCL and add DDNAME DCDWK08 to same.                                                                                                                                                                                                                           |
| <b>DCD6C110-D</b> | <b>CORRECT ERRORS FOUND IN SELECT STATEMENTS - SEE REPORT FILE</b>                                                                                                                                                                                                    |
| Explanation:      | See other file and look at syntax errors there for SELECT control statements used.                                                                                                                                                                                    |
| User Action:      | Correct the errors found and resubmit the run.                                                                                                                                                                                                                        |
| <b>DCD6CF02-D</b> | <b>A LIMIT OF 250 SELECT STATEMENTS ARE ALLOWED FOR (TRACE) - THIS NUMBER WAS EXCEEDED</b>                                                                                                                                                                            |
| Explanation:      | More than 250 SELECTs were submitted. The limit allowed is 250.                                                                                                                                                                                                       |
| User Action:      | Reduce run to 250 SELECTs or less and resubmit.                                                                                                                                                                                                                       |

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| <b>DCD6CJ01-D</b> | <b>SELECTS WITHOUT ( NAME ) KEYWORD MUST COME BEFORE SELECTS WITH ( NAME ) KEYWORD</b>                                                                                                            |
| Explanation:      | Format#2 SELECTs in format <b>SELECT IF NAME = data-name</b> must come after all other SELECTs using format#1 which uses other keywords with AND/OR logic.                                        |
| User Action:      | Put all SELECT IF NAME control statements last and resubmit.                                                                                                                                      |
| <b>DCD6V04-D</b>  | <b>VERSION file has no records OR has invalid entry in the first record - Using ENTERPRISE COBOL as default</b>                                                                                   |
| Explanation:      | //VERSION DD was found without a valid entry as first record in file.                                                                                                                             |
| User Action:      | Insure entry starts in position 1 and is one of the following values:<br>VS-COBOL VS-COBOL-II IBM-COBOL ENTERPRISE                                                                                |
| <b>DCD88020-I</b> | <b>NO DATA-NAMES INTO SORT</b>                                                                                                                                                                    |
| Explanation:      | No DATA NAME records were found to sort in one of Control/DCD programs.                                                                                                                           |
| User Action:      | If a very small program, consider ignoring this message.                                                                                                                                          |
| <b>DCD88021-I</b> | <b>NO DATA-NAMES ON TABLE</b>                                                                                                                                                                     |
| Explanation:      | No DATA NAME records were found on internal table in one of Control/DCD programs.                                                                                                                 |
| User Action:      | If a very small program, consider ignoring this message.                                                                                                                                          |
| <b>DCD88A13-E</b> | <b>AN INTERNAL TABLE WAS EXCEEDED – RERUN IN A LARGER REGION</b>                                                                                                                                  |
| Explanation:      | Insufficient region found.                                                                                                                                                                        |
| User Action:      | Use REG=8192K, 10240K or larger.                                                                                                                                                                  |
| <b>DCD88J01-W</b> | <b>THE NAME ( data-name ) DOES NOT MATCH TO A DATA DIVISION NAME</b>                                                                                                                              |
| Explanation:      | The data name found in PROCEDURE DIVISION was not found in the DATA DIVISION.                                                                                                                     |
| User Action:      | If COPY members are unresolved, then this is a normal message.                                                                                                                                    |
| <b>DCD8DA11-E</b> | <b>EXCEEDED TABLE LIMITS - INSUFFICIENT REGION</b>                                                                                                                                                |
| Explanation:      | Insufficient region found.                                                                                                                                                                        |
| User Action:      | Use REG=8192K, 10240K or larger.                                                                                                                                                                  |
| <b>DCD8DA13-E</b> | <b>EXCEEDED TABLE LIMITS - INSUFFICIENT REGION</b>                                                                                                                                                |
| Explanation:      | Insufficient region found.                                                                                                                                                                        |
| User Action:      | Use REG=8192K, 10240K or larger.                                                                                                                                                                  |
| <b>DCD8HB05-E</b> | <b>EXCEEDED TABLE LIMITS - INSUFFICIENT REGION</b>                                                                                                                                                |
| Explanation:      | Insufficient region found.                                                                                                                                                                        |
| User Action:      | Use REG=8192K, 10240K or larger.                                                                                                                                                                  |
| <b>DCD8FB05-E</b> | <b>EXCEEDED TABLE LIMITS - INSUFFICIENT REGION</b>                                                                                                                                                |
| Explanation:      | Insufficient region found.                                                                                                                                                                        |
| User Action:      | Use REG=8192K, 10240K or larger.                                                                                                                                                                  |
| <b>DCDA2001-D</b> | <b>DDNAME (INFILE) MISSING FOR (COMPILE) MODE - IF INDEPENDENT MODE, DO NOT USE (COM) OPTION</b>                                                                                                  |
| Explanation:      | Parm option COM was found indicating COMPILE mode. For Compile Mode, a DD file INFILE is required to pass the original compile listing into DCD, and this DD name was not found.                  |
| User Action:      | See the discussion in the User's Manual under the heading 'Compile Mode Considerations' under 'Alternate Compile Listing'.                                                                        |
| <b>DCDA2002-D</b> | <b>DDNAME (DCDWK01) MISSING</b>                                                                                                                                                                   |
| Explanation:      | The running of DCD IV requires work files DCDWK01 and more. The DDNAME DCDWK01 was not found..                                                                                                    |
| User Action:      | See JCL examples in the 'Alternate Compile Listing' section in the User's Manual and correct JCL.                                                                                                 |
| <b>DCDA2003-D</b> | <b>DDNAME (PRTCMPLR) MISSING FOR (COMPILE) MODE - IF INDEPENDENT MODE, DO NOT USE (COM) OPTION</b>                                                                                                |
| Explanation:      | Parm option COM was found indicating COMPILE mode. For Compile Mode, a DD file PRTCMPLR is required to pass back some reports from the original compile listing , and this DD name was not found. |
| User Action:      | See JCL examples in the 'Alternate Compile Listing' section in the User's Manual and correct JCL.                                                                                                 |
| <b>DCDA2120-C</b> | <b>DCD Compile LINECNT (CLN=nn) DOES NOT MATCH (LINECNT=nn) FOUND IN (*OPTIONS IN EFFECT) IN COMPILE LISTING</b>                                                                                  |
| Explanation:      | The DCD IV CLN=value (user entered) does not match the line count found within the compile listing.                                                                                               |
| User Action:      | Use the CLN=PARM option along with the appropriate value. The error should be corrected by entering a CLN=field with a value equal to that shown within the LINECNT=field of the compile step.    |

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| <b>DCDA2200-D</b> | <b>SYSPRINT FILE INTO DCD IS NOT COBOL OR IS INVALID. ENSURE THAT DISP=(MOD, PASS) IS USED ON SYSPRINT DD IN COMPILE STEP AND (NONUM) IS COMPILER OPTION (CHECK USE OF VS2/NOVS2 OPTION)</b>                                                                                                                                                                                                                                                                                                                                                                         |
| Explanation:      | The INFILE DD within the DD step is not successfully reading in the trapped compiler listing on the SYSPRINT DD from the compile step.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| User Action:      | 1. Consult "Examples" in the Alternate Compile Listing Facility section for correctly setting up the COB.SYSPRINT DD in the compile step. <ul style="list-style-type: none"> <li>a) Ensure that (MOD,PASS) is used as a disposition within the SYSPRINT DD.</li> <li>b) Ensure that both NONUM and SOURCE are specified as compiler options.</li> <li>c) Ensure that the compile step ran successfully.</li> <li>d) Ensure that NOVS2 is being defaulted to when using COBOL 68 or COBOL 74. Ensure that VS2 is used when VS COBOL II (COBOL 85) is used.</li> </ul> |
| <b>DCDA2P01-D</b> | <b>VS COBOL II LISTING FOUND, VS2 OPTION NOT IN EFFECT, USE PARM OPT ION (VS2) TO CORRECT</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Explanation:      | PARM Option VS2 is required when VS COBOL II or new COBOL releases are used.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| User Action:      | Use PARM Option VS2 (e.g. OTHER= 'VS')                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>DCDA4008-D</b> | <b>DDNAME (COBOLIN) MISSING FOR (INDEPENDENT) MODE - IF COMPILE MODE, USE (COM) PARM OPTION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Explanation:      | In the JCL, the COBOLIN DD card is missing from the file being compiled.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| User Action:      | If in Independent Mode, check JCL to ensure DD card for COBOLIN is there and correctly placed. If in Compile Mode, run DCD IV with the COM option. The COBOLIN DD is used for specifying the COBOL program to be run through DCD IV, unless the COM option is used.                                                                                                                                                                                                                                                                                                  |
| <b>DCDA4009-D</b> | <b>DDNAME (DCDWK01) MISSING</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Explanation:      | In the JCL, the DD card for DCDWK01 is missing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| User Action:      | Check the JCL to ensure the DD card for DCDWK01 exists and is correctly placed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>DCDA4010-I</b> | <b>ERROR IN PROCESSING BASIS PROGRAMS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Explanation:      | Informational message preceding BASIS error messages.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| User Action:      | Examine output following error message to determine cause of problem.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>DCDA4011-I</b> | <b>NORMAL END OF BASIS PROCESSING</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Explanation:      | Informational message following the processing of cards from the BASIS DD file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| User Action:      | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>DCDA4040-D</b> | <b>EMPTY FILE FOUND FOR COBOL PROGRAM</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Explanation:      | COBOL file exists but contains no records                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| User Action:      | Check to ensure COBOL file contains records.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>DCDA4B00-D</b> | <b>DDNAME (BASIS) MISSING AND IS REQUIRED WHEN PARM OPTION (BASIS) IS USED</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Explanation:      | In the JCL, the BASIS DD card is missing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| User Action:      | Check JCL to ensure the BASIS DD card exists and is correctly placed or remove BASIS as a PARM option.                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>DCDA4B02-D</b> | <b>NO COBOL INPUT FOUND ON DDNAME (COBOLIN)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Explanation:      | COBOL file exists (used with BASIS option) but contains no records.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| User Action:      | Check to ensure COBOL file contains records.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>DCDA4B03-D</b> | <b>NO BASIS INPUT FOUND ON DDNAME (BASIS)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Explanation:      | BASIS DD card was found but no records associated with that DD were found.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| User Action:      | Check to ensure that the BASIS DD cards are present, formatted correctly and follow the BASIS DD.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>DCDA4B04-D</b> | <b>FIRST CARD IN THE BASIS DD IS NOT (BASIS)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Explanation:      | The first card found where the BASIS card should appear is not a BASIS card.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| User Action:      | Check to ensure the BASIS card is correctly placed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>DCDA4C01-D</b> | <b>BASIS (program name) PROGRAM NOT FOUND ON (COBOLIN) INPUT FILE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Explanation:      | The program name given in the BASIS DD card does not match the program found on the COBOLIN file.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| User Action:      | Check the BASIS DD card and ensure the program name is correct and matches the program pointed to by the COBOLIN file.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>DCDA4C02-D</b> | <b>CARD FOLLOWING (BASIS) NOT (INSERT) OR (DELETE)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

## Control/DCD – Error Messages

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| Explanation:      | The first card following the BASIS DD card was not an INSERT card or a DELETE card. It must be one of these.                                                                          |
| User Action:      | Check to ensure that the INSERT / DELETE cards following the BASIS DD card are correctly placed and that an INSERT or DELETE card immediately follows the BASIS card.                 |
| <b>DCDA4E01-D</b> | <b>INSERT (sequence #) OUT OF SEQUENCE</b>                                                                                                                                            |
| Explanation:      | An INSERT card was found with a sequence number lower than a previous sequence number on an INSERT or DELETE                                                                          |
| User Action:      | Check to ensure the INSERT / DELETE cards are in proper sequence and the sequence numbers are in ascending order.                                                                     |
| <b>DCDA4E02-D</b> | <b>INSERT (sequence #) NOT FOUND IN PROGRAM</b>                                                                                                                                       |
| Explanation:      | An INSERT card was found with a sequence number that does not exist in the main program.                                                                                              |
| User Action:      | Check INSERT cards and make sure all sequence numbers are valid and match sequence numbers in the main program.                                                                       |
| <b>DCDA4E03-D</b> | <b>INSERT (sequence #) - NO INSERTS FOUND</b>                                                                                                                                         |
| Explanation:      | An INSERT was found with no COBOL code following it. One line of code must follow an INSERT card.                                                                                     |
| User Action:      | Check INSERT cards to ensure they are properly placed and at least 1 line of COBOL code follows each.                                                                                 |
| <b>DCDA4F01-D</b> | <b>DELETE (sequence #) OUT OF SEQUENCE</b>                                                                                                                                            |
| Explanation:      | A DELETE card was found with a sequence number lower than a previous sequence number on an INSERT or DELETE card.                                                                     |
| User Action:      | Check to ensure INSERT / DELETE cards are in proper sequence and are in ascending order.                                                                                              |
| <b>DCDA4G02-D</b> | <b>(DELETE) FIRST NUMBER IN RANGE (sequence #) NOT FOUND</b>                                                                                                                          |
| Explanation:      | The first sequence number in a DELETE range does not match a valid sequence number in the main program.                                                                               |
| User Action:      | Check to ensure all sequence numbers in DELETE range match valid sequence numbers in the program.                                                                                     |
| <b>DCDA4G04-D</b> | <b>(DELETE) RANGE (1st sequence #) - (2nd sequence #) NOT FOUND</b>                                                                                                                   |
| Explanation:      | The sequence numbers found in a DELETE card do not match valid sequence numbers in the main program.                                                                                  |
| User Action:      | Check sequence numbers on DELETE cards and ensure they match valid sequence numbers in program.                                                                                       |
| <b>DCDA4SA0-I</b> | <b>HANDLING BASIS CARD: basis card</b>                                                                                                                                                |
| Explanation:      | An informational message to assure the user that the BASIS card is being processed by DCD IV.                                                                                         |
| User Action:      | None.                                                                                                                                                                                 |
| <b>DCDB0015-D</b> | <b>DDNAME (COBOLIN) MISSING</b>                                                                                                                                                       |
| Explanation:      | In the JCL, the DD card for COBOLIN is missing.                                                                                                                                       |
| User Action:      | Check the JCL to ensure DD card for COBOLIN exists and is correctly placed.                                                                                                           |
| <b>DCDB0016-D</b> | <b>DDNAME (DCDWK01) MISSING</b>                                                                                                                                                       |
| Explanation:      | In the JCL, the DD card for DCDWK01 is missing.                                                                                                                                       |
| User Action:      | Check the JCL to ensure DD card for DCDWK01 exists and is correctly placed.                                                                                                           |
| <b>DCDB0022-D</b> | <b>DCDMULTI (program name) PROGRAM NOT FOUND ON (COBOLIN) INPUT FILE</b>                                                                                                              |
| Explanation:      | A logic error has occurred. Program member does not match the COBOLIN file.                                                                                                           |
| User Action:      | Check the JCL to ensure DD card member exists and is correctly placed.                                                                                                                |
| <b>DCDB0030-D</b> | <b>EMPTY FILE FOUND FOR COBOL PROGRAM</b>                                                                                                                                             |
| Explanation:      | COBOL file exists but contains no records.                                                                                                                                            |
| User Action:      | Check to ensure COBOL file contains records.                                                                                                                                          |
| <b>DCDB0040-E</b> | <b>( TRACE ) OPTION available for first program found – Ignored for EXTRA programs</b>                                                                                                |
| Explanation:      | Abend Analysis is only available for one program at a time. If more programs were inputted, then the extra programs will not have Abend Analysis done on them.                        |
| User Action:      | Limit Abend Analysis to one program at a time.                                                                                                                                        |
| <b>DCDB0041-E</b> | <b>( DIT ) OPTION available for first program found – Ignored for EXTRA programs</b>                                                                                                  |
| Explanation:      | Direct Tracing of Literals is only available for one program at a time. If more programs were inputted, then the extra programs will not have Direct Tracing of Literals done on them |
| User Action:      | Limit Direct Tracing of Literals to one program at a time.                                                                                                                            |
| <b>DCDB0C01-W</b> | <b>START OF ASSEMBLER PROGRAM FOUND WITHIN PROGRAM</b>                                                                                                                                |

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| Explanation:      | The start of an Assembler program was found when reading in COBOL programs.                                                                                                                          |
| User Action:      | Review the input and ensure that only COBOL programs are being inputted.                                                                                                                             |
| <b>DCDB0D02-W</b> | <b>COLUMN 7 OF LINE AFTER THE PROCEDURE DIVISION OF COBOL PROGRAM (XXXXXXXX) IS INVALID - SEE NEXT LINE</b>                                                                                          |
| Explanation:      | Within the Procedure Division, a line was found which may be invalid.                                                                                                                                |
| User Action:      | Examine the line and take corrective action if necessary.                                                                                                                                            |
| <b>DCDB0F01-D</b> | <b>USE OF PARM OPTION (LOR) REQUIRES COBOL RECS - FOUND COBOL PROGRAM INSTEAD</b>                                                                                                                    |
| Explanation:      | A COBOL program was found as input when the PARM option LOR indicated Data Division records were being inputted.                                                                                     |
| User Action:      | Review what was intended and correct.                                                                                                                                                                |
| <b>DCDB0XA6-C</b> | <b>COBOL PROGRAM (program name) WAS DUPLICATED</b>                                                                                                                                                   |
| Explanation:      | More than one COBOL program was found with this program name.                                                                                                                                        |
| User Action:      | Determine why duplicate programs are present and remove those that are not wanted.                                                                                                                   |
| <b>DCDB0XA7-I</b> | <b>COBOL PROGRAM-ID (program) BEING PROCESSED - (nnnnn)</b>                                                                                                                                          |
| Explanation:      | Informational message produced for every COBOL program.                                                                                                                                              |
| User Action:      | None.                                                                                                                                                                                                |
| <b>DCDB0XA9-W</b> | <b>INVALID WORD IN PROCEDURE DIVISION</b>                                                                                                                                                            |
| Explanation:      | Found a PIC, PICTURE or VALUE clause in the Procedure Division.                                                                                                                                      |
| User Action:      | Check the program to find out why this condition occurred.                                                                                                                                           |
| <b>DCDCA010-D</b> | <b>DDNAME (DCDWK02) MISSING</b>                                                                                                                                                                      |
| Explanation:      | The running of DCD IV requires work files DCDWK02 and others. The DDNAME DCDWK02 was not found.                                                                                                      |
| User Action:      | See JCL examples in the 'Alternate Compile Listing' section in the User's Manual and correct JCL.                                                                                                    |
| <b>DCDCA030-D</b> | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                                                                                                 |
| Explanation:      | A work file being used is in a corrupted state.                                                                                                                                                      |
| User Action:      | Try re-running. If necessary, contact Marble Computer.                                                                                                                                               |
| <b>DCDCADD3-E</b> | <b>OVER 500 REPLACING TOKENS WITHIN ONE COPY REPLACING OPERAND - CHECK FOR ERROR IN CODE</b>                                                                                                         |
| Explanation:      | More than 500 tokens were found when replacing the corresponding tokens in the COPY member before finding a delimiter within pseudo-text-1.                                                          |
| User Action:      | Check the COPY member and the COPY REPLACING clauses to determine why excessive tokens are being replaced within one pseudo text. If this is a valid condition, contact MARBLE Computer, Inc.        |
| <b>DCDCADD4-I</b> | <b>(BY) MISSING IN COPY REPLACING</b>                                                                                                                                                                |
| Explanation:      | The COPY REPLACING statement at the compiler number shown is missing the word BY following identifier-1 and before identifier-2.                                                                     |
| User Action:      | Inspect the COPY REPLACING clauses within the COBOL program and ensure the word BY is correctly placed.                                                                                              |
| <b>DCDCADD6-C</b> | <b>OVER 500 REPLACING TOKENS WITHIN COPY REPLACING OPERAND - CHECK FOR ERROR IN CODE</b>                                                                                                             |
| Explanation:      | More than 500 tokens were found when replacing the corresponding tokens in the COPY member before finding a delimiter within pseudo-text-2.                                                          |
| User Action:      | Check the COPY member and the COPY REPLACING clause to determine why excessive tokens are being replaced within one pseudo text. If this is a valid condition, contact MARBLE Computer, Inc.         |
| <b>DCDCADD9-C</b> | <b>OVER 150 REPLACING WITHIN ONE COPY</b>                                                                                                                                                            |
| Explanation:      | DCD IV has a limit of 150 REPLACING entries within one COPY statement.                                                                                                                               |
| User Action:      | Inspect the COPY statements to determine the cause of excessive REPLACING clauses and ensure there are less than 150 per COPY statement. If this is a valid condition, contact MARBLE Computer, Inc. |
| <b>DCDCAH03-E</b> | <b>INTERNAL TABLE EXCEEDED</b>                                                                                                                                                                       |
| Explanation:      | An internal table was exceeded when expanding COPY members.                                                                                                                                          |
| User Action:      | Contact Marble Computer.                                                                                                                                                                             |
| <b>DCDCAH06-E</b> | <b>DATA SET NAME FOR COPYLIB NOT SPECIFIED, RUN TERMINATED</b>                                                                                                                                       |
| Explanation:      | A data set name (DSNAME=) was not provided on the //COPYLIB DD card.                                                                                                                                 |



