

CABLE CONNECTING DOCUMENTS

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|---|---|
| 1. <u>GENERAL</u>   | Installers Cross Reference Listing, one per order   |
| 1.1 <u>Scope of Section</u>   | SWF Multi Use Cross Reference Listing, one per order (On ABRIDGED version only)   |
| 1.1.1 This section covers the content of the Cable Connecting Documents.  | CCD Cover Sheet, one per frame or work location   |
| 1.2 <u>General Information</u>  | SWF (Standard Wiring Format), one per designated cable end. On ABRIDGED output one per order with headings only for other appearances.  |
| 1.2.1 The CCDs are computer generated documents providing terminating information, in a tabular format, for both ends of each cable whenever possible specified in the switch board cable specification. Terminating information not available due to variable job condition will be identified for manual analyzation. | OCF (Ordered Cable Format), one per non-designated cable end. (Any of these outputs may consist of more than one page.)   |
| 1.2.2 Several versions are being produced by the regional centers and are described as follows:   |   |
| a. The REGULAR output that provides all available documentation in each book.   |   |
| b. An ABRIDGED output furnishing only one appearance of an SWF in the total output for that order.  |   |
| c. A X-BAR-5 version designed for CCA, (Cable Connecting Analyzation) organization at regional centers.   |   |
| 1.2.3 Documents are being suppressed on orders when total equipment does not have connecting data (SWFs) in file.   |   |
| 1.2.4 The CCD package received on job-site will consist of:   |   |
| Manifest, Four per order number<br>Three per order number<br>(XB5 only)   |   |
| Error report, one per order   |   |
| Job Processing Statistics, one per order  |   |
|   | 2. <u>MANIFEST</u>  |
|   | 2.1 The Manifest is a computer generated document which provides frame and work location information which can be used as a checklist of the number of Cover Sheets or books, a guide for allocating manpower, and a record of wiring progress. |
|   | 2.2 The Manifest arranges all the other documents of the CCD output into books for each frame and other locations where wire ends are terminated. Each book consists of a Cover Sheet and all the SWF and OCF sheets for one location.          |
|   | 2.3 The Manifest (Figure 1) provides the following information:   |
|   | 2.3.1 <u>Top Line</u>   |
|   | DATE - Program run date.  |
|   | CCD MANIFEST - Title.   |
|   | ORDER - Job order number.   |
|   | PAGE - Number of page.  |

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### 2.3.2 Column Headings

BOOK NO. - Number provided for connecting book associated with frame or work location.

FRAME OR LOCATION -

CABLE QTY. - Total number of cables terminating at a location.

P QTY. - Total number of P-Wires terminating at a location.

WIRE ENDS - Total number of wire ends terminating at a location.

ESTIMATED HOURS

200 300 - To be used for job planning.

ASSIGN TO - Space provided to record the installers name who is performing the wire operations.

DATE COMP. - Space provided to record the completion date of the wiring operation.

### 2.3.3 Bottom of Manifest Sheet

TOTAL CABLE END - Number of cable ends.

TOTAL P-WIRE END - Number of P-Wire ends.

TOTAL WIRE ENDS - Total number of wire ends in each end of switchboard cable and P-Wire ends.

THIS PRINTING INCLUDES INFORMATION FOR ORDER 40767 SPEC LOWEST APPX. - HIGHEST APPX. - The associated cabling spec with the lowest appendices number and the highest appendices number included in this package will be listed under this title.

PRINTED FROM TAPE(S) PRD14.CE16  
PRODPRT.G0216V00 - Indicates print tape number - questions pertaining to output should refer to this number.

## 3. ERROR REPORT

3.1 The error report is the result of a mechanized check indicating errors in the CCD output. Two copies are printed, one for the installer and the other is sent back automatically to the Engineer for immediate action. Corrective measures will be taken by the Engineer to provide new documents to the installer under separate cover. E1 is not considered an engineering error and does not appear on error report.