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| User Action:      | Ensure that a DSN=clause is provided on the COPYLIB DD statement and check correct placement of the //COPYLIB card.                                                                                                        |
| <b>DCDCAX01-W</b> | <b>COPY REPLACING OPTION IGNORED FOR NESTED COPIES (member-name)</b>                                                                                                                                                       |
| Explanation:      | COPY REPLACING is not allowed within NESTED COPYs.                                                                                                                                                                         |
| User Action:      | Determine why COPY REPLACING is used in NESTED COPYs and take any appropriate action.                                                                                                                                      |
| <b>DCDCAX02-E</b> | <b>COPY MEMBER NAME (member-name) APPEARS EARLIER WITHIN THIS ENTIRE NESTED COPY</b>                                                                                                                                       |
| Explanation:      | Within nested COPYs, a COPY may not name a member already brought in through nested copies above it. The member-name shown is already brought in. If brought in again, it will result in generating endless lines of code. |
| User Action:      | Examine why this is happening and correct.                                                                                                                                                                                 |
| <b>DCDCAX05-I</b> | <b>ERROR WHEN RESOLVING COPY MEMBER (member-name) SEE FOLLOWING MESSAGE</b>                                                                                                                                                |
| Explanation:      | DCD IV is unable to resolve the COPY member listed above.                                                                                                                                                                  |
| User Action:      | Look for another (more specific) message following this one.                                                                                                                                                               |
| <b>DCDCAX06-E</b> | <b>COPY MEMBER (member-name) NOT FOUND IN COPYLIB SPECIFIED</b>                                                                                                                                                            |
| Explanation:      | When DCD IV attempted to read the COPY member in the COBOL program, it was not found in the partitioned data set specified by DSN= in the COPYLIB DD.                                                                      |
| User Action:      | Check the COPY member name to ensure it is valid and that the correct PDS file is specified within the DSN= in the COPYLIB DD.                                                                                             |
| <b>DCDCAX07-D</b> | <b>//COPYLIB DD IS MISSING OR INCORRECT</b>                                                                                                                                                                                |
| Explanation:      | A data set name (DSNAME=) was not provided on the //COPYLIB DD card.                                                                                                                                                       |
| User Action:      | Ensure that a DSN= clause is provided on the COPYLIB DD statement and check to be sure the placement of the //COPYLIB card is correct.                                                                                     |
| <b>DCDCAX08-E</b> | <b>UNSUCCESSFUL READ WHILE READING RECORD FROM COPY MEMBER (member-name)</b>                                                                                                                                               |
| Explanation:      | The COPY member shown was found within the directory of the PDS specified, however, attempts to read it are unsuccessful.                                                                                                  |
| User Action:      | Ensure that a valid partitioned data set was provided in the COPYLIB DD statement and verify that the member specified is there and can be read successfully.                                                              |
| <b>DCDCAX09-E</b> | <b>UNSUCCESSFUL READ WHEN READING DIRECTORY OF DSN SPECIFIEDIN //COPYLIB DD</b>                                                                                                                                            |
| Explanation:      | A problem was encountered when reading the directory of the partitioned data set provided in the DSN= of the COPYLIB DD.                                                                                                   |
| User Action:      | Ensure the PDS specified in the DSN= field is a valid PDS and that the directory is able to be read.                                                                                                                       |
| <b>DCDCAX10-E</b> | <b>NO RECORDS FOUND IN MEMBER (copy member name)</b>                                                                                                                                                                       |
| Explanation:      | When DCD IV attempted to resolve this COPY member, it found no records in the member.                                                                                                                                      |
| User Action:      | Check the COPY member and make corrections as necessary.                                                                                                                                                                   |
| <b>DCDCCT01-I</b> | <b>WHEN HANDLING REPLACING WITHIN A COPY, A CONTINUATION TO A NEW LINE IS FORCED AT COMPILER # (compiler #)</b>                                                                                                            |
| Explanation:      | An informational message indicating that a new COBOL line was created to adequately handle the REPLACING on this line.                                                                                                     |
| User Action:      | None.                                                                                                                                                                                                                      |
| <b>DCDCCY06-I</b> | <b>ERROR WHEN RESOLVING COPY MEMBER (copy-member-name)</b>                                                                                                                                                                 |
| Explanation:      | Indicates that an error has occurred in resolving a COPY member.                                                                                                                                                           |
| User Action:      | Look for an associated error message more descriptive in nature than this one.                                                                                                                                             |
| <b>DCDCCY07-E</b> | <b>COPY MEMBER (copy-member) NOT FOUND IN COPYLIB SPECIFIED</b>                                                                                                                                                            |
| Explanation:      | The COPY member name specified was not found in the data sets provided within the COPYLIB DD.                                                                                                                              |
| User Action:      | Either correct the spelling of the member name or determine why the member is missing.                                                                                                                                     |
| <b>DCDCCY08-D</b> | <b>//COPYLIB DD IS MISSING OR INCORRECT</b>                                                                                                                                                                                |
| Explanation:      | A DSN= was not found in the JCL on the COPYLIB DD statement or the DD is missing.                                                                                                                                          |
| User Action:      | Correct the JCL and rerun.                                                                                                                                                                                                 |
| <b>DCDCCY09-E</b> | <b>UNSUCCESSFUL READ WHILE READING RECORD FROM COPY MEMBER (copy-member)</b>                                                                                                                                               |
| Explanation:      | An error occurred during the read of a record of the COPY member shown within the record.                                                                                                                                  |

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| User Action:                                                                     | Determine if the COPY member in question has an I/O problem that can be easily fixed. If so, correct, otherwise, contact System Support at your installation. |
| <b>DCDCCY0A-E</b>                                                                | <b>UNSUCCESSFUL READ WHEN READING DIRECTORY OF DSN SPECIFIED IN //COPYLIB DD</b>                                                                              |
| Explanation:                                                                     | An error occurred during the read of a directory of the data set specified within the COPYLIB DD.                                                             |
| User Action:                                                                     | Contact System Support at your installation for help.                                                                                                         |
| <b>DCDCCY0B-E</b>                                                                | <b>NO RECORDS FOUND IN COPY MEMBER (copy member name)</b>                                                                                                     |
| Explanation:                                                                     | When DCD IV attempted to resolve this COPY member, it found no records in the member.                                                                         |
| User Action:                                                                     | Check the COPY member and make corrections as necessary.                                                                                                      |
| <b>DCDCFE01-E</b>                                                                | <b>PROBLEM IN RESOLVING NESTED COPY MEMBER (member name) - CONTINUING...</b>                                                                                  |
| Explanation:                                                                     | When DCD IV attempted to resolve this COPY member, it could not find the member specified.                                                                    |
| User Action:                                                                     | Check to see why the COPY member is missing.                                                                                                                  |
| <b>DCDCGX05-I</b>                                                                | <b>ERROR WHEN RESOLVING COPY MEMBER (member-name) SEE FOLLOWING MESSAGE</b>                                                                                   |
| Explanation:                                                                     | DCD IV is unable to resolve the COPY member listed above.                                                                                                     |
| User Action:                                                                     | Look for another (more specific) message following this one.                                                                                                  |
| <b>DCDCGX06-E</b>                                                                | <b>COPY MEMBER (member-name) NOT FOUND IN COPYLIB SPECIFIED</b>                                                                                               |
| Explanation:                                                                     | When DCD IV attempted to read the COPY member in the COBOL program, it was not found in the partitioned data set specified by DSN= in the COPYLIB DD.         |
| User Action:                                                                     | Check the COPY member name to ensure it is valid and that the correct PDS file is specified within the DSN= in the COPYLIB DD.                                |
| <b>DCDCGX07-D</b>                                                                | <b>//COPYLIB DD IS MISSING OR INCORRECT</b>                                                                                                                   |
| Explanation:                                                                     | A data set name (DSNAME=) was not provided on the //COPYLIB DD card.                                                                                          |
| User Action:                                                                     | Ensure that a DSN= clause is provided on the COPYLIB DD statement and check to be sure the placement of the //COPYLIB card is correct.                        |
| <b>DCDCGX08-E</b>                                                                | <b>UNSUCCESSFUL READ WHILE READING RECORD FROM COPY MEMBER (member-name)</b>                                                                                  |
| Explanation:                                                                     | The COPY member shown was found within the directory of the PDS specified, however, attempts to read it are unsuccessful.                                     |
| User Action:                                                                     | Ensure that a valid partitioned data set was provided in the COPYLIB DD statement and verify that the member specified is there and can be read successfully. |
| <b>DCDCGX09-E</b>                                                                | <b>UNSUCCESSFUL READ WHEN READING DIRECTORY OF DSN SPECIFIED IN //COPYLIB DD</b>                                                                              |
| Explanation:                                                                     | A problem was encountered when reading the directory of the partitioned data set provided in the DSN= of the COPYLIB DD.                                      |
| User Action:                                                                     | Ensure the PDS specified in the DSN= field is a valid PDS and that the directory is able to be read.                                                          |
| <b>DCDCGX10-E</b>                                                                | <b>NO RECORDS FOUND IN MEMBER (copy member name)</b>                                                                                                          |
| Explanation:                                                                     | When DCD IV attempted to resolve this COPY member, it found no records in the member.                                                                         |
| User Action:                                                                     | Check the COPY member and make corrections as necessary.                                                                                                      |
| <b>DCDCR020-E</b>                                                                | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                                                          |
| Explanation:                                                                     | The first record of a work file being read does not contain a MARBLE header record.                                                                           |
| User Action:                                                                     | Look for possible previous messages to this one. Look for an error in the JCL used.                                                                           |
| <b>DCDEB040-D</b>                                                                | <b>ENTIRE COBOL PROGRAM INCLUDING PROCEDURE DIVISION WAS NOT FOUND</b>                                                                                        |
| Explanation:                                                                     | The PROCEDURE DIVISION was not found within this program.                                                                                                     |
| User Action:                                                                     | Determine why PROCEDURE DIVISION was not found and re-submit.                                                                                                 |
| <b>DCDEBM02-D</b>                                                                | <b>EXCEEDED MAXIMUM NUMBER OF COPYS THAT CAN BE HANDLED - CONTACT MARBLE COMPUTER</b>                                                                         |
| Explanation:                                                                     | A large internal table was exceeded. This is an unusual exception.                                                                                            |
| User Action:                                                                     | Contact Marble Computer.                                                                                                                                      |
| <b>DCDEF016-D<br/>&amp; DCDEF017-D<br/>&amp; DCDEF018-D<br/>&amp; DCDEF019-D</b> | <b>DDNAME (DCDWK0x) MISSING</b>                                                                                                                               |

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| Explanation:      | The running of DCD IV requires work files for processing. The DDNAMEs DCDWK03, DCDWK04, DCDWK05, and DCDWK06 respectively were not found.                      |
| User Action:      | See JCL examples in the 'Alternate Compile Listing' section in the User's Manual and correct JCL.                                                              |
| <b>DCDEF030-C</b> | <b>PROGRAM-ID NOT FOUND IN INPUT FILE - LOOK FOR NON-COBOL FILE OR MISSING PROGRAM-ID IN MARGIN-A</b>                                                          |
| Explanation:      | The PROGRAM-ID clause with Program-id within the Identification Division was not found. Program-Id is used within internal processing of DCD IV and is needed. |
| User Action:      | Check the program and see why this occurred.                                                                                                                   |
| <b>DCDEFB01-W</b> | <b>NO PERIOD PRECEDING LEVEL NUMBER (nn)</b>                                                                                                                   |
| Explanation:      | A period did not immediately precede this level number.                                                                                                        |
| User Action:      | Check the previous line for a missing period.                                                                                                                  |
| <b>DCDEFB02-C</b> | <b>DATA NAME DOES NOT FOLLOW LEVEL NUMBER (nn)</b>                                                                                                             |
| Explanation:      | A level number was found and an expected data name following level number was not found.                                                                       |
| User Action:      | Check the line and make corrections as necessary.                                                                                                              |
| <b>DCDEFB03-C</b> | <b>(01) FOUND IN MARGIN B - IGNORING</b>                                                                                                                       |
| Explanation:      | The 01 level number found is within margin B, in column 12 or beyond. This 01 is being ignored as being a valid 01 level number.                               |
| Action:           | Check the line and make corrections if this is really a 01 level number.                                                                                       |
| <b>DCDEFB66-W</b> | <b>NO PERIOD PRECEDING LEVEL NUMBER (66)</b>                                                                                                                   |
| Explanation:      | A period did not immediately precede this level number.                                                                                                        |
| Action:           | Check the previous line for a missing period.                                                                                                                  |
| <b>DCDEFB67-C</b> | <b>DATA-NAME DOES NOT FOLLOW 66 LEVEL - BYPASSING</b>                                                                                                          |
| Explanation:      | Level 66 found with no data name following it.                                                                                                                 |
| Action:           | Check the line and make corrections if this is really a 66 level number.                                                                                       |
| <b>DCDEFB68-C</b> | <b>RENAMES EXPECTED WITHIN 66 LEVEL AND NOT FOUND - BYPASSING</b>                                                                                              |
| Explanation:      | The syntax of 66 (RENAME) statement requires a data name to follow RENAMES word.                                                                               |
| Action:           | Check the syntax of 66 level line.                                                                                                                             |
| <b>DCDEFB69-C</b> | <b>TOKEN PAST RENAMES NOT ALPHANUMERIC</b>                                                                                                                     |
| Explanation:      | The 66 level clause at the compiler number shown contains data following the COBOL verb, RENAMES that is not alphanumeric.                                     |
| User Action:      | Check the line and make corrections as necessary.                                                                                                              |
| <b>DCDEFB77-W</b> | <b>NO PERIOD PRECEDING LEVEL NUMBER (level #)</b>                                                                                                              |
| Explanation:      | The 77 level number at the compiler number shown is not preceded by a period.                                                                                  |
| User Action:      | Check the line preceding the level number for a missing period and correct.                                                                                    |
| <b>DCDEFB78-C</b> | <b>DATA NAME DOES NOT FOLLOW LEVEL NUMBER (level #) - BYPASSING</b>                                                                                            |
| Explanation:      | The 77 level number at the compiler number shown is not followed by a data name.                                                                               |
| User Action:      | Check the line and make corrections as necessary.                                                                                                              |
| <b>DCDEFB79-W</b> | <b>(77) FOUND IN MARGIN B – ACCEPTED</b>                                                                                                                       |
| Explanation:      | The 77 level number found at the compiler number shown is in margin B. It should be to the left of margin B.                                                   |
| User Action:      | Move the level number to the left of margin B or check the line and make corrections as necessary.                                                             |
| <b>DCDEFB88-W</b> | <b>NO PERIOD PRECEDING 88 LEVEL NUMBER ( level #) - ACCEPTING</b>                                                                                              |
| Explanation:      | The 88 level number at the compiler number shown is not preceded by a period.                                                                                  |
| User Action:      | Check the line preceding the level number for a missing period and correct.                                                                                    |
| <b>DCDEFB89-W</b> | <b>DATA NAME DOES NOT FOLLOW 88 LEVEL NUMBER (level #) - BYPASSING</b>                                                                                         |
| Explanation:      | The 88 level number at the compiler number shown is not followed by a data name.                                                                               |
| User Action:      | Check the line and make corrections as necessary.                                                                                                              |
| <b>DCDEFB90-W</b> | <b>(88) FOUND IN MARGIN A – ACCEPTED</b>                                                                                                                       |
| Explanation:      | The 88 level number found at the compiler number shown is in margin A. It should be to the right of margin A.                                                  |
| User Action:      | Move the level number to margin B or check the line and make corrections as necessary.                                                                         |
| <b>DCDEFB92-E</b> | <b>VALUE CLAUSE MISSING IN 88 LEVEL - BYPASSING</b>                                                                                                            |

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| Explanation:      | The 88 level number and clause at the compiler number shown must contain the word VALUE.                                                                     |
| User Action:      | Check the line and make corrections as necessary.                                                                                                            |
| <b>DCDEFB93-E</b> | <b>CANNOT FIND LITERAL AFTER (VALUE) - BYPASSING</b>                                                                                                         |
| Explanation:      | The 88 level number and clause at the compiler number shown must contain a literal following the word VALUE.                                                 |
| User Action:      | Check the line and make corrections as necessary.                                                                                                            |
| <b>DCDEFG23-E</b> | <b>PROBLEM IN RESOLVING OCCURS AT COMPILER # (compiler #) **SEE BELOW**</b>                                                                                  |
|                   | <b>LEVEL NUMBER = (level #)                      PRIOR END LOCATION = (location)</b>                                                                         |
|                   | <b>NUMBER OF OCCURS = (nnn)                      CURRENT END LOCATION = (location)</b>                                                                       |
| Explanation:      | An error was found in resolving an OCCURS clause. More information will be displayed underneath this message.                                                |
| User Action:      | Look for a syntax error. If none can be found, contact MARBLE Computer, Inc. for support.                                                                    |
| <b>DCDEFG32-C</b> | <b>GROUP LEVEL NAME BYPASSED FOR PURPOSES OF CALCULATING RECORD POSITIONS DUE TO SYNTAX ERROR</b>                                                            |
| Explanation:      | A problem was encountered in resolving the record positions for a group item. More information will be displayed underneath this message.                    |
| User Action:      | Look for a syntax error. If none can be found, contact MARBLE Computer, Inc. for support.                                                                    |
| <b>DCDEH01A-E</b> | <b>(SYNTAX) ERROR - (MOVE)</b>                                                                                                                               |
| Explanation:      | The MOVE statement found at the compiler number shown has the reserved word TO missing or misplaced.                                                         |
| User Action:      | Look at the line in question and make any necessary corrections.                                                                                             |
| <b>DCDEH01B-C</b> | <b>THE END OF A (MOVE) STATEMENT IS INCOMPLETE OR CONTAINS AN UNRECOGNIZED SPECIAL REGISTER</b>                                                              |
| Explanation:      | The MOVE statement found at the compiler number is incomplete.                                                                                               |
| User Action:      | Look at the line in question and make any necessary corrections.                                                                                             |
| <b>DCDEH03A-C</b> | <b>FILENAME FOLLOWING A (READ) VERB IS NOT ALPHANUMERIC – ACCEPTED AS IS</b>                                                                                 |
| Explanation:      | A valid file name following the COBOL verb READ is expected at the compiler number shown. The file name found is in question because it is not alphanumeric. |
| User Action:      | Check the file name and correct as necessary.                                                                                                                |
| <b>DCDEH03B-E</b> | <b>NO FD ENTRIES FOUND FOR THE FILENAME (FD name)</b>                                                                                                        |
| Explanation:      | DCD IV has no FILE FDs in its internal table to match to the file name found in the READ statement at the compiler number shown.                             |
| User Action:      | Check spelling and if necessary, check the Environment and Data Divisions for a valid FD or SD to match the name used.                                       |
| <b>DCDEH03C-E</b> | <b>NO MATCHING FILE-NAME FOR (filename)</b>                                                                                                                  |
| Explanation:      | The file name found after the READ statement at the compiler number shown does not match to a FD file name within the Data Division.                         |
| User Action:      | Check the file name and correct to match a file name in the Environment and Data Divisions.                                                                  |
| <b>DCDEH03D-C</b> | <b>(INTO IDENTIFIER-1) IDENTIFIER-1 NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                                    |
| Explanation:      | The record name following the word INTO in a READ statement is not alphanumeric at the compiler number shown.                                                |
| User Action:      | Check the record name and correct as necessary.                                                                                                              |
| <b>DCDEH04A-C</b> | <b>NAME FOLLOWING (WRITE) IS NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                                           |
| Explanation:      | The record name following the verb WRITE is not alphanumeric at the compiler number shown.                                                                   |
| User Action:      | Check the record name and correct as necessary.                                                                                                              |
| <b>DCDEH04B-C</b> | <b>(FROM IDENTIFIER-1) IDENTIFIER -1 NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                                   |
| Explanation:      | The identifier that follows the word FROM in a WRITE statement is not alphanumeric at the compiler number shown.                                             |
| User Action:      | Check the identifier and make corrections as necessary.                                                                                                      |
| <b>DCDEH05A-C</b> | <b>IDENTIFIER FOLLOWING (ACCEPT) NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                                       |
| Explanation:      | The identifier that follows the COBOL verb ACCEPT at the compiler number shown is not alphanumeric.                                                          |
| User Action:      | Check the identifier and make corrections as necessary.                                                                                                      |