3.2 The following information will always appear on the error report. (See Figure 2.)

### 3.2.1 Title

a. Cable Connect System

- b. Error Report for Order #XXXXX
- c. Date - (Program run date)
- d. Page Number

### 3.2.2 Column Headings

- a. Run #
  - b. Cable Spec
  - c. SWF Entry
  - d. Error Code
  - e. Error or Warning Text
  - f. Books - From, To
- Error Code Messages (E=Error, W=Warning)

- a. E1 OCF .... NON STD SWITCHBOARD CABLE, LEAD QUANTITY AND COLOR PATTERN UNKNOWN - Indicates that the system cannot identify the RM Arbitrary Number shown in the "C" section of the Cable Running List. No cable or wire codes will be shown and the column designated "COLOR" will be blank.

When doing the analysis of this OCF, cross-reference information for the Arbitrary RM Number can be obtained for the last few pages of the "C" section. Using this information the OCF may be completed by specifying the associated colors as necessary.

- b. E2 SWF INCOMPLETE - DETAIL MISSING - Indicates data file is incomplete for this SWF Number.
- c. E3 TOO FEW LEADS IN CABLE 809A FOR SWF - Indicates code specified has not enough leads available in cable indicated for number of leads required.
- d. E4 TOO FEW PAIRS IN CABLE 254A FOR SWF - Indicates code specified has not enough pairs available in cable indicated for number of pairs required.
- e. E5 SWF INCOMPLETE & NON STD. CABLE 268A - Indicates a cable code not recognized by the computer.
- f. W6 CA CODE NOT =, SWF 810A, RUN LIST 809A - Indicates that the SWF Cable Code is not the same code as the code of cable specified on the Running List.
- g. E8 CA DSG NOT =, SWF VU14, RUN LIST VU24 - Indicates that the cable designation provided from the data bases does not match the cable designation on the cable running list.
- h. E9 CA DSG NOT =, SWF XC5, RUN LIST XC4, Same as E8 and also indicates that cable codes do not agree (E8 + W6 = E9).
- i. N NO PROPER SWF AVAILABLE FOR CA DSG VY36 - Indicates that the Regional Engineer could not find an SWF available for this designated cable and has placed an "N" for SWF entry number.
- j. "BLANK" NO SWF WAS ORDERED FOR CA DSG EN55 - Indicates that the Regional Engineer did not order an SWF for this

designated cable.

1. "BLANK" SWF # DOES NOT EXIST - If the wrong combination of numbers and letters appear in the "SWF ENTRY" column and the computer does not find associated information in data file, this error message will be printed.

3.2.3 Bottom of Error Report

THIS PRINTING INCLUDES INFORMATION FOR ORDER 40767 SPEC LOWEST APPX. - HIGHEST APPX. - The associated specs with the lowest appendices number and the highest appendices number included in this package will be listed under this title.

THIS REPORT CORRESPONDS TO CCD REPORTS PRINTED FROM PRD14.CE16 PRODPRT.G0216V00 (Print tape information.) Questions pertaining to output should refer to this number.

4. JOB PROCESSING STATISTICS AND FILES USED FOLLOW:

(See Figure 3)

- a. \*\*\* BEGIN WE161500 - VERSION 07-23-82  
\*\*\* (Number of the program and date.)
- b. RUN 09-13-83 (Date program was run.)
- c. PRODUCTION START 40767 3  
D1222C050G00461113203209##G1929 (Order no., System Series and Volume Serial Number)
- d. WE162000 - VERSION 06-20-83 (Number of next program and last update.)
- e. SNAP STATISTICS, DSG RUNS = 01216,  
OVERALL % = 086, NO SWF IN % = 068, ERRORS AVOIDED = 00368 - (Indicates SWF Number Automatic Posting results.)
- f. SWFS ABRIDGED TO H= 143 (Quantity of SWFs converted to headers only)
- g. CCD20200 - VERSION 07-26-83 (Production program and last update.)
- h. CCD20700 - VERSION 08-10-82 \*\*\* RUN 09-13-83 (Production program and last update.)
- i. PRD14.WE16 CB LINDEX.G0032V00 (YYDDD) = 00000 (VOL SER) = PVL209 (Cable Index file with volume serial no.)
- j. CCD30100 - VERSION 10-08-82 (Final production program and last update.)