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| <b>DCDEH06A-E</b> | <b>THE (ADD) STATEMENT REQUIRES A (TO) OR (GIVING) AND NEITHER WAS FOUND – BYPASSING</b>                                                     |
| Explanation:      | The ADD statement at the compiler number shown is missing the word, TO or GIVING.                                                            |
| User Action:      | Check the ADD statement and correct as necessary.                                                                                            |
| <b>DCDEH06B-E</b> | <b>THE END OF THE (ADD) STATEMENT IS INCOMPLETE OR CONTAINS AN UNRECOGNIZED SPECIAL REGISTER - BYPASSING</b>                                 |
| Explanation:      | The ADD statement at the compiler number shown is incomplete.                                                                                |
| User Action:      | Check the ADD statement and correct as necessary.                                                                                            |
| <b>DCDEH07A-E</b> | <b>THE (SUBTRACT) STATEMENT HERE REQUIRES THE WORD (FROM) AND IT WAS NOT FOUND – BYPASSING</b>                                               |
| Explanation:      | The SUBTRACT statement at the compiler number shown requires the word FROM to ensure correct syntax.                                         |
| User Action:      | Check the SUBTRACT statement and correct as necessary.                                                                                       |
| <b>DCDEH07B-E</b> | <b>THE END OF THIS (SUBTRACT) STATEMENT IS INCOMPLETE OR CONTAINS AN UNRECOGNIZED SPECIAL REGISTER - BYPASSING</b>                           |
| Explanation:      | The SUBTRACT statement at the compiler number shown appears to be incomplete.                                                                |
| User Action:      | Check the SUBTRACT statement and correct as necessary.                                                                                       |
| <b>DCDEH08A-E</b> | <b>THE (MULTIPLY) STATEMENT REQUIRES (BY) - BYPASSING</b>                                                                                    |
| Explanation:      | The MULTIPLY statement at the compiler number shown is missing the word BY.                                                                  |
| User Action:      | Check the MULTIPLY statement and correct as necessary.                                                                                       |
| <b>DCDEH08B-E</b> | <b>THE (MULTIPLY) STATEMENT IS INCOMPLETE - BYPASSING</b>                                                                                    |
| Explanation:      | The MULTIPLY statement at the compiler number shown is incomplete.                                                                           |
| User Action:      | Check the MULTIPLY statement and correct as necessary.                                                                                       |
| <b>DCDEH09A-E</b> | <b>THE (DIVIDE) STATEMENT REQUIRES (BY) OR (INTO) - BYPASSING</b>                                                                            |
| Explanation:      | The DIVIDE statement at the compiler number shown requires the word BY or INTO to ensure correct syntax.                                     |
| User Action:      | Check the DIVIDE statement and make corrections as necessary.                                                                                |
| <b>DCDEH09B-E</b> | <b>THE (DIVIDE) STATEMENT IS INCOMPLETE - BYPASSING</b>                                                                                      |
| Explanation:      | The DIVIDE statement at the compiler number shown is incomplete.                                                                             |
| User Action:      | Check the DIVIDE statement and make corrections as necessary.                                                                                |
| <b>DCDEH10A-E</b> | <b>THE (COMPUTE) STATEMENT REQUIRES (=) AND THIS WAS NOT FOUND – BYPASSING</b>                                                               |
| Explanation:      | The COMPUTE statement at the compiler number shown is incomplete and requires the symbol (=) or the word EQUAL or EQUALS for correct syntax. |
| User Action:      | Check the COMPUTE statement and correct.                                                                                                     |
| <b>DCDEH10B-E</b> | <b>THE (COMPUTE) STATEMENT IS INCOMPLETE - BYPASSING</b>                                                                                     |
| Explanation:      | The COMPUTE statement at the compiler number shown is incomplete.                                                                            |
| User Action:      | Check the COMPUTE statement and correct.                                                                                                     |
| <b>DCDEH11A-C</b> | <b>FILE-NAME AFTER CLOSE (file-name) NOT ALPHANUMERIC - ACCEPTED</b>                                                                         |
| Explanation:      | The file name following the COBOL verb CLOSE at the compiler number shown is not alphanumeric.                                               |
| User Action:      | Check the CLOSE statement and make corrections as necessary.                                                                                 |
| <b>DCDEH11B-C</b> | <b>FILE -NAME AFTER CLOSE (file-name) NOT ALPHANUMERIC - ACCEPTED</b>                                                                        |
| Explanation:      | The file name following the COBOL verb CLOSE at the compiler number shown is not alphanumeric.                                               |
| User Action:      | Check the CLOSE statement and make corrections as necessary.                                                                                 |
| <b>DCDEH12A-C</b> | <b>FILE-NAME AFTER DELETE (file-name) NOT ALPHANUMERIC - ACCEPTED</b>                                                                        |
| Explanation:      | The file name following the COBOL verb DELETE at the compiler number shown is not alphanumeric.                                              |
| User Action:      | Check the DELETE statement and make corrections as necessary.                                                                                |
| <b>DCDEH14A-C</b> | <b>IDENTIFIER AFTER EXAMINE (field-contents) NOT ALPHANUMERIC - ACCEPTED</b>                                                                 |
| Explanation:      | The field name found after the COBOL verb EXAMINE at the compiler number shown is not alphanumeric.                                          |
| User Action:      | Check the EXAMINE statement and correct as necessary.                                                                                        |
| <b>DCDEH14B-C</b> | <b>(EXAMINE) FOUND (field-contents) FOR (TALLYING) OR (REPLACING) - BYPASSED</b>                                                             |
| Explanation:      | The EXAMINE statement at the compiler number shown is missing the word TALLYING, REPLACING or is incorrect.                                  |

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| User Action:                       | Check the EXAMINE statement and correct as necessary.                                                                                      |
| <b>DCDEH14C-C</b>                  | <b>EXAMINE WITH JUST REPLACING REQUIRES (BY); FOUND (field-contents) BYPASSING</b>                                                         |
| Explanation:                       | The EXAMINE statement at the compiler number shown is missing the word BY.                                                                 |
| User Action:                       | Check the EXAMINE statement and correct as necessary.                                                                                      |
| <b>DCDEH15A-C</b>                  | <b>(EXHIBIT) REQUIRES (NAMED) OR (CHANGED) - ACCEPTED AS IS</b>                                                                            |
| Explanation:                       | The EXHIBIT statement at the compiler number shown requires the word NAMED, CHANGED or both to ensure correct syntax.                      |
| User Action:                       | Check the EXHIBIT statement and correct as necessary.                                                                                      |
| <b>DCDEH22A-C</b>                  | <b>THE SYNTAX FOR AN OPEN STATEMENT IS INCOMPLETE</b>                                                                                      |
| Explanation:                       | The syntax found for the OPEN statement at this compiler line number is invalid.                                                           |
| User Action:                       | Look at the OPEN statement and determine the cause of the error.                                                                           |
| <b>DCDEH22B-C</b>                  | <b>EXPECTING INPUT, OUTPUT, I-O OR EXTEND - FOUND (field-contents) -TREATED AS (OUTPUT)</b>                                                |
| Explanation:                       | The field shown was found after the verb OPEN.                                                                                             |
| User Action:                       | If this is correct, ignore or contact MARBLE Computer, Inc. If not, correct as necessary.                                                  |
| <b>DCDEH22C-C &amp; DCDEH22D-C</b> | <b>THE FILE-NAME (file-name) IS NOT ALPHANUMERIC – ACCEPTED AS IS</b>                                                                      |
| Explanation:                       | The file name found after the COBOL verb OPEN at the compiler number shown is not alphanumeric.                                            |
| User Action:                       | Check the OPEN statement and correct as necessary.                                                                                         |
| <b>DCDEH23A-E</b>                  | <b>THE FORMAT OF THIS (SET) STATEMENT IS UNRECOGNIZED - BYPASSING</b>                                                                      |
| Explanation:                       | Two forms of the SET statement are recognized: (SET index-name TO ?) and (SET index-name UP [or DOWN] BY ?).                               |
| User Action:                       | Correct this SET statement as necessary.                                                                                                   |
| <b>DCDEH24A-C</b>                  | <b>IDENTIFIER AFTER (INSPECT) - (field-contents) NOT ALPHANUMERIC - ACCEPTED</b>                                                           |
| Explanation:                       | The identifier found after the COBOL verb INSPECT at the compiler number shown is not alphanumeric.                                        |
| User Action:                       | Check the INSPECT statement and correct as necessary.                                                                                      |
| <b>DCDEH24B-C</b>                  | <b>EXPECTING (TALLYING) OR (REPLACING) - FOUND (field-contents) – BYPASSING</b>                                                            |
| Explanation:                       | At the compiler number shown, the item found after the first identifier in the INSPECT statement is not REPLACING, TALLYING or CONVERTING. |
| User Action:                       | Check the INSPECT statement and correct as necessary.                                                                                      |
| <b>DCDEH24C-C</b>                  | <b>IDENTIFIER AFTER INSPECT TALLYING (field-contents) NOT ALPHANUMERIC - ACCEPTED</b>                                                      |
| Explanation:                       | In the INSPECT statement at the compiler number shown, the identifier following the word TALLYING was not alphanumeric.                    |
| User Action:                       | Check the INSPECT statement and correct as necessary.                                                                                      |
| <b>DCDEH24D-C</b>                  | <b>(FOR) MISSING IN INSPECT TALLYING, FOUND (field-contents) - RESULTS UNPREDICTABLE</b>                                                   |
| Explanation:                       | The INSPECT statement at the compiler number shown is missing the word FOR following the second identifier.                                |
| User Action:                       | Check the INSPECT statement and correct as necessary.                                                                                      |
| <b>DCDEH24E-C</b>                  | <b>EXPECTING (CHARACTERS), (ALL) OR (LEADING) FOUND (field-contents)</b>                                                                   |
| Explanation:                       | The INSPECT statement at the compiler number shown is missing the word ALL, CHARACTERS or LEADING following the word FOR.                  |
| User Action:                       | Check the INSPECT statement and correct as necessary.                                                                                      |
| <b>DCDEH24F-C</b>                  | <b>EXPECTING ALL, LEADING, FIRST, OR CHARACTERS; FOUND (field-contents)</b>                                                                |
| Explanation:                       | The INSPECT . . . REPLACING statement at the compiler number shown is missing a COBOL word.                                                |
| User Action:                       | Check the INSPECT statement and correct as necessary.                                                                                      |
| <b>DCDEH24G-C</b>                  | <b>INSPECT WITH (CONVERTING) REQUIRES (TO); FOUND (field-contents)</b>                                                                     |
| Explanation:                       | The INSPECT . . . CONVERTING statement found at the compiler number shown requires the word TO following the second identifier.            |
| User Action:                       | Check the INSPECT statement and correct as necessary.                                                                                      |
| <b>DCDEH24H-C</b>                  | <b>EXPECTING (BY) AFTER (CHARACTERS) - FOUND (field-contents)</b>                                                                          |

## Control/DCD – Error Messages

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| Explanation:      | The INSPECT . . . REPLACING CHARACTERS statement at the compiler number shown requires the word BY after the word CHARACTERS for correct syntax. |
| User Action:      | Check the INSPECT statement and correct as necessary.                                                                                            |
| <b>DCDEH24I-C</b> | <b>INSPECT WITH (REPLACING) REQUIRES (BY); FOUND (field-contents) - CONTINUING</b>                                                               |
| Explanation:      | The INSPECT . . . REPLACING statement at the compiler number shown requires the word BY after the identifier that follows REPLACING.             |
| User Action:      | Check the INSPECT statement and correct as necessary.                                                                                            |
| <b>DCDEH25A-C</b> | <b>EXPECTING ALPHANUMERIC FILE-NAME; FOUND (file-name) - ACCEPTED AS IS</b>                                                                      |
| Explanation:      | The file name following the COBOL verb MERGE at the compiler number shown is not alphanumeric.                                                   |
| User Action:      | Check the MERGE statement and make corrections as necessary.                                                                                     |
| <b>DCDEH25B-E</b> | <b>NO SD ENTRIES FOUND FOR (SD data-name)</b>                                                                                                    |
| Explanation:      | The file name used at the compiler number shown does not match a file name in the Data Division.                                                 |
| User Action:      | Check the file name and make corrections as necessary.                                                                                           |
| <b>DCDEH25C-E</b> | <b>NO MATCHING FILE-NAME FOUND FOR (file-name)</b>                                                                                               |
| Explanation:      | The file name used at the compiler number shown does not match a file name in the Data Division.                                                 |
| User Action:      | Check the file name and make corrections as necessary.                                                                                           |
| <b>DCDEH25D-C</b> | <b>EXPECTING (ASCENDING) OR (DESCENDING) FOUND (field-contents)</b>                                                                              |
| Explanation:      | The MERGE . . . ON statement at the compiler number shown must be followed by the word ASCENDING or DESCENDING.                                  |
| User Action:      | Check the MERGE statement and make the corrections as necessary.                                                                                 |
| <b>DCDEH25E-E</b> | <b>EXPECTING (USING) IN (MERGE) STMT-FOUND (field-contents) - BYPASSING</b>                                                                      |
| Explanation:      | The MERGE statement at the compiler number shown must be followed by the word, GIVING.                                                           |
| User Action:      | Check the MERGE statement and make corrections as necessary.                                                                                     |
| <b>DCDEH25F-E</b> | <b>EXPECTING (OUTPUT) OR (GIVING) - FOUND (field-contents)</b>                                                                                   |
| Explanation:      | The MERGE statement at the compiler number shown must be followed by the words, OUTPUT or GIVING, for this statement to have correct syntax.     |
| User Action:      | Check the MERGE statement and make corrections as necessary.                                                                                     |
| <b>DCDEH25G-C</b> | <b>(PROCEDURE) IS MISSING AFTER (OUTPUT) - CONTINUING</b>                                                                                        |
| Explanation:      | The MERGE . . . OUTPUT statement at the compiler number shown is missing the word, PROCEDURE after OUTPUT.                                       |
| User Action:      | Check the MERGE statement and make corrections as necessary.                                                                                     |
| <b>DCDEH25H-C</b> | <b>MERGE KEY IS NOT ALPHANUMERIC (key) - ACCEPTED</b>                                                                                            |
| Explanation:      | The MERGE statement at the compiler number shown contains a key which is not alphanumeric.                                                       |
| User Action:      | Check the MERGE statement and make corrections as necessary.                                                                                     |
| <b>DCDEH26A-C</b> | <b>FILE NAME FOLLOWING (RECEIVE) IS NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                        |
| Explanation:      | The RECEIVE statement at the compiler number shown contains a file name which is not alphanumeric.                                               |
| User Action:      | Check the RECEIVE statement and make corrections as necessary.                                                                                   |
| <b>DCDEH26B-E</b> | <b>NO FD ENTRIES FOR (file-name)</b>                                                                                                             |
| Explanation:      | The File name found at the compiler number shown does not match a file name in the FD section of the Data Division.                              |
| User Action:      | Check the RECEIVE statement at the compiler number shown and make corrections as necessary.                                                      |
| <b>DCDEH26C-E</b> | <b>NO MATCHING FILE-NAME FOR (file-name)</b>                                                                                                     |
| Explanation:      | The file name found at the compiler number shown does not match a file name in the Data Division.                                                |
| User Action:      | Check the RECEIVE statement at the compiler number shown and make corrections as necessary.                                                      |
| <b>DCDEH26D-C</b> | <b>(INTO IDENTIFIER-1) IDENTIFIER-1 NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                        |
| Explanation:      | The identifier found at the compiler number shown is not alphanumeric.                                                                           |
| User Action:      | Check the RECEIVE . . . INTO statement and correct as necessary.                                                                                 |
| <b>DCDEH27A-C</b> | <b>(SEARCH) OPERAND IS NOT ALPHANUMERIC – ACCEPTED AS IS</b>                                                                                     |
| Explanation:      | The operand or identifier following the COBOL verb SEARCH at the compiler number shown is not alphanumeric.                                      |
| User Action:      | Check the SEARCH statement and correct as necessary.                                                                                             |
| <b>DCDEH28A-C</b> | <b>RECORD NAME FOLLOWING (SEND) NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                            |

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| Explanation:                           | The SEND statement at the compiler number shown contains a record name which is not alphanumeric.                                                 |
| User Action:                           | Check the SEND statement and correct as necessary.                                                                                                |
| <b>DCDEH28B-C</b>                      | <b>(FROM IDENTIFIER-1) IDENTIFIER-1 NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                         |
| Explanation:                           | The SEND . . . FROM statement at the compiler number shown contains an identifier following the word FROM that is not alphanumeric.               |
| User Action:                           | Check the SEND statement and correct as necessary.                                                                                                |
| <b>DCDEF29A-C</b>                      | <b>FILE NAME (file-name) IS NOT ALPHANUMERIC AFTER (SORT) - ACCEPTED AS IS</b>                                                                    |
| Explanation:                           | The SORT statement at the compiler number shown contains a non-alphanumeric file name.                                                            |
| User Action:                           | Check the SORT statement and correct as necessary.                                                                                                |
| <b>DCDEF29B-E</b>                      | <b>NO MATCHING SD ENTRIES FOUND FOR (SD name)</b>                                                                                                 |
| Explanation:                           | The SORT statement at the compiler number shown contains a file name for the sort that does not match a file name for an SD in the Data Division. |
| User Action:                           | Check the SORT statement and correct as necessary.                                                                                                |
| <b>DCDEH29C-E</b>                      | <b>NO MATCHING FILE-NAME FOUND FOR (file-name)</b>                                                                                                |
| Explanation:                           | The SORT statement at the compiler number shown contains a file name that does not match a file name in the Data Division.                        |
| User Action:                           | Check the SORT statement and correct as necessary.                                                                                                |
| <b>DCDEH29D-C</b>                      | <b>EXPECTING (ASCENDING) OR (DESCENDING) - FOUND (field-contents)</b>                                                                             |
| Explanation:                           | The SORT statement at the compiler number shown is missing the word ASCENDING or DESCENDING following the name of the sort file and the word ON.  |
| User Action:                           | Check the SORT statement and correct as necessary.                                                                                                |
| <b>DCDEH29E-E</b>                      | <b>EXPECTING (USING) or (INPUT) - FOUND (field-contents)</b>                                                                                      |
| Explanation:                           | The SORT statement at the compiler number shown is missing the word INPUT or USING.                                                               |
| User Action:                           | Check the SORT statement and correct as necessary.                                                                                                |
| <b>DCDEH29F-E</b>                      | <b>(OUTPUT) OR (GIVING) NOT FOUND WITHIN (SORT)</b>                                                                                               |
| Explanation:                           | The SORT statement at the compiler number shown is missing the word GIVING or OUTPUT.                                                             |
| User Action:                           | Check the SORT statement and correct as necessary.                                                                                                |
| <b>DCDEH29G-C</b>                      | <b>PROCEDURE) IS MISSING AFTER (OUTPUT) - CONTINUING</b>                                                                                          |
| Explanation:                           | The SORT statement at the compiler number shown is missing the word PROCEDURE after OUTPUT.                                                       |
| User Action:                           | Check the SORT statement and correct as necessary.                                                                                                |
| <b>DCDEH29H-C</b>                      | <b>SORT KEY IS NOT ALPHANUMERIC (sort-key) - ACCEPTED</b>                                                                                         |
| Explanation:                           | The SORT statement at the compiler number shown contains a sort key that is not alphanumeric.                                                     |
| User Action:                           | Check the SORT statement and correct as necessary.                                                                                                |
| <b>DCDEH30A-C</b>                      | <b>EXPECTING ALPHANUMERIC FILE NAME AFTER (START) - FOUND (file-name)</b>                                                                         |
| Explanation:                           | The START statement at the compiler number shown contains a file name that is not alphanumeric.                                                   |
| User Action:                           | Check the START statement and make corrections as necessary.                                                                                      |
| <b>DCDEH30B-E<br/>&amp; DCDEH30C-E</b> | <b>NO MATCHING FD ENTRY FOUND FOR (file-name)</b>                                                                                                 |
| Explanation:                           | The START statement at the compiler number shown contains a file name that does not match a file name in the FD section of the Data Division.     |
| User Action:                           | Check the START statement and make corrections as necessary.                                                                                      |
| <b>DCDEH30D-C</b>                      | <b>(OR) WITHIN (START) REQUIRES (=), FOUND (field-contents)</b>                                                                                   |
| Explanation:                           | The START statement at the compiler number shown contains the word OR which must be followed by the phrase EQUAL TO for correct syntax.           |
| User Action:                           | Check the START statement and make corrections as necessary.                                                                                      |
| <b>DCDEH31A-C</b>                      | <b>FILE-NAME FOLLOWING (SEEK) NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                               |
| Explanation:                           | The SEEK statement at the compiler number shown contains a file name that is not alphanumeric.                                                    |
| User Action:                           | Check the SEEK statement and make corrections as necessary.                                                                                       |
| <b>DCDEH31B-E<br/>&amp; DCDEH31C-E</b> | <b>NO MATCHING FD ENTRIES FOUND FOR (file-name)</b>                                                                                               |
| Explanation:                           | The SEEK statement at the compiler number shown contains a file name that does not match a file name in the FD section of the Data Division.      |
| User Action:                           | Check the SEEK statement and make corrections as necessary.                                                                                       |