THE ABOVE INFORMATION MAY BE NEEDED FOR PROBLEM INVESTIGATION

\*\*\*\*\* END OF ERROR REPORT \*\*\*\*\*

5. INSTALLERS CROSS REFERENCE LISTING

5.1 The Cross Reference Listing Sheet (see Figure 4 & 5) is a list of run numbers in numeric order in the same sequence as the

cabling spec. It provides an efficient cross reference between the cabling specification and the CCD books.

5.2 The Installer's Cross Reference Table has the following information.

5.2.1 Top Line

DATE - Program run date

INSTALLERS CROSS REFERENCE LISTING  
ORDER NUMBER XXXXX - Title

PAGE -

5.2.2 Column Heading

RUN NUMBER - Order run number specified in cabling spec.

SPEC NBR - Cabling spec number

APPX NBR - Appendices number shown only when cable has been added or changed on an appendix.

FROM BOOK - Number of a book produced for that order where the cable or wire will appear (originating end).

TO BOOK - Number of a book produced for that order where the cable or wire will appear (terminating end).

CABLE CODE - Code of the cable listed.

CABLE DESIG - Designation of cable involved.

SWF NUMBER - The associated SWF Number if available will be listed. when SWF number is not available action taken by the computer will be shown by the following entries:

- "C" - COAX OR EQUIPPED AT BOTH ENDS WITH CONNECTORS, PLUGS JACKS OR TERMINAL LUGS
  - "H" - RUNNING LIST (HEADINGS) INFO ONLY WILL BE PRINTED
  - "R" - DESIGNATED CABLE RUNS WITHIN NON "SWF" IMPLEMENTED PRODUCT LINES THAT DO NOT HAVE SWFS AVAILABLE
  - "S" - SUPPRESSED OUTPUT - COVER SHEET INFO ONLY WILL BE PRINTED (EXAMPLES - POWER CABLE, COSMIC DF CABLES)
- When engineering, manually over rides the CCD System for these cables than the following entries can appear:
- "N" - OTHER ONE CHARACTER ENTRIES DO NOT APPLY AND A "SWF" NUMBER SHOULD BE AVAILABLE BUT DOES NOT EXIST
  - "X" - CAUSES THE CCD SYSTEM TO PRINT AN "OCF" TYPE SHEET FOR A DESIGNATED CABLE RUN

SNAP STATUS - SNAP (SWF Number Automatic Posting) is a computer program that selects SWF numbers and also verifies manual posted

numbers.

Explanation of SNAP STATUS entries are as follows:

- " " - SNAP NOT USED OR NON-DESIGNATED CABLE
- "C" - SWF ENTRY CHANGED BY SNAP - NEW ENTRY SHOWN
- "F" - VALIDATION FAILURE - SWF DOES NOT EXIST IN FILE
- "I" - SWF ENTRY INSERTED BY SNAP - NO PRIOR SWF ENTRY
- "M" - MULTIPLE SWFS EXIST FOR DESIGNATION - OR SWF EXISTS IN FILE BUT DESIGNATION OR CABLE CODE DO NOT MATCH EXACTLY; OLD ENTRY REMAINS.
- "V" - PROVIOUS SWF ENTRY VERIFIED BY SNAP
- "\*\*" - SNAP UNABLE TO SELECT AN SWF ENTRY - NO PRIOR SWF ENTRY

Two Columns \_\_\_\_\_ area for marking, to be used as needed by the installer.