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| <b>DCDEH32A-C</b>                      | <b>EXPECTING (INTO) FOUND (field-contents)</b>                                                                                                                    |
| Explanation:                           | The STRING statement at the compiler number shown is missing the word INTO after the items that are being strung together.                                        |
| User Action:                           | Check the STRING statement and make corrections as necessary.                                                                                                     |
| <b>DCDEH32B-C</b>                      | <b>DATA-NAME AFTER (INTO) NOT ALPHANUMERIC - ACCEPTED</b>                                                                                                         |
| Explanation:                           | The STRING statement at the compiler number shown contains a non-alphanumeric data name following the word INTO.                                                  |
| User Action:                           | Check the STRING statement and make corrections as necessary.                                                                                                     |
| <b>DCDEH32C-C</b>                      | <b>VALID DATA -NAME SHOULD FOLLOW (WITH POINTER) IN (STRING)</b>                                                                                                  |
| Explanation:                           | The STRING statement at the compiler number shown contains a non-alphanumeric data name following the WITH POINTER clause or the data name is missing or invalid. |
| User Action:                           | Check the STRING statement and make corrections as necessary.                                                                                                     |
| <b>DCDEH33A-C</b>                      | <b>IDENTIFIER AFTER TRANSFORM (field-contents) NOT ALPHANUMERIC - ACCEPTED</b>                                                                                    |
| Explanation:                           | The TRANSFORM statement at the compiler number shown contains an identifier that is not alphanumeric.                                                             |
| User Action:                           | Check the TRANSFORM statement and make corrections as necessary.                                                                                                  |
| <b>DCDEH33B-E</b>                      | <b>(FROM) EXPECTED - FOUND (field-contents) BYPASSING</b>                                                                                                         |
| Explanation:                           | Expecting the word FROM at this point within the TRANSFORM statement.                                                                                             |
| User Action:                           | Check the TRANSFORM statement and make corrections as necessary.                                                                                                  |
| <b>DCDEH33C-E</b>                      | <b>EXPECTING (TO) - FOUND (field-contents)</b>                                                                                                                    |
| Explanation:                           | Expecting the word TO at this point within the TRANSFORM statement.                                                                                               |
| User Action:                           | Check the TRANSFORM statement and make corrections as necessary.                                                                                                  |
| <b>DCDEH34A-C</b>                      | <b>IDENTIFIER (field-contents) IS NOT ALPHANUMERIC</b>                                                                                                            |
| Explanation:                           | The UNSTRING statement at the compiler number shown contains an identifier which is not alphanumeric.                                                             |
| User Action:                           | Check the UNSTRING statement and make corrections as necessary.                                                                                                   |
| <b>DCDEH34B-E</b>                      | <b>(INTO) FOR (UNSTRING) NOT FOUND</b>                                                                                                                            |
| Explanation:                           | The UNSTRING statement at the compiler number shown is missing the word INTO or has the word misplaced.                                                           |
| User Action:                           | Check the UNSTRING statement and make corrections as necessary.                                                                                                   |
| <b>DCDEH35A-C<br/>&amp; DCDEH35B-C</b> | <b>NAME AFTER (USING) NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                                                                       |
| Explanation:                           | The ENTRY statement at the compiler number shown contains a data name following the word USING which is not alphanumeric.                                         |
| User Action:                           | Check the ENTRY statement and make corrections as necessary.                                                                                                      |
| <b>DCDEH40A-C</b>                      | <b>THE DATA-NAME FOLLOWING INITIALIZE (identifier) IS NOT ALPHANUMERIC-ACCEPTED AS IS</b>                                                                         |
| Explanation:                           | The INITIALIZE statement at the compiler number shown contains an identifier that is not alphanumeric.                                                            |
| User Action:                           | Check the INITIALIZE statement and make corrections as necessary.                                                                                                 |
| <b>DCDEH40B-E</b>                      | <b>THE OPERAND AFTER REPLACING (field-contents) IS UNKNOWN - BYPASSING INITIALIZE</b>                                                                             |
| Explanation:                           | The INITIALIZE statement at the compiler number shown contains an operand following the word REPLACING that is misspelled or unrecognized.                        |
| User Action:                           | Check the INITIALIZE statement and make corrections as necessary.                                                                                                 |
| <b>DCDEH40C-E</b>                      | <b>EXPECTING (BY) AFTER REPLACING, FOUND (field-contents) - BYPASSING INITIALIZE</b>                                                                              |
| Explanation:                           | The INITIALIZE statement at the compile number shown contains an unrecognized word following the word REPLACING.                                                  |
| User Action:                           | Check the INITIALIZE statement and make corrections as necessary.                                                                                                 |
| <b>DCDEH46A-C</b>                      | <b>EXPECTING ALPHANUMERIC FIELD IN MARGIN B AFTER (EXEC field-contents) -FOUND (field-contents) ACCEPTED</b>                                                      |
| Explanation:                           | The EXEC statement at the compiler number shown contains a data name that is not alphanumeric or is not in the correct margin.                                    |
| User Action:                           | Check the EXEC statement and make corrections as necessary.                                                                                                       |

|                                          |                                                                                                                                |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| <b>DCDEH46B-C</b>                        | <b>EXPECTING ALPHANUMERIC FIELD PRIOR TO LEFT PARENTHESIS - FOUND (Field-contents)</b>                                         |
| Explanation:                             | The EXEC statement at the compiler number shown contains a field to the left of the left parenthesis that is not alphanumeric. |
| User Action:                             | Check the EXEC statement and make corrections as necessary.                                                                    |
| <b>DCDEH46C-E</b>                        | <b>EXCESSIVE PARAMETERS BYPASSED IN (EXEC) STMT</b>                                                                            |
| Explanation:                             | An excessive number of parameters were used within one EXEC statement.                                                         |
| User Action:                             | Determine why an excessive number was used and correct. If already correct, contact MARBLE Computer, Inc.                      |
| <b>DCDEH46D-E</b>                        | <b>EXPECTING QUALIFIER NAME AFTER (OF) OR (IN) (EXEC) STMT -BYPASSING QUALIFICATION</b>                                        |
| Explanation:                             | The EXEC statement at the compiler number shown is missing a qualifier name after OF or IN.                                    |
| User Action:                             | Check the EXEC statement and make corrections as necessary.                                                                    |
| <b>DCDEH46E-C</b>                        | <b>EXCESSIVE QUALIFICATION FOR (EXEC) STATEMENT FOUND – PROCESSING CONTINUING</b>                                              |
| Explanation:                             | An excessive number of qualifiers were used within one EXEC statement.                                                         |
| User Action:                             | Determine why an excessive number was used and correct. If already correct, contact MARBLE Computer, Inc.                      |
| <b>DCDEH51A-E</b>                        | <b>ALTER STATEMENT MISSING WORD (TO)</b>                                                                                       |
| Explanation:                             | The ALTER statement at the compiler number shown is missing the word TO after the first procedure name.                        |
| User Action:                             | Check the ALTER statement and make corrections as necessary.                                                                   |
| <b>DCDEH51B-E</b>                        | <b>ALTER STATEMENT MISSING PROCEDURE-NAME-2</b>                                                                                |
| Explanation:                             | The ALTER statement at the compiler number shown is missing procedure-name-2 following the word TO.                            |
| User Action:                             | Check the ALTER statement and make corrections as necessary.                                                                   |
| <b>DCDEH57A-C</b>                        | <b>(STOP) REQUIRES (RUN) OR (LITERAL)</b>                                                                                      |
| Explanation:                             | The STOP statement at the compiler number shown is missing the word RUN or a literal following it.                             |
| User Action:                             | Check the STOP statement and make corrections as necessary.                                                                    |
| <b>DCDEH60A-C</b>                        | <b>DATA-NAME FOLLOWING (INITIATE) NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                        |
| Explanation:                             | The REPORT WRITER verb INITIATE requires an alphanumeric operand following it. This was not found.                             |
| User Action:                             | Check the statement and make necessary corrections.                                                                            |
| <b>DCDEH61A-C</b>                        | <b>DATA-NAME FOLLOWING (GENERATE) NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                        |
| Explanation:                             | The REPORT WRITER verb GENERATE requires an alphanumeric operand following it. This was not found.                             |
| User Action:                             | Check the statement and make necessary corrections.                                                                            |
| <b>DCDEH62A-C</b>                        | <b>DATA-NAME FOLLOWING (TERMINATED) NOT ALPHANUMERIC - ACCEPTED AS IS</b>                                                      |
| Explanation:                             | The REPORT WRITER verb TERMINATE requires an alphanumeric operand following it. This was not found.                            |
| User Action:                             | Check the statement and make necessary corrections.                                                                            |
| <b>DCDEJ10A-I</b>                        | <b>CONDITIONAL STATEMENT IS INCOMPLETE - IF 88 LEVEL INTENDED, CHECK SPELLING</b>                                              |
| Explanation:                             | A conditional statement is incomplete. If an 88 level was intended, a matching 88 level in the Data Division was not found.    |
| User Action:                             | Check the conditional statement and make necessary corrections.                                                                |
| <b>DCDEJ100-I</b>                        | <b>PARSING CANNOT FIND THE BEGIN OF SECOND PART OF NON-88 CONDITIONAL</b>                                                      |
| Explanation:                             | A conditional statement is incomplete. If an 88 level was intended, a matching 88 level in the Data Division was not found.    |
| User Action:                             | Check the conditional statement and make necessary corrections.                                                                |
| <b>DCDEJ300-C /<br/>&amp; DCDEJ400-C</b> | <b>(IF) EXCEEDED 125 OPERANDS FOR 1 CONDITION</b>                                                                              |
| Explanation:                             | An IF (or IF type) statement contains more than 125 operands within just 1 condition.                                          |

|                                                             |                                                                                                             |
|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| User Action:                                                | If this is a valid condition, contact MARBLE Computer, Inc.                                                 |
| <b>DCDEJAPA-E<br/>&amp; DCDEJAPB-E<br/>&amp; DCDEJS1A-C</b> | <b>AN INTERNAL TABLE HAS EXCEEDED 125 DATA-NAMES FOR 1 CONDITION</b>                                        |
| Explanation:                                                | An IF (or IF type) statement contains more than 125 operands within just 1 condition.                       |
| User Action:                                                | IF this is a valid condition, contact MARBLE Computer, Inc.                                                 |
| <b>DCDENASA-C</b>                                           | <b>EXCEEDED 75 QUALIFIERS FOR OPERANDS WITHIN JUST 1 CONDITION</b>                                          |
| Explanation:                                                | More than 75 qualifiers were used within just 1 condition.                                                  |
| User Action:                                                | If this is a valid condition, contact MARBLE Computer, Inc.                                                 |
| <b>DCDERW0A-W</b>                                           | <b>NO PERIOD PRECEDING LEVEL NUMBER (level #)</b>                                                           |
| Explanation:                                                | The level number at the compiler number shown does not have a period preceding it on a previous line.       |
| User Action:                                                | Check the lines above the level number for a missing period and make corrections as necessary.              |
| <b>DCDERW0B-C</b>                                           | <b>EXPECTING (ZERO) AFTER (BLANK)</b>                                                                       |
| Explanation:                                                | The word BLANK at the compiler number shown is missing the word ZERO after it.                              |
| User Action:                                                | Check the line and make corrections as necessary.                                                           |
| <b>DCDERW0C-C<br/>&amp; DCDERW0D-C</b>                      | <b>EXPECTING NUMERIC INTEGER AFTER (COLUMN)</b>                                                             |
| Explanation:                                                | The word COLUMN at the compiler number shown is missing a numeric integer following it.                     |
| User Action:                                                | Check the line and make corrections as necessary.                                                           |
| <b>DCDERW0E-C<br/>&amp; DCDERW0F-C</b>                      | <b>EXPECTING NUMERIC INTEGER AFTER (LINE)</b>                                                               |
| Explanation:                                                | The word LINE at the compiler number shown is missing a numeric integer following it.                       |
| User Action:                                                | Check the line and make corrections as necessary.                                                           |
| <b>DCDERW0G-C</b>                                           | <b>EXPECTING (GROUP) AFTER (NEXT)</b>                                                                       |
| Explanation:                                                | The word NEXT at the compiler number shown is missing the word GROUP following it.                          |
| User Action:                                                | Check the line and make corrections as necessary.                                                           |
| <b>DCDERW0H-C<br/>&amp; DCDERW0I-C</b>                      | <b>EXPECTING NUMERIC INTEGER AFTER (NEXT GROUP)</b>                                                         |
| Explanation:                                                | The phrase NEXT GROUP at the compiler number shown is missing a numeric integer following it.               |
| User Action:                                                | Check the line and make corrections as necessary.                                                           |
| <b>DCDERW0J-C</b>                                           | <b>CANNOT FIND VALID PICTURE CLAUSE</b>                                                                     |
| Explanation:                                                | Expecting valid PICTURE clause to follow the word PICTURE and instead found data within the margin a field. |
| User Action:                                                | Check the line and make corrections as necessary.                                                           |
| <b>DCDERW0K-E</b>                                           | <b>EXPECTING (TALLY) OR IDENTIFIER AFTER (SUM)</b>                                                          |
| Explanation:                                                | Expecting a valid data name within the SUM clause within REPORT WRITER.                                     |
| User Action:                                                | Check the line and make corrections as necessary.                                                           |
| <b>DCDERW0L-C</b>                                           | <b>EXPECTING IDENTIFIER AFTER (UPON)</b>                                                                    |
| Explanation:                                                | Expecting a valid data name within the SUM UPON clause.                                                     |
| User Action:                                                | Check the line and make corrections as necessary.                                                           |
| <b>DCDERW0M-E<br/>&amp; DCDERW0N-E</b>                      | <b>EXPECTING (HEADING) OR (FOOTING) AFTER (field-contents)</b>                                              |
| Explanation:                                                | Expecting the word HEADING or FOOTING within REPORT WRITER at this line.                                    |
| User Action:                                                | Check the line and make corrections as necessary.                                                           |
| <b>DCDERW0P-E</b>                                           | <b>EXPECTING VALID TYPE AFTER (TYPE IS) - FOUND (field-contents)</b>                                        |
| Explanation:                                                | An invalid entry was found after the TYPE IS clause.                                                        |
| User Action:                                                | Check the line and make corrections as necessary.                                                           |
| <b>DCDERW0Q-C</b>                                           | <b>EXPECTING (FINAL) OR IDENTIFIER AFTER (TYPE IS) CLAUSE</b>                                               |
| Explanation:                                                | Expecting reserved word FINAL or a valid data name to follow the TYPE IS clause in REPORT WRITER.           |
| User Action:                                                | Check the line and make corrections as necessary.                                                           |
| <b>DCDERW0R-C</b>                                           | <b>EXPECTING VALID OPERAND FOR USAGE CLAUSE - FOUND (field-contents)</b>                                    |

|                   |                                                                                                                   |
|-------------------|-------------------------------------------------------------------------------------------------------------------|
| Explanation:      | The USAGE clause is in error or contains a type usage unknown to DCD IV.                                          |
| User Action:      | Correct USAGE clause or contact MARBLE Computer, Inc. if the USAGE clause is valid.                               |
| <b>DCDERW0S-E</b> | <b>EXPECTING LITERAL AFTER (VALUE) - FOUND (field-contents)</b>                                                   |
| Explanation:      | The entry following VALUE does not complete the VALUE clause within the REPORT SECTION.                           |
| User Action:      | Determine why the entry is not valid and correct.                                                                 |
| <b>DCDERWRA-C</b> | <b>MNEMONIC-NAME AFTER CODE MISSING</b>                                                                           |
| Explanation:      | The operand following WITH CODE is missing.                                                                       |
| User Action:      | Look at listing and correct.                                                                                      |
| <b>DCDERWRB-C</b> | <b>EXPECTING INTEGER FOR PAGE CLAUSE</b>                                                                          |
| Explanation:      | One of the PAGE clauses is missing a number following it.                                                         |
| User Action:      | Consult the line indicated and correct the format of the PAGE clause.                                             |
| <b>DCDERWRC-C</b> | <b>EXPECTING INTEGER AFTER (field-contents)</b>                                                                   |
| Explanation:      | One of the PAGE clauses is missing a number following it.                                                         |
| User Action:      | Consult the line indicated and correct the format of the PAGE clause.                                             |
| <b>DCDESddb-E</b> | <b>NUMERIC INTEGER DOES NOT FOLLOW OCCURS - BYPASSING</b>                                                         |
| Explanation:      | The OCCURS clause at the compiler number shown is not followed by a numeric integer.                              |
| User Action:      | Check the OCCURS clause for a missing integer and make corrections as necessary.                                  |
| <b>DCDESddc-E</b> | <b>CANNOT FIND VALID ENTRY TO COMPLETE PICTURE CLAUSE - BYPASSING</b>                                             |
| Explanation:      | The PICTURE clause is either continued in an invalid column or is incomplete or incorrect.                        |
| User Action:      | Check the line and make corrections as necessary.                                                                 |
| <b>DCDESddd-E</b> | <b>ALPHANUMERIC DATA-NAME NOT FOUND AFTER REDEFINES - BYPASSING</b>                                               |
| Explanation:      | The data name found after the REDEFINES clause in the Data Division is not alphanumeric.                          |
| User Action:      | Check the line and make corrections as necessary.                                                                 |
| <b>DCDESddf-E</b> | <b>ALPHANUMERIC DATA-NAME NOT FOUND AFTER RENAMES - BYPASSING</b>                                                 |
| Explanation:      | The data name that follows the COBOL verb, RENAMES is not alphanumeric.                                           |
| User Action:      | Check the RENAMES clause and make corrections as necessary.                                                       |
| <b>DCDESddg-W</b> | <b>ENTRY FOUND WITHIN USAGE CLAUSE IS EITHER INVALID OR UNRECOGNIZED BYPASSING</b>                                |
| Explanation:      | The word following the USAGE IS clause is either incorrect or unrecognized.                                       |
| User Action:      | Check the USAGE IS clause and make corrections as necessary.                                                      |
| <b>DCDESddh-E</b> | <b>CANNOT FIND LITERAL AFTER (VALUE) - BYPASSING</b>                                                              |
| Explanation:      | The level number and clause at the compiler number shown must contain a literal following the word VALUE.         |
| User Action:      | Check the line indicated and make any necessary corrections.                                                      |
| <b>DCDESddi-E</b> | <b>INDEX-NAME IS MISSING OR IS NOT ALPHANUMERIC AFTER (INDEXED BY) CLAUSE- BYPASSING</b>                          |
| Explanation:      | The INDEXED BY clause at the compiler number shown contains an index name that is not alphanumeric or is missing. |
| User Action:      | Check the line and make corrections as necessary.                                                                 |
| <b>DCDESddj-C</b> | <b>ENTRY FOR PICTURE CLAUSE HAS NON-NUMERIC VALUE WITHIN PARENTHESES - (picture)</b>                              |
| Explanation:      | The PICTURE clause at the compiler number shown must contain a numeric value within its parentheses.              |
| User Action:      | Check the PICTURE clause and make corrections as necessary.                                                       |
| <b>DCDESddl-C</b> | <b>EXPECTING ALPHANUMERIC NAME FOR (REPORT IS) CLAUSE</b>                                                         |
| Explanation:      | The REPORT IS clause at the compiler number shown contains a word following it that is not alphanumeric.          |
| User Action:      | Check the line and make corrections as necessary.                                                                 |
| <b>DCDESyla-E</b> | <b>EXPECTING QUALIFIER TO FOLLOW (OF) OR (IN) - FOUND (field-contents)</b>                                        |
| Explanation:      | Expecting qualifier to follow OF or IN.                                                                           |
| User Action:      | Examine listing and insert qualifier at correct location.                                                         |