6. SWF MULTI USE CROSS REFERENCE LISTING

ABRIDGED only

6.1 The SWF Multi Use Cross Reference Listing sheet (see Figure 6) is a list sorting the SWF number in ascending order (numeric/alpha/numeric). This list will only appear in the ABRIDGED version.

6.2 The listing has the following information:

Top Line Date-Program run date

SWF MULTI USE CROSS REFERENCE LISTING  
ORDER NUMBER XXXXX - Title

PAGE \_\_\_\_\_

Column Headings

- RUN NUMBER - Run number specified in cabling spec, (not necessarily in numeric order)
- SPEC NBR - Cabling spec number
- APPX NBR - Appendices number shown only when cable has been added or changed on an appendix
- FROM BOOK - Number of a book produced for that order where the cable or wire will appear (originating end.)
- TO BOOK - Number of a book produced for that order where the cable or wire will appear (terminating end)
- CABLE CODE - Code of the cable listed.

- CABLE DESIG - Designation of cable involved
- SWF NUMBER - The 1st appearance of a SWF number will be shown for this order only. Succeeding like SWF numbers are replaced with the designation "H" indicating header only. If "S" appears output is suppressed and the only reference to the cable will appear on the COVER sheet.

7. CCD COVER SHEET

7.1 As previously stated, all the terminations for each frame are collected into a book. A book is comprised of a Cover Sheet(s) and all the SWF and OCF Sheets for a specified frame.

7.1.1 The Cover Sheet(s) may be used as a check list of all cables run to a specific frame, and as a method of recording who or when specific operations were performed.

7.2 The Cover Sheet contains the following information (See Figure 7).

7.2.1 Top Line

DATE - Program run date.

CCD COVER SHEET - Title.

PAGE -

7.2.2 Header

FRAME - Name of frame.

BOOK NUMBER - A number assigned to a frame or work location.

ORDER - Job order number.

CABLE IN LOC. \_\_\_\_\_

BUTT & STRIP \_\_\_\_\_

LEAD CHECK \_\_\_\_\_

FAN & FORM \_\_\_\_\_

CONN \_\_\_\_\_

On the above, space is provided to record who, or when the operations were performed.

7.2.3 Column Headings

OTHER BOOK - Indicates the book number of the other terminating end.

NOTE

CABLE RUN NUMBER - Same as number printed in cabling spec.

CA SPEC - Cabling spec number in which cable has been listed.

ON PAGE - Number of the page the connecting information can be found.

DROP LOC - Shows the side of frame (viewed from front) and length of cable to be dropped from cable rack. When side of frame is missing, cable dresses down the left side.

CABLE NUMBER - Indicates the number of cables under one run number.

CABLE CODE - Column for code of cable or P-Wire.

SWF ENTRY - CCD STATUS - Date base file number for obtaining connecting information or abbreviations for explaining reasons SWF number not appearing in this column.

CABLE DESIGN. - Designation for standard cables.

ERROR CODE - Type of error on sheets - see Paragraph 3.2.2

#### 7.2.4 Bottom of Cover Sheet

Totals:

- a. WIRE ENDS - Number of wire ends terminating on the frame.
- b. CABLES - Number of cables terminating on the frame.
- c. P-Wire - Number of P-Wire terminating on the frames
- d. NOTE: Used to explain various control symbols

NOTE: Symbols and a blank are used to indicate the amount of analysis required for each specific cable. In addition the originating and terminating end is indicated as follows:

- a. BLANK DENOTES NO ANALYSIS REQUIRED - An SWF can be wired directly from information provided.
- b. \* ONE ASTERISK DENOTES MINOR ANALYSIS - Indicates that on SWF sheets the information is readily available. This information can be related to circuits, with a note indicating assignments, or similar arrangement. Reference to circuit drawings is not required.
- c. \*\* TWO ASTERISKS DENOTE MAJOR ANALYSIS - Indicates that on SWF the standard designated cables require analysis with reference to T-drawings and other drawings. This symbol is also used when

only one end of the cable has been assigned.

- d. # POUND SIGN DENOTES TOTAL ANALYSIS (OCF) - Indicates a job or non-designated cable. The OCF will contain the same information as the cable running list, along with the color codes of the conductors for the type of cable or P-Wire.
- e. ? DENOTES JOB INFO ONLY PROVIDED - Indicates system could not find SWF and an OCF is provided instead.
- f. N DENOTES JOB INFO ONLY PROVIDED - ENGINEERING COULD NOT ORDER A PROPER SWF - Indicates engineering could not find an SWF number for a standard designated cable. An OCF is provided instead.
- g. #S DENOTES OCF SUPPRESSED PAGE RESERVED BUT NOT PRINTED - Indicates OCF work sheet for job assigned or non-designated cables will not appear in this book.
- h. F DENOTES FROM END OF CABLE - Indicates the originating ends.
- i. T DENOTES TO END OF CABLE - Indicates the terminating ends.

7.2.5 THIS COVER SHEET REPORT IS FOR CCD REPORT PAGES 1 THROUGH 10 - Indicates the number of pages of CCD output following the Cover Sheets.

#### 8. STANDARD WIRING FORMAT (SWF)

8.1 The Standard Wiring Format (SWF) (See Figures 8, 9 & 10) is a computer generated document which provides terminating information for a specific run. The following information always appears on SWF Sheets, regardless of degree of analyzation required.

##### 8.1.1 Top Line

RUN NO. - Same as "C" section cable running list run number.

CA SPEC - The specification number of the cable spec.

A & E - The specification number that ordered the equipment at which the terminations are being made.

CA CODE - Code number of cable, wire, etc.

GAUGE - Size of wire being connected.

##### 8.1.2 Heading

SWF XXX-XXXX ISS XXX - File number and issue used to identify stored data.

SECTION 01 of 01 - Indicates number of binders in the cable.

SWF CA DES - An alpha-numeric identifier for standard designated cable to be terminated.

FROM & TO: Information:

- a. Frame or equipment name
- b. Frame or equipment abbreviation
- c. Equipment termination
- d. T-drawing
- e. J-drawing

8.1.3 Column Headings - These column headings may vary according to the application to different systems. Columns A, B, G, H & J are usually the same from all systems.

- |    |                    |  |
|----|--------------------|--|
| A. | NT                 | - Note Column, associated notes are printed below cable information.       |
| B. | LEAD DESIG.        | - Designation of lead.   |
| D. | SHIELD             | - Number of the shield in which cable is to be run if required.            |
| E. | TYPE CPNT          | - Type of apparatus at which terminations are made.                        |
| F. | CPNT DESIG.        | - Designation of apparatus of which terminations are made.                 |
| G. | TERM               | - The terminal number on which the lead is to be terminated.               |
| H. | BINDER XX<br>COLOR | - Color of binder and color of the leads.                                  |
| J. | TERM               | - The terminal number at which the far end of the conductor is terminated. |
| K. | CPNT DESIG.        | - Designation of terminating apparatus at far end of cable.                |
| L. | TYPE CPNT          | - Type of terminating apparatus at far end of cable.                       |

#### 8.1.4 Bottom of Cable Information

Notes - Associated notes referenced from note column (printed only when required).

8.2 Degree of Analyzation Required - On some SWF outputs analyzation is required by the installer before using the document for connecting. Cover Sheet indicates the amount of analyzation and examples of these SWF Outputs are as indicated.

8.2.1 Figure 8 is an example of an SWF which does not require any analysis effort (signified on the Cover Sheet with a blank in the note column).

8.2.2 Figure 9 is an example of an SWF which requires minor analysis effort (signified by an asterisk on the Cover Sheet).

8.2.3 Figure 10 is an example of an SWF which require major analysis effort (Signified by a double asterisk on the Cover Sheet).