## Control/DCD – Error Messages

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|                   |                                                                                                                                                      |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DCDG9006-D</b> | <b>DDNAME (DCDWK09) MISSING</b>                                                                                                                      |
| Explanation:      | In JCL for running Control/DCD, the DDNAME DCDWK09 is missing.                                                                                       |
| User Action:      | Check JCL and see that DCDWK09 is provided.                                                                                                          |
| <b>DCDGBA11-E</b> | <b>TABLE LIMITS EXCEEDED REGION</b>                                                                                                                  |
| Explanation:      | An internal table was not large enough to handle the program being documented.                                                                       |
| User Action:      | Rerun the job with a larger region.                                                                                                                  |
| <b>DCDGBB10-E</b> | <b>AN UNMATCHED RECORD IS BEING BYPASSED WHEN MATCHING FILES - LOOK FOR SYNTAX ERROR</b>                                                             |
| Explanation:      | Match merging of internal files is either out of sequence or an unmatched record is present. This may be due to a syntax error in the input program. |
| User Action:      | Try compiling the program to see if it compiles cleanly. If unsolved, contact MARBLE Computer, Inc.                                                  |
| <b>DCDGDZ10-D</b> | <b>DDNAME (DCDWKT2) IS MISSING WHEN PARM OPTION ( DIT ) IS SPECIFIED</b>                                                                             |
| Explanation:      | A necessary DD is missing for an internal work file.                                                                                                 |
| User Action:      | Insure that DDnames DCDWKT1 through DCDWKT4 are present within the JCL similar to DDnames DCDWK01, DCDWK02, etc.                                     |
| <b>DCDGDZ20-D</b> | <b>OVER nnnn CTLDLTCC CONTROL CARDS WERE USED – TABLE EXCEEDED</b>                                                                                   |
| Explanation:      | Too many control statements were specified.                                                                                                          |
| User Action:      | Limit the number of control statements to the number shown in the message printed.                                                                   |
| <b>DCDGDZ30-D</b> | <b>OVER 150 CONTROL CARDS WERE ADDED TO THE DIT CONTROL STATEMENT FILE – TABLE EXCEEDED</b>                                                          |
| Explanation:      | Too many control statements were specified.                                                                                                          |
| User Action:      | Use less control statements.                                                                                                                         |
| <b>DCDGDZ40-D</b> | <b>OVER 999 DATA NAMES WERE FOUND FOR DOING TRACING ON – TABLE EXCEEDED</b>                                                                          |
| Explanation:      | When tracing literals one data name with a literal directly to 1000 or more data names, an unusual condition.                                        |
| User Action:      | This condition if found and valid may be resolved by contacting MARBLE Computer, Inc.                                                                |
| <b>DCDGF002-D</b> | <b>DDNAME (DCDWK08) MISSING</b>                                                                                                                      |
| Explanation:      | The running of DCD IV requires work files DCDWK08. The DDNAME DCDWK08 was not found.                                                                 |
| User Action:      | See JCL examples in the ‘Alternate Compile Listing’ section in the User’s Manual and correct JCL.                                                    |
| <b>DCDGJB04-C</b> | <b>EXCESSIVE QUALIFICATION AND/OR SUBSCRIPTING FOUND</b>                                                                                             |
| Explanation:      | Excessive qualification and/or subscripting was found while handling a CORRESPONDING statement at this line number.                                  |
| User Action:      | Determine why excessive qualification and/or subscripting is used and attempt to correct. If necessary, contact MARBLE Computer, Inc.                |
| <b>DCDGJN02-W</b> | <b>EXCESSIVE QUALIFICATION AND/OR SUBSCRIPTING FOUND</b>                                                                                             |
| Explanation:      | Excessive qualification and/or subscripting was found while handling a CORRESPONDING statement at this line number.                                  |
| User Action:      | Determine why excessive qualification and/or subscripting was used and attempt to correct. If necessary, contact MARBLE Computer, Inc.               |
| <b>DCDGKB04-C</b> | <b>EXCESSIVE QUALIFICATION AND/OR SUBSCRIPTING FOUND</b>                                                                                             |
| Explanation:      | Excessive qualification and/or subscripting was found while handling a CORRESPONDING statement at this line number.                                  |
| User Action:      | Determine why excessive qualification and/or subscripting was used and attempt to correct. If necessary, contact MARBLE Computer, Inc.               |
| <b>DCDGKF02-D</b> | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                                                 |
| Explanation:      | The first record of a work file being read does not contain a MARBLE header record.                                                                  |
| User Action:      | Look for possible previous message to this one. Look for an error in the JCL used.                                                                   |
| <b>DCDGKH07-C</b> | <b>INSUFFICIENT SPACE TO HANDLE INITIALIZE DATA DIVISION NAMES (H070) - BYPASSING EXCESS NAMES</b>                                                   |
| Explanation:      | A table for Data Division NAMES was not large enough to handle the program being documented.                                                         |
| User Action:      | Contact MARBLE Computer, Inc.                                                                                                                        |
| <b>DCDGKN02-C</b> | <b>EXCESSIVE QUALIFICATION AND/OR SUBSCRIPTING FOUND</b>                                                                                             |
| Explanation:      | Excessive qualification and/or subscripting was found while handling a CORRESPONDING statement at this line number.                                  |

## Control/DCD – Error Messages

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User Action: Determine why excessive qualification and/or subscripting was used and attempt to correct. If necessary, contact MARBLE Computer, Inc.

**DCDGSA05-E TABLE LIMITS EXCEEDED REGION**

Explanation: An internal table was not large enough to handle the program run through DCD IV.

User Action: Rerun the job with a larger region.

**DCDGS012-C An Unconditional STOP RUN, GOBACK, or EXIT PROGRAM was not found within the program. Software will make a reasonable assumption to correct. To remove this Warning in future runs insert a \*CAT STOP RUN as a comment line in the COBOL program at a place to establish correct end of mainline for use by software in building the Quick View Window.**

Explanation: This message will not occur within DCD IV, but in CAT software which uses some DCD IV scanning. It occurs when there is no STOP RUN and there is a CALL or other means to externally STOP the RUN.

User Action: Examine program to see if correct AND insert \*CAT STOP RUN starting in column 7 where you think STOP RUN would normally be inserted in the program.

**DCDGS015-C The mainline code from PROCEDURE DIVISION begin to first found unconditional program ending verb found nnnnn SET(s) of routines that were performed and reside within this range of code. If this is okay, ignore this warning! If there is an unrecognized CALL or other (non STOP RUN, GOBACK or EXIT PROGRAM) code that ends the mainline routine, see 'Create CAT Stop Run' option under Narrative Selection tab and consider checking that box to establish a CAT corrected end of mainline routine.**

Explanation: This message will not occur within DCD IV, but in CAT software which uses some DCD IV scanning. It may occur when there is no or a misplaced STOP RUN type verb and the mainline routine shows performed routines that possibly should not be there.

User Action: Examine program to see if correct AND possibly use 'Create CAT Stop Run' checkbox under Narrative Selection tab where Quick View Window resides.

**DCDGSAC0-E MORE THAN 7000 SECTIONS - EXCESS IGNORED IN PAR2 PROGRAM**

Explanation: More than 7000 SECTIONS were found within one COBOL program.

User Action: If this is a valid condition, contact Marble Computer.

**DCDGSB10-E TABLE LIMITS EXCEEDED REGION**

Explanation: An internal table was not large enough to handle the program run through DCD IV.

User Action: Rerun the job with a larger region.

**DCDGSE02-E PROGRAM ERROR ON MATCH - CHECK FOR PRIOR TABLE EXCEEDED MESSAGE**

Explanation: An internal error has occurred in matching paragraph names. This is probably caused by a previously printed out table exceeded message.

User Action: If no other error messages are shown, contact MARBLE Computer, Inc.

**DCDGSG03-W / DCDGSG11-W THE PARAGRAPH (paragraph-name) USED HERE IS NOT FOUND WITHIN THE PROGRAM**

Explanation: A matching paragraph name to the one used here is not found within the program.

User Action: Check for a missing name or a spelling error.

**DCDGSG03-W / DCDGSG11-W THE SECTION (section-name) USED HERE IS NOT FOUND WITHIN THE PROGRAM**

Explanation: A matching section name to the one used is not found within the program.

User Action: Check for a missing name or a spelling error.

**DCDGSG03-W / DCDGSG11-W A MATCH WAS NOT FOUND FOR PARAGRAPH NAME (paragraph-name)**

Explanation: A matching paragraph name to the one used here is not found within the program.

User Action: Check for a missing name or a spelling error.

**DCDGWA03-E EXCESSIVE DYNAMIC CALLS FOUND AT THIS LINE NUMBER – REMAINING BYPASSED**

Explanation: Over 3000 dynamic CALLs were found in one program. Those over 3000 will be bypassed.

User Action: Determine why such an excessive number of dynamic CALLs were used in one program and attempt to reduce this number.

**DCDGWB02-E & DCDGWD02-E EXCESSIVE MATCHING LITERALS TO DYNAMIC CALLS FOUND THIS LINE NUMBER**

Explanation: The number of VALUE and/or MOVE literals matching to names used in dynamic CALLs exceeds 2000.

User Action: Determine why excessive MOVES of literal to dynamic CALLs was used in one program and attempt to reduce this number.

**DCDGXAD1-E DYNAMIC CALL NAME TABLE EXCEEDED - Results will be incomplete**

## Control/DCD – Error Messages

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| Explanation:      | An internal table was exceeded holding DYNAMIC CALL names.                                                                                                                  |
| User Action:      | Run less programs or contact MARBLE Computer.                                                                                                                               |
| <b>DCDGXAD1-E</b> | <b>DYNAMIC CALL NAME TABLE EXCEEDED - Results will be incomplete</b>                                                                                                        |
| Explanation:      | An internal table was exceeded holding DYNAMIC CALL names.                                                                                                                  |
| User Action:      | Run less programs or contact MARBLE Computer.                                                                                                                               |
| <b>DCDGXAQ1-E</b> | <b>SETUPCPA - ADQ1- CALL QUAL TABLE IS TOO SMALL'</b>                                                                                                                       |
| Explanation:      | An internal table was exceeded holding QUALIFICATION names.                                                                                                                 |
| User Action:      | Run less programs or contact MARBLE Computer.                                                                                                                               |
| <b>DCDGXAQ2-E</b> | <b>SETUPCPA – ADQ2- CALL QUAL TABLE IS TOO SMALL'</b>                                                                                                                       |
| Explanation:      | An internal table was exceeded holding QUALIFICATION names.                                                                                                                 |
| User Action:      | Run less programs or contact MARBLE Computer.                                                                                                                               |
| <b>DCDGXBD1-E</b> | <b>DYNAMIC CALL NAME TABLE EXCEEDED - Results will be incomplete</b>                                                                                                        |
| Explanation:      | An internal table was exceeded holding DYNAMIC CALL names.                                                                                                                  |
| User Action:      | Run less programs or contact MARBLE Computer.                                                                                                                               |
| <b>DCDGXBX3-E</b> | <b>AN INTERNAL QUALIFICATION TABLE WAS EXCEEDED IN XXXXXX ROUTINE – LOOK AT STMT AT THIS NUMBER</b>                                                                         |
| Explanation:      | An internal table was exceeded.                                                                                                                                             |
| User Action:      | Run less programs or contact MARBLE Computer.                                                                                                                               |
| <b>DCDGXCC3-E</b> | <b>SETUPCPA - QRL-TABLE IS TOO SMALL – Contact MARBLE Computer</b>                                                                                                          |
| Explanation:      | An internal table was exceeded.                                                                                                                                             |
| User Action:      | Run less programs or contact MARBLE Computer.                                                                                                                               |
| <b>DCDGXCDR-I</b> | <b>WARNING – UNABLE TO GET RECORD LENGTH FOR A DATA FIELD AT THIS SEQUENCE NBR – CHECK IF FIELD IS A FILE NAME</b>                                                          |
| Explanation:      | The record length not found for a parameter.                                                                                                                                |
| User Action:      | Check to see if this field is other than a data name, such as a file name.                                                                                                  |
| <b>DCDGXCDV-W</b> | <b>WARNING DYNAMIC CALL NAME IS NOT FOUND OR LONGER THAN 8 CHARACTERS LONG</b>                                                                                              |
| Explanation:      | The Data Name found after a CALL statement is longer than 8 characters long or not found.                                                                                   |
| User Action:      | Processing for this DYNAMIC CALL NAME will be unpredictable.                                                                                                                |
| <b>DCDHSB11-E</b> | <b>MORE THAN (NNNNN) DATA NAMES USED IN THE PROCEDURE DIVISION</b>                                                                                                          |
| Explanation:      | An internal table was exceeded within DCD and this table needed to be made larger.                                                                                          |
| User Action:      | Contact Marble Computer, Inc.                                                                                                                                               |
| <b>DCDIBCB1-I</b> | <b>TRACING TABLE EXCEEDED – SOME TRACING WILL BE LOST</b>                                                                                                                   |
| Explanation:      | An internal table was exceeded within DCD and this table needed to be made larger.                                                                                          |
| User Action:      | Contact Marble Computer, Inc.                                                                                                                                               |
| <b>DCDIBMA0-E</b> | <b>INTERNAL 88 LEVEL TABLE EXCEEDED – SOME TRACING MAY BE LOST</b>                                                                                                          |
| Explanation:      | An internal table was exceeded within DCD and this table needed to be made larger.                                                                                          |
| User Action:      | Contact Marble Computer, Inc.                                                                                                                                               |
| <b>DCDIF030-I</b> | <b>NO RECORDS WERE PASSED TO THE SORT FOR THE PROGRAM xxxxxxxx</b>                                                                                                          |
| Explanation:      | No records were selected for the program shown for Direct Tracing of Literals                                                                                               |
| User Action:      | If this is a small program or a small Direct Literal report was anticipated, this may be normal.                                                                            |
| <b>DCDKBS02-C</b> | <b>INDEXES EXCEEDED 125 FOR ONE OCCURS</b>                                                                                                                                  |
| Explanation:      | DCD IV has a limit of 124 indexes present for 1 OCCURS. Documentation is lost.                                                                                              |
| User Action:      | Check the OCCURS to determine the cause of excessive use and ensure there are less than 125 indexes per OCCURS. If this is a valid condition, contact MARBLE Computer, Inc. |
| <b>DCDKFA02-D</b> | <b>FILE EMPTY – NO MARBLE HEADER</b>                                                                                                                                        |
| Explanation:      | The first record of a work file being read does not contain a MARBLE header record.                                                                                         |
| User Action:      | Look for possible previous messages to this one. Look for an error in the JCL used.                                                                                         |
| <b>DCDKFB07-D</b> | <b>SELECTED MORE THAN 1000 ENTRIES – REDUCE SELECT</b>                                                                                                                      |
| Explanation:      | Over 1000 entries were SELECTED from the SELECT control statements entered.                                                                                                 |
| User Action:      | Reduce the number of SELECTs used, and resubmit the run.                                                                                                                    |
| <b>DCDKFBU1-E</b> | <b>TRACE TABLE (DIR-) EXCEEDED</b>                                                                                                                                          |

## Control/DCD – Error Messages

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| Explanation:                                                                     | An internal table, which holds detail from cumulative SELECTs, was exceeded.                                                |
| User Action:                                                                     | Consider using less SELECTs or less ANDs and ORs in SELECTs.                                                                |
| <b>DCDKFM02-D</b>                                                                | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                        |
| Explanation:                                                                     | The first record of a work file being read does not contain a MARBLE header record.                                         |
| User Action:                                                                     | Look for possible previous messages to this one. Look for an error in the JCL used.                                         |
| <b>DCDKFP06-E</b>                                                                | <b>OVER 9999 MATCHES - PROBABLE ERROR</b>                                                                                   |
| Explanation:                                                                     | With Trace Option, on one SELECT more than 9999 matches were found.                                                         |
| User Action:                                                                     | Look at SELECT and determine why this happened and fix.                                                                     |
| <b>DCDKFY1A-D</b>                                                                | <b>DDNAME (DCDWK09) MISSING</b>                                                                                             |
| Explanation:                                                                     | The DDNAME DCDWK09 is required by DCD IV for program DCDSYSTEM.                                                             |
| User Action:                                                                     | Provide missing DDNAME. See JCL examples in User's Manual.                                                                  |
| <b>DCDKH040-D</b>                                                                | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                        |
| Explanation:                                                                     | An internal work file was found to be empty.                                                                                |
| User Action:                                                                     | Try rerunning.                                                                                                              |
| <b>DCDKH050-D</b>                                                                | <b>FILE EMPTY - NO DATA RECORDS</b>                                                                                         |
| Explanation:                                                                     | An internal work file was found to be empty.                                                                                |
| User Action:                                                                     | Try rerunning.                                                                                                              |
| <b>DCDM9U20-I</b>                                                                | <b>NO DATA-NAMES INTO SORT</b>                                                                                              |
| Explanation:                                                                     | No DATA NAME records were found to sort in one of Control/DCD programs.                                                     |
| User Action:                                                                     | If a very small program, consider ignoring this message.                                                                    |
| <b>DCDNHD02-C<br/>&amp; DCDNHD03-C<br/>&amp; DCDNHD04-C<br/>&amp; DCDNHD05-C</b> | <b>OVER 49 QUALIFIERS WERE FOUND FOR ONE DATA NAME</b>                                                                      |
| Explanation:                                                                     | A data name with 49 qualifiers was found by DCD IV.                                                                         |
| User Action:                                                                     | If this is a valid condition, contact MARBLE Computer, Inc.                                                                 |
| <b>DCDNHJ01-W</b>                                                                | <b>THE NAME (reference-name) DOES NOT MATCH TO A DATA DIVISION NAME</b>                                                     |
| Explanation:                                                                     | A Procedure Division reference was made to a Data Division name that does not exist.                                        |
| User Action:                                                                     | Check for a spelling error. If the name shown is a special register, notify MARBLE Computer, Inc. Then, ignore the message. |
| <b>DCDP1R10-E</b>                                                                | <b>EXCESSIVE SELECTIONS FOUND IN TRACING ALL POSSIBLE NAMES -TURN OFF YAP<br/>OPTION AND EXAMINE FIELDS SELECTED</b>        |
| Explanation:                                                                     | Excessive SELECTION caused one or more internal tables to be exceeded.                                                      |
| User Action:                                                                     | Turn off TRACING option to get run to continue to end, then examine to see how SELECTs can be limited.                      |
| <b>DCDP1SBA-E</b>                                                                | <b>RFP-TABLE NBR ENTRIES EXCEEDED – SELECT LESS ENTRIES OR CONTACT MARBLE<br/>COMPUTER</b>                                  |
| Explanation:                                                                     | An internal SELECT table for Abend Analysis was exceeded.                                                                   |
| User Action:                                                                     | Use less SELECTs in an attempt to have program run.                                                                         |
| <b>DCDP1Y70-I</b>                                                                | <b>NO DIRECT SELECTED NAMES WERE FOUND - TRACING FOR PROGRAM (progrname)<br/>NOT DONE</b>                                   |
| Explanation:                                                                     | An option was on indicating that TRACING should be done, however no names were selected.                                    |
| User Action:                                                                     | Specify one or more names for SELECTION with SELECT statements.                                                             |
| <b>DCDPBB03-E</b>                                                                | <b>BYPASS TABLE EXCEEDED –USE 1000 OR LESS BYPASS COMMANDS</b>                                                              |
| Explanation:                                                                     | Over 1000 BYPASS table entries were found.                                                                                  |
| User Action:                                                                     | Correct the number of BYPASS control statements to limit it to 1000 entries.                                                |
| <b>DCDPBG01-E</b>                                                                | <b>BYPASS TABLE EXCEEDED - USE 1000 OR LESS BYPASS COMMANDS</b>                                                             |
| Explanation:                                                                     | The number of BYPASS control statements must be limited to 1000.                                                            |
| User Action:                                                                     | Reduce the number of BYPASS control statements.                                                                             |
| <b>DCDPBG02-D</b>                                                                | <b>RANGE= REQUIRES nnnnnn-nnnnn AND FOUND RANGE=XXXXXXXXXXXXX</b>                                                           |
| Explanation:                                                                     | The RANGE control statement used is invalid.                                                                                |



## Control/DCD – Error Messages

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| User Action:                           | Insure the RANGE=NNNNN-NNNNN format is used and resubmit.                                                                                                                                                                       |
| <b>DCDPBG03-E</b>                      | <b>BYPASS FILE – INVALID DATA NAME FOUND (xxxxxxx)</b>                                                                                                                                                                          |
| Explanation:                           | The first character of the name is a space.                                                                                                                                                                                     |
| User Action:                           | Correct Bypass name and resubmit.                                                                                                                                                                                               |
| <b>DCDPBG04-E</b>                      | <b>BYPASS NAME TABLE EXCEEDED -USE 1000 OR LESS BYPASS COMMANDS</b>                                                                                                                                                             |
| Explanation:                           | The number of BYPASS control statements must be limited to 1000.                                                                                                                                                                |
| User Action:                           | Reduce the number of BYPASS control statements.                                                                                                                                                                                 |
| <b>DCDPBH01-W</b>                      | <b>THE BYPASS CONTROL STATEMENT ( user-name ) WAS NOT FOUND IN THIS PROGRAM</b>                                                                                                                                                 |
| Explanation:                           | The user-data-name was either misspelled or not found within the COBOL program.                                                                                                                                                 |
| User Action:                           | If name was expected to be found, correct spelling or determine why name is missing. If not all names were expected to be found, optionally use NODNB option to turn these warning messages off.                                |
| <b>DCDPEY30-D</b>                      | <b>MARBLE HEADER MISSING - CONTACT MARBLE COMPUTER</b>                                                                                                                                                                          |
| Explanation:                           | A header is missing on an internal work file.                                                                                                                                                                                   |
| User Action:                           | If this message occurs more than once and rerunning does not eliminate, contact Marble Computer.                                                                                                                                |
| <b>DCDPEY40-D</b>                      | <b>NO PROGRAM HEADER FOUND FOR PROGRAM ( progame )</b>                                                                                                                                                                          |
| Explanation:                           | A header is missing on internal work file 09.                                                                                                                                                                                   |
| User Action:                           | If this message occurs more than once and rerunning does not eliminate, contact Marble Computer.                                                                                                                                |
| <b>DCDPEY60-E<br/>&amp; DCDPEY90-E</b> | <b>TOTAL TRACE ENTRIES EXCEED nnnnn MAX ENTRIES FOR TABLE FOR<br/>PROGRAM progame - SELECT LESS ENTRIES</b>                                                                                                                     |
| Explanation:                           | Too many entries were SELECTed by the SELECT control statements and a table was exceeded.                                                                                                                                       |
| User Action:                           | Redo the SELECTs used and resubmit to select less entries.                                                                                                                                                                      |
| <b>DCDPF040-D</b>                      | <b>MARBLE HEADER MISSING - CONTACT MARBLE COMPUTER</b>                                                                                                                                                                          |
| Explanation:                           | A header is missing on an internal work file.                                                                                                                                                                                   |
| User Action:                           | If this message occurs more than once and rerunning does not eliminate, contact Marble Computer.                                                                                                                                |
| <b>DCDPF055-D</b>                      | <b>NO PROGRAM HEADER FOUND FOR PROGRAM ( progame )</b>                                                                                                                                                                          |
| Explanation:                           | A header is missing on internal work file.                                                                                                                                                                                      |
| User Action:                           | If this message occurs more than once and rerunning does not eliminate, contact Marble Computer.                                                                                                                                |
| <b>DCDPFC02-E</b>                      | <b>TOTAL TRACE ENTRIES EXCEEDS nnnnn MAX ENTRIES FOR TABLE FOR PROGRAM<br/>progame</b>                                                                                                                                          |
| Explanation:                           | All entries either directly selected for TRA entries or added through TRACING exceeds the maximum number available in table space.                                                                                              |
| User Action:                           | Select less entries so the amount of table space is reduced.                                                                                                                                                                    |
| <b>DCDPFC03-D</b>                      | <b>DIRECT ENTRY MISSING FROM INTERNAL TABLE - CONTACT MARBLE COMPUTER</b>                                                                                                                                                       |
| Explanation:                           | This may be an internal logic error.                                                                                                                                                                                            |
| User Action:                           | Try rerunning, then if this message still appears, contact Marble Computer.                                                                                                                                                     |
| <b>DCDPNP05-W</b>                      | <b>UNABLE TO GAUGE CORRECT USE OF FLOATING POINT COMP-1 OR COMP-2 - USER<br/>MUST CHECK CAREFULLY</b>                                                                                                                           |
| Explanation:                           | During Abend Analysis that follows data fields from one field to another via From-To positions with an 01 record, a field is being traced through Floating point fields where From-To positions may not be accurately followed. |
| User Action:                           | User should look at results carefully and not rely entirely on results given.                                                                                                                                                   |
| <b>DCDPNP06-W</b>                      | <b>FIELD WITH (xxxxxx ) USAGE AT CMPLR NBR nnnnn HAS DIFFERENT LENGTH FROM<br/>FIELD WITH SAME USAGE AT CMPLR NBR nnnnn</b>                                                                                                     |
| Explanation:                           | During Abend Analysis that tracing using From-To positions are linking two fields with different lengths together. Our processing will follow only From-To positions from original field through new field.                     |
| User Action:                           | This is a warning for user clarification. No further action required except to notice difference, unless user wants to make program changes to rectify length difference.                                                       |
| <b>DCDPNP08-W</b>                      | <b>BINARY FIELD AT CMPLR NBR nnnnn IS NOT A HALFWORD, FULLWORD, OR<br/>DOUBLEWORD</b>                                                                                                                                           |
| Explanation:                           | A binary (BINARY or COMPUTATIONAL) field is found where the real calculated positions for the field in question is outside the normal length of 2, 4, or 8 bytes for a halfword, fullword, or doubleword.                       |
| User Action:                           | User should look at usage and make any change deemed necessary or ignore this message.                                                                                                                                          |
| <b>DCDPNP09-W</b>                      | <b>BINARY FIELD AT CMPLR NBR nnnnn IS TOO SMALL FOR FIELD AT CMPLR nnnnn</b>                                                                                                                                                    |

## Control/DCD – Error Messages

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| Explanation:      | Within Abend Analysis, the binary field being traced into, is too small for the record positions of the other field.                                                                                                    |
| User Action:      | This is a warning only, however the user may want to analysis why this is happening.                                                                                                                                    |
| <b>DCDPNP0A-W</b> | <b>BINARY FIELD AT CMPLR NBR nnnnn IS TOO LARGE FOR FIELD AT CMPLR nnnnn</b>                                                                                                                                            |
| Explanation:      | Within Abend Analysis, the binary field being traced into, is too large for the record positions of the other field.                                                                                                    |
| User Action:      | This is a warning only, however the user may want to analysis why this is happening.                                                                                                                                    |
| <b>DCDPNP0B-W</b> | <b>FIELD AT CMPLR NBR IS NOT EXACT SIZE AS FIELD AT CMPLR nnnnn</b>                                                                                                                                                     |
| Explanation:      | During Abend Analysis that follows data fields from one field to another via From-To positions with an 01 record, a field is being traced through Binary fields where From-To positions may not be accurately followed. |
| User Action:      | This is a warning only, however the user may want to analysis why this is happening.                                                                                                                                    |
| <b>DCDPNY80-E</b> | <b>NSD – TABLE EXCEEDED - REDO SELECT STMTS TO SELECT LESS DATA NAMES</b>                                                                                                                                               |
| Explanation:      | An internal table was exceeded.                                                                                                                                                                                         |
| User Action:      | Reduce the number of SELECTs to select less data names so internal table will be reduced in size.                                                                                                                       |
| <b>DCDPQC06-I</b> | <b>TRACING IGNORED AS THE FLAG POSITIONS WERE FOUND OUTSIDE THE MOVE OR COMPARE</b>                                                                                                                                     |
| Explanation:      | A PROCEDURE DIVISION instruction was found with a field that should be traced; however, the field, when being moved or compared, was truncated due to the size of the other field, and tracing is being ignored.        |
| User Action:      | No action is necessary.                                                                                                                                                                                                 |
| <b>DCDPQU30-D</b> | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                                                                                                                    |
| Explanation:      | An internal work file was found to be empty.                                                                                                                                                                            |
| User Action:      | Try rerunning. If necessary, contact Marble Computer.                                                                                                                                                                   |
| <b>DCDPQUA0-E</b> | <b>INTERNAL TABLE ( RFC-) EXCEEDED - CONTACT MARBLE COMPUTER</b>                                                                                                                                                        |
| Explanation:      | An internal table was exceeded.                                                                                                                                                                                         |
| User Action:      | Reduce the number of SELECTs to select less data names so internal table will be reduced in size.                                                                                                                       |
| <b>DCDPTP06-E</b> | <b>INTERNAL DATA NAME TABLE EXCEEDED - CONTACT MARBLE COMPUTER</b>                                                                                                                                                      |
| Explanation:      | An internal data name table was exceeded.                                                                                                                                                                               |
| User Action:      | Look at the SELECTs statement used and reduce them to reduce table space.                                                                                                                                               |
| <b>DCDPTP07-E</b> | <b>OVER 9999 MATCHES - PROBABLE ERROR</b>                                                                                                                                                                               |
| Explanation:      | Tracing included over 9999 matches.                                                                                                                                                                                     |
| User Action:      | Look at the SELECTs statements used and change or reduce the number used to correct this error.                                                                                                                         |
| <b>DCDPTP08-D</b> | <b>DATA-NAME TABLE EXCEEDED - RUN WITH SMALLER NBR OF CONTROL STATEMENTS OR TURN OFF OPTION ( YAP )</b>                                                                                                                 |
| Explanation:      | An internal tracing table was exceeded. This is probably due to an excessive number of SELECTs being used.                                                                                                              |
| User Action:      | Reduce the number of SELECTs or turn off the Tracing Option.                                                                                                                                                            |
| <b>DCDPTY10-D</b> | <b>DDNAME ( DCDWK09 ) MISSING</b>                                                                                                                                                                                       |
| Explanation:      | A DD statement is missing.                                                                                                                                                                                              |
| User Action:      | Inspect the JCL and add the DD statement.                                                                                                                                                                               |
| <b>DCDPTY50-D</b> | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                                                                                                                    |
| Explanation:      | An internal work file was found to be empty.                                                                                                                                                                            |
| User Action:      | Try rerunning.                                                                                                                                                                                                          |
| <b>DCDPTY60-D</b> | <b>EXCEEDED INTERNAL TABLE - USE LESS CONTROL STATEMENTS</b>                                                                                                                                                            |
| Explanation:      | An internal table was exceeded.                                                                                                                                                                                         |
| User Action:      | Look at the SELECTs statement used and reduce them to reduce table space.                                                                                                                                               |
| <b>DCDT0080-C</b> | <b>NARRATIVE ONLY ALLOWED FOR ONE PROGRAM AT A TIME</b>                                                                                                                                                                 |
| Explanation:      | Narrative will only allow one program at a time for Layout Reports.                                                                                                                                                     |
| User Action:      | DCD IV will print narrative alongside the first program.                                                                                                                                                                |
| <b>DCDTB015-I</b> | <b>COBOL SORT CALLED FOR PROGRAM (XXXXXXXX) DUE TO INSUFFICIENT GETMAIN SPACE</b>                                                                                                                                       |

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| Explanation:                           | The size of the COBOL program was larger than the table space necessary to do an internal shell sort, so the COBOL sort was called. |
| User Action:                           | None.                                                                                                                               |
| <b>DCDTBC02-D</b>                      | <b>FILE EMPTY - NO MARBLE HEADER</b>                                                                                                |
| Explanation:                           | The first record of a work file being read does not contain a MARBLE header record.                                                 |
| User Action:                           | Look for possible previous message to this one. Look for an error in the JCL used.                                                  |
| <b>DCDTDC18-E</b>                      | <b>TABLE LIMITS EXCEEDED REGION</b>                                                                                                 |
| Explanation:                           | An internal table was not large enough to handle the program run through DCD IV.                                                    |
| User Action:                           | Rerun the job with a larger region.                                                                                                 |
| <b>DCDX1005-I</b>                      | <b>NO RECORDS WERE PASSED INTO THE SORT FOR THE JCL PROC ANALYSIS REPORT</b>                                                        |
| Explanation:                           | Informational message stating NO records were passed to produce a JCL Analysis.                                                     |
| User Action:                           | Check the JCL being analyzed that produced this result.                                                                             |
| <b>DCDX1A03-C</b>                      | <b>OVER 500 EXCLUDE DDNAMES WERE USED – THE REMAINING EXCLUDE DDNAMES ARE IGNORED</b>                                               |
| Explanation:                           | Excessive DDNAME in //EXCLUDE DD file.                                                                                              |
| User Action:                           | Reduce the number of control statements to under 500.                                                                               |
| <b>DCDX2005-I</b>                      | <b>NO RECORDS WERE PASSED INTO THE SORT FOR THE JOBLIB ANALYSIS REPORT</b>                                                          |
| Explanation:                           | Informational message stating NO records were passed to produce this JCL Report.                                                    |
| User Action:                           | Check the JCL being analyzed that produced this result.                                                                             |
| <b>DCDUBB01 -D</b>                     | <b>THE NBR OF RECORDS SELECTED BY SRA CTL CARDS EXCEEDS 775</b>                                                                     |
| Explanation:                           | Too many control cards were used for DD CTLCD SRA.                                                                                  |
| User Action:                           | Use less control statements.                                                                                                        |
| <b>DCDUD020 -I</b>                     | <b>NO DATA-NAME INTO SORT</b>                                                                                                       |
| Explanation:                           | There were no references in the Procedure Division to data names in the Data Division.                                              |
| User Action:                           | None.                                                                                                                               |
| <b>DCDUDA02 -W</b>                     | <b>EARLY EOF ON INFO-FILE-2</b>                                                                                                     |
| Explanation:                           | An early end of file was found on an internal work file.                                                                            |
| User Action:                           | Check results to see if everything is correct. If in doubt, contact MARBLE Computer, Inc.                                           |
| <b>DCDUDA11-E<br/>&amp; DCDUDA13-E</b> | <b>TABLE LIMITS EXCEEDED REGION</b>                                                                                                 |
| Explanation:                           | An internal table was not large enough to handle the program run through DCD IV.                                                    |
| User Action:                           | Rerun the job with a larger region.                                                                                                 |
| <b>DCDUF010-D</b>                      | <b>THE 01 RECORDS USED HAVE CAUSES AN OVERFLOW IN AN INTERNAL TABLE</b>                                                             |
| Explanation:                           | An internal table was not large enough to handle the program being documented. Look at PARM options S03, S15, S50, S3H, S1T.        |
| User Action:                           | Rerun the job with one of the above mentioned PARM options.                                                                         |
| <b>DCDUFA02-D</b>                      | <b>THE 01 RECORDS USED HAVE CAUSES AN OVERFLOW IN AN INTERNAL TABLE</b>                                                             |
| Explanation:                           | An internal table was not large enough to handle the program being documented. Look at PARM options S03, S15, S50, S3H, S1T.        |
| User Action:                           | Rerun the job with one of the above mentioned PARM options.                                                                         |
| <b>DCDUFB05-E</b>                      | <b>TABLE LIMITS EXCEEDED REGION</b>                                                                                                 |
| Explanation:                           | An internal table was not large enough to handle the program being documented.                                                      |
| User Action:                           | Rerun the job with a larger region.                                                                                                 |
| <b>DCDUHB05-E</b>                      | <b>TABLE LIMITS EXCEEDED REGION</b>                                                                                                 |
| Explanation:                           | An internal table was not large enough to handle the program being documented.                                                      |
| User Action:                           | Rerun the job with a larger region.                                                                                                 |
| <b>DCDV3050-I</b>                      | <b>COBOL MEMBER (program name) NOT FOUND</b>                                                                                        |
| Explanation:                           | COBOL program name was not found. This occurs when using PARM option READPDS.                                                       |
| User Action:                           | Check to ensure program name is correctly spelled and is there.                                                                     |
| <b>DCDV3051-D</b>                      | <b>DDNAME (DCDREPDS) MISSING</b>                                                                                                    |
| Explanation:                           | In the JCL, the DDNAME for DCDREPDS is missing.                                                                                     |
| User Action:                           | Check in the JCL to ensure the DDNAME is there and correctly placed.                                                                |

|                   |                                                                                                                                                                                                                                                                                             |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DCDV3052-D</b> | <b>COBOL MEMBER (program name) NOT FOUND</b>                                                                                                                                                                                                                                                |
| Explanation:      | COBOL program name was not found. This occurs when using PARM option READPDS.                                                                                                                                                                                                               |
| User Action:      | Check to ensure program name is correctly spelled and is there.                                                                                                                                                                                                                             |
| <b>DCDV3053-D</b> | <b>COPY MEMBER NOT FOUND IN COPYLIB SPECIFIED</b>                                                                                                                                                                                                                                           |
| Explanation:      | When DCD IV attempted to read the COPY member in the COBOL program, it was not found in the partitioned data set specified by DSN= in the COPYLIB DD.                                                                                                                                       |
| User Action:      | Check the COPY member name to ensure it is valid and that the correct PDS file specified within the DSN= in the COPYLIB DD.                                                                                                                                                                 |
| <b>DCDV3054-D</b> | <b>NO RECORDS FOUND IN MEMBER (copy member name)</b>                                                                                                                                                                                                                                        |
| Explanation:      | When DCD IV attempted to resolve this COPY member, it found no records in the member.                                                                                                                                                                                                       |
| User Action:      | Check the COPY member and make corrections as necessary.                                                                                                                                                                                                                                    |
| <b>DCDV3A02-I</b> | <b>WORK FILES FOR PROGRAM (XXXXXXXX) DID NOT HAVE OPTION (XXX) IN ALL (WRITPDS) RUNS</b>                                                                                                                                                                                                    |
| Explanation:      | When the READPDS option is used, all files on the data set referenced with the DDNAME of DCDREPDS must have been created with all the same PARM options, which are used in this run using the READPDS option. These work files did not have those options turned on and are being bypassed. |
| User Action:      | Ignore these messages or re-create the DCDPDS files using the WRITPDS option along with the option shown in the message.                                                                                                                                                                    |
| <b>DCDV3A03-E</b> | <b>WORK FILE FOR PROGRAM (XXXXXXXX) IS INCOMPLETE FOR OPTION (XXX) - THIS OPTION IS BEING TURNED OFF</b>                                                                                                                                                                                    |
| Explanation:      | See explanation for message DCDV3A02-I. Multiple options for reports were used during this READPDS run and not all the options correspond to what was used during the WRITPDS run. This option is being turned off.                                                                         |
| User Action:      | Review process, rethink and possibly re-create DCDPDS file.                                                                                                                                                                                                                                 |
| <b>DCDVA020-D</b> | <b>DDNAME (DCDPDS) MISSING</b>                                                                                                                                                                                                                                                              |
| Explanation:      | In the JCL, the card for DCDPDS is missing.                                                                                                                                                                                                                                                 |
| User Action:      | Check the JCL to ensure the DD card for DCDPDS exists and is correctly placed.                                                                                                                                                                                                              |
| <b>DCDMWU20-W</b> | <b>NO DATA-NAMES INTO SORT</b>                                                                                                                                                                                                                                                              |
| Explanation:      | This program contains no sequence numbers of names referenced from the Procedure Division.                                                                                                                                                                                                  |
| User Action:      | None.                                                                                                                                                                                                                                                                                       |
| <b>DCDMWU21-W</b> | <b>NO DATA-NAMES ON TABLE</b>                                                                                                                                                                                                                                                               |
| Explanation:      | This program contains no sequence numbers of names referenced from the Procedure Division.                                                                                                                                                                                                  |
| User Action:      | If this is a small program, none, otherwise investigate why no sequence numbers were picked up.                                                                                                                                                                                             |
| <b>DCDX1050-I</b> | <b>NO RECORDS WERE PASSED INTO THE SORT FOR THE JCL PROC ANALYSIS REPORT</b>                                                                                                                                                                                                                |
| Explanation:      | Either no DDNAMEs were found or the entire JCL is missing.                                                                                                                                                                                                                                  |
| User Action:      | Check to see what JCL was used and examine.                                                                                                                                                                                                                                                 |
| <b>DCDX1A04-C</b> | <b>OVER 500 EXCLUDE DDNAMES WERE USED-THE REMAINING EXCLUDE DDNAMES ARE IGNORED</b>                                                                                                                                                                                                         |
| Explanation:      | Too many control cards were used.                                                                                                                                                                                                                                                           |
| User Action:      | Reduce the number of control statements.                                                                                                                                                                                                                                                    |
| <b>DCDX1FR0-C</b> | <b>EXCESSIVE REFERBACKS (OVER 500) WERE USED IN ONE PROC - THOSE OVER LIMIT ARE IGNORED</b>                                                                                                                                                                                                 |
| Explanation:      | More refer backs were present in one PROC than this software can handle.                                                                                                                                                                                                                    |
| User Action:      | Find out why excessive refer backs were used and see if this number can be reduced. If this is a valid condition, contact Marble Computer.                                                                                                                                                  |
| <b>DCDX1FS0-C</b> | <b>EXCESSIVE SYMBOLICS (OVER 2000) WERE USED IN ONE PROC - THOSE OVER LIMIT ARE IGNORED</b>                                                                                                                                                                                                 |
| Explanation:      | More symbolics were present in one PROC than this software can handle.                                                                                                                                                                                                                      |
| User Action:      | Find out why excessive symbolics were used and see if this number can be reduced.                                                                                                                                                                                                           |
| <b>DCDX1QA0-W</b> | <b>TABLE EXCEEDED - ONLY THE FIRST (nnnnn) PROC NAMES WILL BE SHOWN IN THE LIST OF PROC NAMES</b>                                                                                                                                                                                           |
| Explanation:      | A table used to hold PROC names for later printing out the names of PROCs used has been exceeded.                                                                                                                                                                                           |
| User Action:      | The main report used to report on the JCL is accurate. The sub-report used to show which PROCs were inputted will be truncated.                                                                                                                                                             |