Terminate from Left Side - On SWF Sheets, terminations appearing on left side are always associated with equipment for which the book is generated for.

#### 9. ORDERED CABLE FORMAT (OCF)

The Ordered Cable Format (OCF) sheet is a computer generated document which is generated when an SWF is not available for the cable and are provided as a work sheet for the installer.

9.1 These sheets require complete analysis as indicated by a pound sign on the Cover Sheet. Lines are provided on the OCF to show the installer areas where information is missing. The number of lines to be filled in will vary with the number of leads used.

The following information is provided on the OCF Sheet (See Figure 11).

##### 9.1.1 Top Line

RUN NO. - Same as "C" section cable running list run number.

CA SPEC - The specification number of the cabling spec.

A & E - Apparatus and equipment specification that ordered the equipment at which the terminations are being made.

CA CODE - Code number of cable, wire, etc.

GAUGE - Size of wire being connected.

##### 9.1.2 Headings

ORDERED CABLE FORMAT (OCF) FOR NON-DESIGNATED CABLE - Indicates that data base does not have information for connecting this cable. This usually occurs when a special size cable is ordered for the job.

FROM & TO Information:

- a. Frame or equipment abbreviation.
- b. Equipment termination.
- c. T-drawing and figure number at "from" end.

9.1.3 Column Headings - The only generated information in the column is the binder and conductor color in column H.

- |    |             |   |
|----|-------------|---|
| A. | NT          | - Note column, associated notes reference column that can be used by the analyzer to explain special lead problems. |
| B. | LEAD DESIG. | - Designation of a lead.  |

- G. TERM - The terminal number on which the lead is to be terminated.
- H. BINDER XX COLOR - Color of binder and color of the lead.
- J. TERM - The terminal number on which the far end of the conductor 11.3 is terminated.

ERROR CODE - (See error code messages Paragraph 3.23). The request mode will be mechanically checked. E8, E9 and W6 error code will be excluded.

### Request Mode Output (Figure 13)

See Paragraph 8 for detail information of contents.

The blue sheet and the green sheet are identical with the from end of cable always on the left side. Terminating end of cable or wire is indicated at bottom of each sheet in red printing as follows:

- a. BLUE SHEET - CONNECT FROM LEFT SIDE
- b. GREEN SHEET - CONNECT FROM RIGHT SIDE

## 10. APPENDICES

All added cables on a appendix will be processed through the "CCD" system.

If an appendix is processed with the initial specification, the cables associated with the appendix will be included with the initial "CCD" package.

If appendix is processed after the main order, a new manifest, Cover Sheet, SWF, and OCF will be provided; the same as a new order.

Cables deleted on appendices will not appear in the "CCD" package.

The appendix number and associated cabling spec included in a CCD package will appear at the bottom of the "Manifest" and "Error Report" Sheets.

Engineering Planning Manager  
(Installation)

## 11. REQUEST MODE OUTPUT

Reason for Reissue:  
Revised to include ABRIDGED version

This type of output is generated by a request from the Engineer. The SWFs that are produced are individual sheets and are sent to job site by separate mail. These are usually produced to correct errors in the production output.

11.1 Type of Paper - When the request mode output is printed on two part NCR paper (SD-97.1801), the top sheet is blue and bottom sheet is green. The pin feed is not removed from the paper and the two sheets are held together by a glue line on the left pin feed.

### 11.2 List of SWF Requests (Figure 12)

#### 11.2.1 Top Line

DATE - Program run date.

DEPT - Engineers department number.

FOR ORDER - Job order number that these individual SWF Sheets are ordered for.

#### 11.2.2 Column Headings

CABLE RUN NUMBER - Number printed in cabling spec associated with cable listed.

CA SPEC - Cabling spec number in which cable has been listed.

ON PAGE - Cabling spec page number.

SWF FILE NUMBER - SWF Number ordered and printed.

CABLE DESIG. -