|                                                                                  |                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>DCDX2050-I</b>                                                                | <b>NO RECORDS WERE PASSED INTO THE SORT FOR THE JCLLIB ANALYSIS REPORT</b>                                                                                                                                                                              |
| Explanation:                                                                     | Insufficient JCL was found or the entire JCL is missing.                                                                                                                                                                                                |
| User Action:                                                                     | Check to see what JCL was used.                                                                                                                                                                                                                         |
| <b>DCDY8B0BY-C</b>                                                               | <b>THE LAST (nnnnnn) COPYS ARE OMITTED FROM SUT PROCESSING BECAUSE TOTAL LENGTH OF USED COPYS EXCEEDS SRA-TBL=Nm SIZE</b>                                                                                                                               |
| Explanation:                                                                     | The total record length of all records combined exceeds internal size.                                                                                                                                                                                  |
| User Action:                                                                     | Use less records OR try increasing REGION Size OR consider using PARM options S03, S15, S50, S3H or S1T from Control/DCD User's Manual.                                                                                                                 |
| <b>DCDYA030-I<br/>&amp; DCDYB030-I<br/>&amp; DCDYC040-I<br/>&amp; DCDYE030-I</b> | <b>NO DATA-NAMES INTO SORT</b>                                                                                                                                                                                                                          |
| Explanation:                                                                     | For VERB, RECORDS, SRA, or COPY report respectively, no data names were found or sorted. This indicates no entries were found to be reported on for the report selected.                                                                                |
| User Action:                                                                     | No required action.                                                                                                                                                                                                                                     |
| <b>DCDYD048-I</b>                                                                | <b>NO RECORDS WERE PASSED INTO THE SORT FOR THE CALL PARAMETER REPORT</b>                                                                                                                                                                               |
| Explanation:                                                                     | Informational message stating on CALL PARAMETER records were found when this grouping of programs is run through to produce the CALL PARAMETER report.                                                                                                  |
| User Action:                                                                     | Check the programs being analyzed that produced this result.                                                                                                                                                                                            |
| <b>DCDYG040-I</b>                                                                | <b>NO DATA NAMES INTO SORT</b>                                                                                                                                                                                                                          |
| Explanation:                                                                     | There were no records passed in to the CALL Report.                                                                                                                                                                                                     |
| User Action:                                                                     | None.                                                                                                                                                                                                                                                   |
| <b>DCDYH050-I</b>                                                                | <b>NO RECORDS WERE PASSED INTO THE SORT FOR THE CALL HIERARCHY REPORT</b>                                                                                                                                                                               |
| Explanation:                                                                     | No records were passed out to the SORT.                                                                                                                                                                                                                 |
| User Action:                                                                     | None.                                                                                                                                                                                                                                                   |
| <b>DCDYH060-D</b>                                                                | <b>UNABLE TO DETERMINE ONE MAIN PROGRAM - SEE PRIOR MESSAGES - UNABLE TO PRODUCE REPORT</b>                                                                                                                                                             |
| Explanation:                                                                     | When determining the order of hierarchy for the CALL Hierarchy Report, a program was called in a fashion that makes it impossible to complete the hierarchy. For example, program A calls program B, which calls program C, which then calls program A. |
| User Action:                                                                     | Determine why this is happening and either correct or do not run this report.                                                                                                                                                                           |
| <b>DCDYHD17-W</b>                                                                | <b>OVER nnnn DIFFERENT CALLS FOUND IN PROGRAM (xxxxxxx) – EXCESS IGNORED</b>                                                                                                                                                                            |
| Explanation:                                                                     | More CALLs were found in one program than can be handled.                                                                                                                                                                                               |
| User Action:                                                                     | Determine why excess CALLs are used. Possibly try using a DELETE control card to reduce this number.                                                                                                                                                    |
| <b>DCDYHD30-C</b>                                                                | <b>THE HIERARCHY EXCEEDED 23 LEVELS DEEP FOR SYSTEM (xxxxxxx) - EXCESS LEVELS IGNORED</b>                                                                                                                                                               |
| Explanation:                                                                     | The CALL Hierarchy Report is designed to handle CALLs to a level of 23 deep. CALLs going deeper than that are ignored.                                                                                                                                  |
| User Action:                                                                     | Determine why CALLs are going to this depth. If necessary, contact MARBLE Compute, Inc.                                                                                                                                                                 |
| <b>DCDYHD31-E</b>                                                                | <b>CANNOT ADD CALL TO (xxxxxxx) AS THIS IS WITHIN CURRENT STRING - SEE NOTE BELOW</b>                                                                                                                                                                   |
| Explanation:                                                                     | When determining the trace of CALLs, a CALL to a program was found that itself is found earlier within this chain.                                                                                                                                      |
| User Action:                                                                     | See following messages which show the order of the trace established so far. Then determine why this is happening and either correct or do not run this report.                                                                                         |
| <b>DCDYHD80-I</b>                                                                | <b>xxxxxxx xxxxxxxx xxxxxxxx</b>                                                                                                                                                                                                                        |
| Explanation:                                                                     | This message appears after message DCDYHD31-E, showing the order of CALLs which caused that message. If necessary, more than one of these messages will appear.                                                                                         |
| User Action:                                                                     | See error message DCDYHD31-E.                                                                                                                                                                                                                           |
| <b>DCDYHFA0-E</b>                                                                | <b>EXCEEDED nnnn PROGRAMS FOR CALL HIERARCHY CHART - WILL BE INCOMPLETE</b>                                                                                                                                                                             |
| Explanation:                                                                     | The number specified is the maximum number of programs that may be submitted for this report.                                                                                                                                                           |
| User Action:                                                                     | Determine if a smaller number of programs may be used when running this report.                                                                                                                                                                         |
| <b>DCDYG040-I</b>                                                                | <b>NO RECORDS WERE PASSED INTO THE SORT FOR THE CALL ANALYSIS REPORT</b>                                                                                                                                                                                |
| Explanation:                                                                     | No selected records were found to report on for CALL Analysis Report.                                                                                                                                                                                   |

## Control/DCD – Error Messages

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|                                    |                                                                                                       |
|------------------------------------|-------------------------------------------------------------------------------------------------------|
| User Action:                       | Determine if CALLs were not present, then ignore this message.                                        |
| <b>DCDYIA04-E</b>                  | <b>CONTROL CARDS FOR CTLCAHCC MUST BEGIN WITH (ADD) OR (DELETE)</b>                                   |
| Explanation:                       | Control cards for the CALL Hierarchy Report begin with either ADD or DELETE.                          |
| User Action:                       | Correct the control statement in error and resubmit.                                                  |
| <b>DCDYIA06-E</b>                  | <b>FIRST PROGRAM NAME MUST BE ALPHANUMERIC FIELD FROM 1 TO 30 CHARACTERS LONG – BYPASSING</b>         |
| Explanation:                       | The program name used in a control statement exceeded 30 characters in length.                        |
| User Action:                       | Enter a correct program name and resubmit.                                                            |
| <b>DCDYIA08-E</b>                  | <b>THE THIRD FIELD ON CTLCAHCC CONTROL CARDS MUST BE THE CONSTANT (CALLS) – BYPASSING</b>             |
| Explanation:                       | The third field on control cards when used must be the constant (CALLS).                              |
| User Action:                       | Determine what format was desired for this control card, correct and resubmit.                        |
| <b>DCDYIA10-E</b>                  | <b>SECOND PROGRAM NAME MUST BE ALPHANUMERIC FIELD FROM 1 TO 30 CHARACTERS LONG – BYPASSING</b>        |
| Explanation:                       | Any program name used in a control card must not exceed 30 characters in length.                      |
| User Action:                       | Enter a Correct program name within control statement and resubmit.                                   |
| <b>DCDYIA11-E</b>                  | <b>MORE CONTROL CARDS WERE SPECIFIED THAN PERMITTED – REDUCE NUMBER OF CTL CARDS</b>                  |
| Explanation:                       | More than 500 control statements were submitted for the CALL Hierarchy Report.                        |
| User Action:                       | Use less control statements.                                                                          |
| <b>DCDYIE01-E</b>                  | <b>AN EXPECTED FIELD WITHIN A CONTROL CARD IS MISSING</b>                                             |
| Explanation:                       | The format of the control statement requires one more field and this field is missing.                |
| User Action:                       | Determine the correct format and resubmit with the correct control card.                              |
| <b>DCDYK040-I</b>                  | <b>NO DATA-NAME INTO SORT</b>                                                                         |
| Explanation:                       | There were no records passed into the PARAGRAPH Report                                                |
| User Action:                       | None.                                                                                                 |
| <b>DCDYL030-I</b>                  | <b>NO DATA NAMES INTO SORT</b>                                                                        |
| Explanation:                       | There were no records passed out to the DATA Report.                                                  |
| User Action:                       | None.                                                                                                 |
| <b>DCDYN100-I &amp; DCDYN110-I</b> | <b>NO RECORDS WERE PASSED INTO SORT FOR THE ABEND ANALYSIS REPORT</b>                                 |
| Explanation:                       | No records were passed to an internal sort. This is an informational message.                         |
| User Action:                       | It may be that no records were selected, which will cause this message. Check SELECT statements used. |
| <b>DCDYN115-I</b>                  | <b>NO RECORDS WERE SELECTED FOR PRODUCING ABEND ANALYSIS REPORT</b>                                   |
| Explanation:                       | The SELECTs used did not find any matches within this program.                                        |
| User Action:                       | If processing only one program, insure the correct SELECT is used.                                    |
| <b>DCDYNA01-D</b>                  | <b>MISSING HEADER RECORD FOR DCDWK09 IN PROGRAM DCDTARPT</b>                                          |
| Explanation:                       | An internal header record is missing from the internal file name shown.                               |
| User Action:                       | Try resubmitting run.                                                                                 |
| <b>DCDYNB11-E</b>                  | <b>OVER 250 SELECTIONS FOUND WITHIN RECORD (record-name)</b>                                          |
| Explanation:                       | Within one record, more than 250 fields were selected.                                                |
| User Action:                       | Go back and change the SELECTs used to select less fields. Be more specific in selecting fields.      |
| <b>DCDYPB01-C</b>                  | <b>INVALID FIELD FOUND - BYPASSING</b>                                                                |
| Explanation:                       | A field on an internal work file has a field, which should be numeric but is not.                     |
| User Action:                       | If this happens continuously, contact MARBLE Computer.                                                |
| <b>DCDYPB02-D</b>                  | <b>MATCHING SOURCE LINE NOT FOUND - RUN ENDING</b>                                                    |
| Explanation:                       | Internal work files for doing code changing require a source code work file and this file is missing. |
| User Action:                       | Possible logic error. Try resubmitting.                                                               |
| <b>DCDYPE03-D</b>                  | <b>INTERNAL TABLE EXCEEDED - CONTACT MARBLE COMPUTER</b>                                              |
| Explanation:                       | An internal table was exceeded.                                                                       |
| User Action:                       | Contact Marble Computer.                                                                              |
| <b>DCDYT030-I</b>                  | <b>NO DATA-NAMES INTO SORT</b>                                                                        |
| Explanation:                       | There were no records passed into the PARAGRAPH Report                                                |

## Control/DCD – Error Messages

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User Action: None.

**DCDYU030-I NO DATA-NAMES INTO SORT**

Explanation: There were no records passed into the PARAGRAPH RANGE Report

User Action: None.

**DCDYWG04-E RECORD LOCATIONS ARE OFF**

Explanation: Record locations are off due to incorrect use of an ( \* ) within the control statements.

User Action: Check the JCL control statements to ensure it is the correct logic.

**DCDYY030-I NO DATA-NAMES INTO SORT**

Explanation: There were no records passed in to the LAYOUT Report.

User Action: None.

**DCDZZ099-D See SYSOUT for MISSING DD or other error**

Explanation: An error has occurred in one of Marble's work files DCDWK01 through DCDWK12

User Action: To see more information on this error, look at messages near the end of the SYSOUT DD.

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Release 2.3

# Control/DCD

## Installation Guide

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**Control/DCD  
Installation Guide**

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**Addendums**

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## Introduction

This installation guide corresponds to release **2.3** of the Data Correlation and Documentation System (Control/DCD).

*It should be noted that many of the modifications incorporated into this release are the direct result of user request. Examples of this are features to support moving to COBOL 6 and the addition of Control SE to allow creating a digital documentation manual in PDF format or ISPF editing of the COBOL source with unique FIND capability. Modifications to support additional user requests are currently under development for future releases. It is our policy to provide requested features where such support is technically and economically feasible.*

### ---NOTICE---

Installation of this release of Control/DCD requires DCDCNTRL control file information for your site that is available from Marble Computer, Inc. from 'Installation Addendum 2'. Look at DCDCNTRL DD in Control/DCD PROCs.

\*For ACTIVE and TRIAL users, Addendum 2 is a **separate** page that is provided from Marble.

If you have any problems, suggestions or comments, please contact MARBLE Computer, Inc. at 1-800-252-1400.

## Overview of steps for installing Control/DCD

- |        |                                                                                                               |
|--------|---------------------------------------------------------------------------------------------------------------|
| Step 1 | - Obtain all Control/DCD files from electronic media from Marble                                              |
| Step 2 | - Establish four needed PDS files for Control/DCD                                                             |
| Step 3 | - Modify the Control/DCD PROCs                                                                                |
| Step 4 | - Create a control record using Addendum 2                                                                    |
| Step 5 | - Do testing of Control/DCD                                                                                   |
| Step 6 | - Use the 5 DCDSPF files (.CLIST, .PLIB, .MLIB, .SLIB, & .LLIB) to install ISPF*                              |
| Step 7 | - Make the PDF document below available to each group using our software:<br>1. Control DCD Quick Start Guide |

\*The use of our SPF panels is available for all features in Control/DCD and is required for creating a Digital Documentation manual and/or the mainframe editing of COBOL covered in Sections 1 and 2 of this manual.

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### **Step 1 – Obtain the Control/DCD Files by electronic media from Marble**

Electronic downloading is available by FTP download by contacting Marble Computer, Inc.

A password is needed for downloading from the web. This date sensitive password is available by contacting Marble Computer at [Info@marblecomputer.com](mailto:Info@marblecomputer.com) or by contacting Marble Computer at 1-800-252-1400.

If the system is not installed in the time frame SHOWN in that date sensitive password provided, you will need to contract Marble Computer, again at [info@marblecomputer.com](mailto:info@marblecomputer.com) for a new date sensitive password.

## Step 2 - Establish four needed PDS files for Control/DCD

Four files must be created for the use of Control/DCD. All four files are Partitioned Data Sets in the same format as COBOL libraries. Note - **File 1** has a record size of **100** and **files 2-4** have a record size of 80.

|                               |               |                                          |             |
|-------------------------------|---------------|------------------------------------------|-------------|
| Device type:                  | 3390 or other | Block size:                              | see below*  |
| Organization:                 | PO            | 1 <sup>st</sup> extent cylinders:        | see below** |
| Record format:                | FB            | Secondary cylinders:                     | see below** |
| <b>File 1</b> Record size:    | <b>100</b>    | (Use Blocksize of <b>3100</b> or larger) |             |
| <b>Files 2-4</b> record size: | <b>80</b>     | (Use Blocksize of <b>3120</b> or larger) |             |

\*\*The initial 1<sup>st</sup> extent cylinders and Secondary cylinders varies depending on each of the four files and is covered just below:

Determine whether the newest feature DDM will be more used or Mainframe Editing of COBOL under ISPF will be used more. **DDM in PDF format is highly recommended.** Also, see Note: below.

- File 1 **Prefix.CSE.ANALYSIS** (holds DDM or Digital Documentation Manual members)  
Initially make this file equal to the total size used for largest COBOL PDS file. As use of software grows, this file will need to be much larger as each member holds 5-10 times the information of a COBOL program. (Record Size is 100. Block size ending in 00 as in 3100).
- File 2 **Prefix.CSE.BCKUPCOB** holds backup of each COBOL program each time the CSE step is run to build an editable source COBOL file. If Mainframe editing of COBOL is done, as opposed to the Digital Documentation Manual in PDF for PC viewing, then make this file equal to **100%** of the total size used for the largest COBOL PDS file, otherwise make it **5%** or less of the total size for largest COBOL PDS.
- File 3 **Prefix.CSE.EDITFILE** holds the COBOL program created each time the CSE step is run, plus large analysis information typically several times larger than the COBOL program. Again, if Mainframe editing is done, then initially, make this file, 2 or 3 TIMES the total size of the largest COBOL PDS file, otherwise make it 10 to 15% or less of the total size of the largest COBOL PDS.
- File 4 **Prefix.CSE.SUMMARY** (holds Summary Management Reports)  
Make this file equal **20%** of the total size used for largest COBOL PDS file. Both DDM and Mainframe Editing under ISPF use this feature.

*Note: Consider setting to much smaller file sizes initially and making additional adjustments to file sizes after use at your installation is better determined.*

*(DDMHELP & CSEHELP) just below are present in files CDCD.CNTL & CDCDSPF.SLIB. Modify CDCD.CNTL member CSE and CDCDSPF.SLIB member DZ3CSE to new filenames used.*

There are six other files or members of PDSs, all sequential, that are all briefly mentioned at various places later in this section. The DD's for these six files are as follows:

1. **CONTROL DD** has one 80-character record, typically a member of a PDS. ‘.
2. **CTLDEBUG DD** copy to a sequential file named **userid.CSE.CTLDEBUG** with an 80-character record size blocked by 3120, then modify the new filename used in both the CSE member of the CDCD.CNTL file and in the DZ3CSE member of CDCDSPF.SLIB file. **Files 1 and 2** are also covered further under ‘Step 4 – Creating a control record’.

*(DDMHELP & CSEHELP) just below are present in files CDCD.CNTL & CDCDSPF.SLIB. Modify CDCD.CNTL member CSE and CDCDSPF.SLIB member DZ3CSE to new filenames used.*

3. **DDMHELP DD** (required) has HELP file used to populate member **DDMHELP** records in the CSE ANALYSIS creation of a Digital Documentation Manual (DDM).
4. **HELP DD** (required) has HELP file used to populate member **CSEHELP** records in the CSE EDITFILE created for editing by the user.
5. **USERSEL DD** (optional) is an 80-character user selection control statement file, normally defined by the user and is covered more under ‘Step 5 – Testing Control/DCD’.
6. **VERSION DD** (optional) has one 80-character record with a mandatory 3120 block size. This file is covered in the **CSE PROC** in step 3.

Note – The **CTLDEBUG** file is new with **release 2.3**.



### Step 3 - Modify Control/DCD PROCs

There are 31 members on the Control/DCD CNTL file.

- See 'Addendum 1 - Control/DCD CNTL file' for a complete description of these files.

The following are PROCs, which require modification:

1. CSE for building 'One Program Documentation' for creating a Digital Documentation Manual OR for build an Editable Source File for use in editing in Control/SE. This PROC may also be run standalone outside of ISPF to create the older 'Alternate Compile Listing'. The `//PRINTACLD  
DD SYSOUT=*` contains this file and may, by modifying the JCL here, be directed elsewhere as needed by the user.
2. ISOLATE for isolating just the COBOL program from the Editable Source File after user editing is done on any one program in Control/SE. This feature is only available when building an Editable Source File in step 1.
3. DCDCOBOL for executing the Analysis on Multiple COBOL programs on one or more COBOL programs.
4. LIBCOBOL for executing the Analysis on Multiple COBOL programs on one or more COBOL Programs if Librarian is used in your shop.
5. PANCOBOL for executing the Analysis on Multiple COBOL programs on one or more COBOL programs if Panvalet is used in your shop.
6. DCDFETCH for selecting members from a partitioned data set to produce reports from the Analysis on Multiple COBOL programs and for JCL Analysis. In Release 2.1 of Control/DCD, older member fetcher PROC MBRFETCH is no longer supported.
7. DCDJCL for executing the JCL PROC Analysis feature.

These PROCs are listed in this manual in their appropriate sections for more information. See the next two pages for necessary modification of these selected PROCs, **after handling REXX members below.**

Four members (**TXT2PDF**, **TXT2PDFI**, **TXT2PDFD** and **TXT2PDFX**) are **REXX members** needed in IBM utility IKJEFT1B, used in SLIB DZ3PDF. SLIB DZ3PDF is covered more under the heading 'Modifying CLISTs, Panels and JCL Skeletons'.

#### **Important Step**

These four members **need to be copied** into a library in your SYSEXEC or SYSPROC concatenation for this IBM utility to correctly function to create PDF files used in section 1 of this manual.

Note – The ISOLATE PROC in Control/SE is handled last. See next page.

After selecting the PROCs which will be used in your shop, go into each of the PROCs individually and:

- 1) Insert STEPLIBs to point to the load library where the Control/DCD, Panvalet or Librarian modules reside.
- 2) If known COPY member libraries are used in your shop, insert COPYLIB DDs where noted to point to these COPY libraries. These should match to what is used in the SYSLIB step of your installations COBOL compile PROCs.
- 3) In the CSE PROC, modify the //COBOLIN DD to point to the most used COBOL PDS. Also, modify //DDMHELP DD, and //HELP DD. See steps 10-11 that follow.
- 4) If SYS1.SORTLIB is not the standard sort library in your shop, modify as appropriate.
- 5) Modify the (//CONTROL DD) line to the appropriate CONTROL data set (see the Installation Addendum and/or see – “**Step 4 - Creating a Control Record**”).
- 6) Modify the (//CTLDEBUG DD) line to point to sequential file also mentioned in **Step 4**.
- 7) For very old COBOL (1968 or 1974) or for the current ENTERPRISE COBOL the following optional DD **does not need** to be added. For the following versions of COBOL (**VS COBOL, VS COBOL II, and IBM COBOL**), within PROCs **CSE, DCDCOBOL, LIBCOBOL & PANCOBOL**, insert a new DD with the name of VERSION pointing to catalogued sequential file with one 80-character LRECL (**and BLKSIZE of 3120 is mandatory**) with one record indicating the type COBOL RESERVED WORDS to look for as follows:

```
//VERSION DD DSN=PREFIX.CDCD.VERSION,DISP=SHR
```

and in this file insert one of the following VALUEs in the first 11 characters of the first record as follows:

**VS-COBOL          VS-COBOL-II          IBM-COBOL          ENTERPRISE (default)**

While Control/DCD almost always will work fine by using ENTERPRISE reserved words with older COBOL, use of this DD insures that the correct set of reserved words are used when using an older COBOL. The user may override this //VERSION DD during user execution for a different version of COBOL.

- 8) At the beginning of each PROC make appropriate changes to symbolic parameters that are present on the last six to eight lines. The symbolic parameters before this point should generally be left as they are.

The following symbolic parameters in all PROCs Affect Control/DCD resource utilization:

| <u>SYMBOLIC</u> | <u>DEFAULT</u> | <u>MINIMUM</u> | <u>MEANING</u> |
|-----------------|----------------|----------------|----------------|
| REG             | varies         | varies         | REGION SIZE    |
| BUF             | 5              | 5              | DCB BUFNO      |
| SORTREG         | 810000         | 810000         | SORT REGION    |

Decreasing these values increases run time, while decreasing PAGE and/or storage requirements. Do not increase SORTREG above 1,000,000 and do not increase BUF above 7.

For installations concerned about storage resources, the minimum REGION required to generate Control/DCD reports is 8192K for CSE, DCDCOBOL, LIBCOBOL and PANCOBOL. If using this minimum, the BUF and SORTREG parameters must be set to “5” and “810000”, as indicated above.

**Using too small a region may cause an OC4.**

- 9) Consider removing the SORT work files (SORTWK01-03) and SORTLIB from those PROCs which use them. Many SORT packages do dynamic allocations of these files.

- 10) In PROC CSE, uncomment DD files (ANALYSIS, BCKUPCOB, EDITFILE, and SUMMARY) and replace PREFIX with a valid prefix for your installation. These files were created in Step 2.
- 11) In PROC CSE, modify PREFIX in //DDMHELP DD and keep the CDCD.CNTL file, or move the member **DDMHELP** to a production SYSTEM CNTL file and replace the **DSN** to that new file.  
//DDMHELP DD DSN=PREFIX.SYSTEM.CNTL(DDMHELP),DISP=SHR
- 12) In PROC CSE, modify PREFIX in //HELP DD and keep the CDCD.CNTL file, or move the member **CSEHELP** to a production SYSTEM CNTL file and replace the **DSN** to that new file.  
//HELP DD DSN=PREFIX.SYSTEM.CNTL(CSEHELP),DISP=SHR
- 13) In PROC CSE, there is a //CTLDEBUG DD that will have its PREFIX modified in Step 4 that follows when creating a sequential file from MEMBER CTLDEBUG on the CDCD.CNTL file.  
//CTLDEBUG DD DSN=PREFIX.**CSE**.**CTLDEBUG**,DISP=SHR

The last PROC is the ISOLATE PROC and is shown below for documentation on what happens in the ISOLATE step. However, this PROC is not used except under ISPF and may be modified as suggested below or left alone as ISPF correctly build its own JCL for this PROC.

```
//ISOLATE  PROC  PROGRAM=' '  
//STEP1   EXEC  PGM=ISOLATE,REGION=2048K  
//STEPLIB DD   DSN=PREFIX.CDCD.LOAD,DISP=SHR  
//SYSOUT  DD   SYSOUT=*  
//EDITFILE DD  DSN=PREFIX.CSE.EDITFILE(&PROGRAM),DISP=SHR  
//*       USER MAY NEED TO SPECIFY      //STEP1.OUTCOBOL DD  
//*       LIKE FOLLOWING LINE WITH CORRECT DSN=PDS(&PROGRAM)  
//* OUTCOBOL DD  DSN=PREFIX.USER.COBOLO(&PROGRAM),DISP=SHR  
//
```

Changes below are not needed as this PROC is for example only:

1. In STEPLIB line, replace PREFIX.CDCD.LOADLIB to point to the load library where the LOAD members will be stored.
2. Replace PREFIX.CSE.EDITFILE with the name of the EDITFILE file created for the CSE PROC.
3. If there is a standard COBOL library normally used, then replace PREFIX.USERLIB.COBOLO with that name and uncomment the OUTCOBOL DD, otherwise leave commented out, but fill in one typical COBOL library as a guide for users.

When the PROCs are modified and tested, they should be stored on a system PROCEDURE library for general use.

### **Step 4 - Creating a Control Record**

To create a control record, set up one 80-character record as a member named DCDCNTRL, on a permanent JCL or control statement partitioned data set. The LRECL on the PDS must be 80. Fill in the first 17 characters on this control record from installation addendum or from previous installation. Leave the other columns blank.

See the provided Installation Addendum to obtain the date and related control characters for this control record.

If this is a new installation and the Installation Addendum is not found, contact MARBLE Computer, Inc., at 1-800-252-1400 for this control information or email us at [support@marblecomputer.com](mailto:support@marblecomputer.com).

### **Step 4 (continued) – Create a CTLDEBUG file**

Create an 80-character, blocked by 3120 characters file from the member CTLDEBUG found on the CNTL file and name as userid.CSE.CTLDEBUG (or another similar name) and modify the JCL member CSE to change userid to insure name in JCL matches the sequential file created here.

### Step 5 - Testing Control/DCD

Testing should be done here to insure the PROCs are modified correctly. The ISOLATE PROC should not be tested. The ISOLATE feature is used and tested under IPSF Panels after they are installed.

If initial testing is done here, testing should include the CSE, DCDCOBOL, DCDFETCH and DCDJCL PROCs. *Again, the ISOLATE PROC may not be tested here.* The DCDFETCH PROC will also be tested along with the DCDJCL PROC. If Librarian or Panvalet is used, then the PROCs LIBCOBOL or PANCOBOL should also be tested. To test Control/DCD, do the following:

- 1) Modifying the member DCDCNTRL on the file Control/DCD.CNTL just loaded with the one-line control statement information provided in the Installation Addendum (this must be done first).
- 2) Pull in the member TCSE from the CNTL PDS file unloaded from our web site. This contains JCL to test the PROC CSE. Modify the JOB statement and modify the DSNs to point to the CNTL file on the files being installed. Submit the job and check the results for COND CODE of 0000.

*Later testing of CSE will be done for ISPF and will include converting an //ANALYSIS DD file to a PDF binary file for downloading to PC for reading by any PDF reader. The JCL provided under ISPF for creating this binary file will be tested there. The JCL used there is also shown in the A Section of this manual under heading '**Build a Digital Documentation Manual (DDM) in PDF format**'. Testing the JCL in A Section is not recommended and if tested, should only be done after installing and testing IPFP panels is complete.*

- 3) Pull in the member TDCDCOBO from the file used above. This contains JCL to test the other reports produced through Control/DCD. Modify the JOB statement and modify the DSNs to point to PDSs on the files being installed. Submit the job and check the results for a COND CODE of 0000.
- 4) Pull in the member TDCDJCL from the CNTL PDS file on the files being installed. Modify the JOB statement and modify the DSNs to point to the two PDSs on the files being installed. Submit the job and look for a COND CODE of zeros in both steps.
- 5) If Librarian or Panvalet are used, refer to JCL Examples 1 and 2 under the 'Analysis on Multiple COBOL programs' section in this manual for suggested JCL to test these PROCs. Look for a COND CODE of 0000 from the DCD step.
- 6) Pull in the member TFETCH from the CNTL PDS file on the files being installed. Modify the JOB statement and modify the DSNs to point to the correct files for CDCD.LOAD and several uses of CDCD.CNTL. Submit the job and look for a COND CODE of zeros in both steps.

## Step 6 - Installing and Testing ISPF Panels

### General Notes

#### Naming conventions:

1. All Control/DCD ISPF panels begin with the letters DZ3.
2. Approximately 900 unique PROFILE names are used for each execution of Control/DCD. Of these about 345 are **initialized** as needed during each run and about 555 of the 900 are **saved** for use from one run to another.
  - a. Although it is probably unneeded, a user may clear out these 555 saved names after use, by entering an otherwise undocumented **colon (:)** character in the top panel of Control/DCD under ISPF and then entering the 5-character password (**CLEAR**) when asked for.
3. The CLIST member DZ3DCD1 assigns an application-id of \$DCD to these names.

#### Variable Blocked CLIST file:

The CLIST file downloaded with other files in step 1 is a variable blocked file. If CLISTs are fixed block at your installation, then a new CLIST file should be allocated and catalogued as fixed block and the file loaded from the cartridge should be copied to this new file. The variable blocks CLIST file should be deleted.

Modifying members on three of the files:

Before these members can be used, changes need to be made to some CLIST, Panels and JCL members. These changes are covered in the next heading:

1. Modifying necessary CLISTs, Panels, and JCL Skeletons

### **For Control/DCD release 2.3 all ISPF Panels must be reinstalled**

In Control/DCD, there are 238 panels to assist the user in running Control/DCD, 7 CLIST members and 17 SLIBS. Of these one CLIST needs to be modified during installation, 3 PLIBs need to be modified and several SLIBs need to be modified. See the next page for instructions on doing same.

## Modifying CLISTS, Panels and JCL Skeletons

The following members need to be modified during installation.

### CLISTS

- DZ3DCD1 - Modify the five file names within the five LIBDEF statements to the permanent file names (DSNs) loaded from files 3 through 7 in step number 1.

### Panels

- DZ3Z0801 - Insert within the single apostrophes in )INIT section of this panel, one or more production COPY libraries that should always be searched when looking for COPY libraries. Look at the SYSLIB DDNAME within standard compile procs for a list of these DSNAMES. (These DSNAMES may be changed and added to by the programmer while using the SPF panels.)
- DZ3Z0802 - Insert within the single apostrophes in )INIT section of this panel matching file names created earlier in Install Section for EDITFILE, SUMMARY, BCKUPCOB and ANALYSIS.
- DZ3Z0806 - Change the literal from (Y) to (N) in )INIT section of this panel as necessary to block out PANVALET, and LIBRARIAN respectively. If LIB='Y', consider EXT='Y' also, to block out the use of -SEL commands and only allow -EXTRACT commands to be built by Control/DCD for use within Librarian to bring in programs.

#### **- Notes on panel DZ3Z0806 -**

1. Librarian and Panvalet should be allowed or blocked out depending on their use within your shop. If they are used at your installation, they should be allowed here.

### Skeletons

- DZ3CSE - See page H-8 in this section, near bottom of page for DD **DDMHELP** and **HELP**. Go into this skeleton and point the DSN name of both files to the installed CDCD.CNTL or other file where these member DDMHELP and CSEHELP will reside. Also modify the DD CTLDEBUG file to point to the sequential file created in '**Step 4 (continued) – Create a CTLDEBUG file**'.
- DZ3CNTRL - Modify this skeleton to point to the DSNNAME which contains the control password for running this software. (See, "**Step 4 - Creating a Control Record**" and 'Installation Addendum', for determining the name of this DSNNAME.)
- DZ3STEP - Modify this skeleton to point to the DSNNAME which contains the load modules of the Control/DCD system. This LOAD File was downloaded in Step 1.
- DZ3LSTEP - If Librarian mode is allowed and a STEPLIB is required for LIBRARIAN, modify this skeleton to point to the DSNNAME needed to invoke LIBRARIAN and remove leading )CM to uncomment //STEPLIB.
- DZ3PSTEP - If Panvalet mode is allowed and a STEPLIB is required for PANVALET, modify this skeleton to point to the DSNNAME needed to invoke PANVALET and remove leading )CM to uncomment //STEPLIB.

- DZ3SORT - If DDNAMEs SORTMESS and SORTLIB are required to be included within the JCL for sort programs at your installations, include these within this skeleton by removing leading )CM to uncomment //SORTMESS and //SORTLIB and verify the accuracy of the DDs provided.
- DCDJOB - ADD needed JOBLIB, PROCLIB or other leading JOB JCL where noted in this skeleton. (See standard JCL used at your installation for these lines.) The JCL added here should be the same JCL needed for all JOBS at your installation. Optionally, these JOBLIB, PROCLIB or other JCL may instead be added individually after )IM DCDJOB lines within the following procs:
1. DZ3OCRF
  2. DCDJCL
- DZ3PANVA - If Panvalet is allowed and supported, verify that the program name DZ3APANR used for executing Panvalet is correct and check if a region parameter is required.
- DZ3LIBRA - If Librarian is allowed and supported, verify that the program name DZ3ALIBR used for executing Librarian is correct. Check if a region parameter is required and check if the PARM field is correct. See modifying panel DZ3Z0806 under **Panels** for forcing users to use EXTRACT only when using Librarian.
- DZ3PDF - This SLIB creates an Acrobat Adobe File in binary format to be downloaded to the PC with a Digital Documentation File for a single COBOL program. The //SYSEXEC concatenation list needs to be looked at to ensure that the 4 REXX modules were copied into it from the CNTL file. See 'Step 3 - Modifying Control/DCD PROCs' in this section. If the 4 REXX modules were not copied there, then do here.

#### Changing UNIT=SYSDA in Skeletons

If UNIT=SYSDA is not valid, make changes for SYSDA globally in the following procs:

- |             |             |           |
|-------------|-------------|-----------|
| 1. DZ3PANVA | 4. DZ3RMBRF | 7. DCDJCL |
| 2. DZ3LIBRA | 5. DZ3OCRF  |           |
| 3. DZ3MBRFE | 6. DZ3PDF   |           |

#### **Testing DCD ISPF Panels Prior to Permanent Installation**

Concatenate the five PDSs into a copy of the TSO LOGON USER PROC. Re-log using the newly created PROC. Go into Dialog Test and invoke the DCD panels using the name DZ3DCD. With all the numerous options, control statements and features that could be tested, a full test of all features is impractical. Therefore, each installer should satisfy himself/herself that the panels are working after submitting at least one batch job in each of the six main options from the main panel DZ3DCD. See next page for instructions on doing this.

(Continued ...)



**Steps for testing 6 main options\* - Expect Condition Code Zero**

On the first option, 'Build a Digital Documentation Manual', do the following:

- Do 2, 'Change COPYLIBs...', Enter **userid.CDCD.CNTL** on top line for this test (this will add extra needed COPYLIB for all tests here)
- Do 4, 'Modify File for ANALYSIS, SUMMARY...' to set Summary file and provide USERID.
- Do 6, 'Edit JOB Statement' (this will change JOB Statement for all tests here)
- Change the Program to: **COBOLPGM**
- Change the COBOL PDS to: **userid.CDCD.CNTL**
- Submit JOB by pressing **ENTER** (*Initial execution requires asks for **USERID***)

On the second option, 'Build COBOL Program with F &operand...', do the following:

- Submit JOB by pressing **ENTER**

On third option 'Save COBOL Program without F &operand...', do the following:

- Submit JOB by pressing **ENTER**

On fourth option, 'Analyze a COBOL Application', do the following:

- Do 1, Reports and turn on CALL Analysis and turn off all other reports
- Do 2, **Enter C** (Select from Partitioned Data Set) and press **ENTER**
  - Enter **userid.CDCD.CNTL** and press **ENTER**
    - Enter two names **COBOLPGM** and **COBOLPG2**, and press **ENTER**
- Do S, or enter S to submit job, then press **ENTER**

On fifth option, 'Abend Analysis for Data...', do the following:

- Change program to **INVPROG3**
- Enter **1** for 'Specify SELECT IF...'
- Enter **1** for SELECT IF
- Enter letter **I** for SELECT IF built here in ISPF
- Enter **INV-M-ALT-DEPT-NBR** (check spelling), then press **ENTER**
- Enter **S** to submit job and press **ENTER**

On sixth option 'Verify JCL Accuracy within...', do the following:

- Enter **D** for 'Produce DDNAME/DSNAME report, then press **ENTER**
- Enter **1** for 'Choose Reports...' and press **ENTER**
- Enter all **Y's** in 5 places and press **ENTER**
- Enter **2** for 'Specify Input' and press **ENTER**
- Enter letter **I** for 'Individual members...'
  - Enter two names **DCDCOBOL** and **TDCDCOBO**, and press **ENTER**
    - Enter **userid.CDCD.CNTL**, and press **ENTER**
- Enter **S** to submit job and press **ENTER**

**\*Do Step 1 first!** It builds a **COPYLIB** and **JOB** statement for Steps 3 thru 6. Then do Step 2 before doing step 3, as it builds input needed for Step 3.

### **Permanent Installation of the ISPF Panels**

Permanent installation may be done after the DCD members from the five PDSs have been made available within the appropriate DD names within the user's TSO LOGON USER PROC. For permanent installation, find an appropriate selection panel that currently exists with room for at least one entry and add a line like the following to that panel:

%n     +Control/DCD for COBOL Maintenance

where n is a letter or number and then add an appropriate entry in the) PROC section of that panel as follows:

n,'CMD(DZ3DCD1)'

Re-test to see that the DZ3DCD panel is brought in correctly.

### **Step 7 – Providing initial information to users**

One file transferred to PC from the FTP via download is the:

1. Control DCD - Quick Start Guide

This guide should be distributed to potential or existing users of Control/DCD along with how to access Control/DCD under ISPF at your installation.

- Addendum 1 -

## **Control/DCD CNTL file**

Control/DCD.CNTL contains the following members:

**REXX members:** (for use in IKJEFT1B in SLIB DZ3PDF, for creating PDF file for Digital Documentation Manual)

1. TXT2PDF (These four members must be copied using ISPF in =3.3 to
2. TXT2PDFD a library in your SYSEXEC or SYSPROC concatenation.)
3. TXT2PDFI
4. TXT2PDFX

### **Utility files:**

1. DCDCNTRL Password control record. This must be modified before doing any testing.
2. CSEHELP Help file that is inserted into EDITFILE output members.
3. DDMHELP Help file that is inserted into ANALYSIS output members.
4. SELECT A file used in testing Abend Analysis with test program COBOLPGM.
5. CTLDEBUG A file to match same new file in CSE PROC. Reserved for Marble use.

### **PROCs:**

1. CSE PROC for executing Control/SE.
2. ISOLATE PROC for isolating COBOL source from built COBOL file with added analysis.
3. DCDCOBOL Sample PROC for executing Control/DCD to produce Analysis on Multiple COBOL Programs.
4. LIBCOBOL Sample PROC for executing Control/DCD to produce Analysis on Multiple COBOL programs, taking the source programs from a Librarian library.
5. PANCOBOL Sample PROC for executing Control/DCD to produce Analysis on Multiple COBOL programs, taking the source program from a Panvalet library.
6. DCDFETCH Sample PROC for PDS Member Fetcher. See Table of Contents in Section for Analysis on Multiple COBOL programs.
7. DCDJCL Sample PROC for producing JCL PROC Analysis Reports from JCL PROCs.

(continued next page)

**Test JCL:**

1. TCSE            Testing Control/SE
2. TDCDCOBO    Testing DCDCOBOL PROC for producing Analysis on Multiple COBOL programs
3. TDCDJCL      Testing DCDJCL PROC for producing JCL PROC Analysis
4. TFETCH        Testing DCDFETCH PROC for fetching members

**4 Test PROGRAMs and 7 COPY members (accessed by this test program)**

1. TESTPROG    **Test COBOL program** for testing CSE and ISOLATE PROC
2. CDNTABLE    A test COPY member used by test INVPROG3
3. COBOLPGM    Small COBOL program for testing (**Analysis on Multiple COBOL programs**)
4. COBOLPG2    Small COBOL program for testing (**Analysis on Multiple COBOL programs**)
5. DATADIV2    A test **COPY member** used by test program TESTPROG
6. FILEINFO     A SECOND test **COPY member** used by test program TESTPROG
7. INVPROG3    Small COBOL program for testing (Abend Analysis)
8. PROCDIV1    A THIRD test **COPY member** used by test program TESTPROG
9. PRDIV2       A FOURTH test **COPY member** used by test program TESTPROG
10. INVMAS1    A test COPY member used by test programs COBOLPGM and INVPROG3
11. SYS1RECD    Reserved for advanced use with SRA option

Four of the members listed first (**TXT2PDF**, **TXT2PDFD**, **TXT2PDFI** and **TXT2PDFX**) must be copied using ISPF in =3.3 to a library in your SYSEXEC or SYSPROC concatenation. See ‘Step 3 – Modify Control/DCD PROCs’ heading in this manual.

Seven of the members are **PROCs**, which should be tailored for use at the user’s installation as shown on the previous page.

Four of the members (**TCSE**, **TDCDCOBOL**, **TDCDJCL**, and **TFETCH**) are JCL for testing four of the **PROCs**, also shown on the previous page.

For testing the Librarian or Panvalet **PROCs**, consult the examples mentioned under, “**Step 5 - Testing Control/DCD**”, and fill in necessary information for Librarian or Panvalet data set name, valid COBOL program name and Librarian password. Within Librarian or Panvalet **PROCs**, if **COPY** members are present, include a **//DCD.COPYLIB DD** as shown in JCL Example 1 and 2 of the **Analysis on Multiple COBOL programs** section.

- Addendum 2 -

Control/DCD  
INSTALLATION ADDENDUM  
TO BE INSERTED HERE

This Addendum is provided separately from Marble Computer.

Contact us at [support@marblecomputer.com](mailto:support@marblecomputer.com) if you do not have this addendum.

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Release 2.3

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