GnuCOBOL Sample Programs

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This manual documents GnuCOBOL 3.2, 16 January 2022 at 17:40 GMT. build.

Table of Contents

1. FileStat-Msgs

The FileStat-Msgs.cpy copybook contains an EVALUATE statement to translate the two-digit file status codes that may be generated by file I/O statements.

The copybook assumes that the file status data item name is "STATUS" and the error message data item is named "MSG". By using the COPY statement's REPLACING clause, however, you may use the data names you wish, as follows:

```
COPY FileStat-Msgs
    REPLACING STATUS BY file-status-data-item-name
              MSG    BY error-message-data-item-name
```

Here's the FileStat-Msgs.cpy copybook:

```
EVALUATE STATUS
      WHEN 00 MOVE 'SUCCESS               ' TO MSG
      WHEN 02 MOVE 'SUCCESS DUPLICATE     ' TO MSG
      WHEN 04 MOVE 'SUCCESS INCOMPLETE    ' TO MSG
      WHEN 05 MOVE 'SUCCESS OPTIONAL      ' TO MSG
      WHEN 07 MOVE 'SUCCESS NO UNIT       ' TO MSG
      WHEN 10 MOVE 'END OF FILE           ' TO MSG
      WHEN 14 MOVE 'OUT OF KEY RANGE      ' TO MSG
      WHEN 21 MOVE 'KEY INVALID           ' TO MSG
      WHEN 22 MOVE 'KEY EXISTS            ' TO MSG
      WHEN 23 MOVE 'KEY NOT EXISTS        ' TO MSG
      WHEN 30 MOVE 'PERMANENT ERROR       ' TO MSG
      WHEN 31 MOVE 'INCONSISTENT FILENAME ' TO MSG
      WHEN 34 MOVE 'BOUNDARY VIOLATION    ' TO MSG
      WHEN 35 MOVE 'FILE NOT FOUND        ' TO MSG
      WHEN 37 MOVE 'PERMISSION DENIED     ' TO MSG
      WHEN 38 MOVE 'CLOSED WITH LOCK      ' TO MSG
      WHEN 39 MOVE 'CONFLICT ATTRIBUTE    ' TO MSG
      WHEN 41 MOVE 'ALREADY OPEN          ' TO MSG
      WHEN 42 MOVE 'NOT OPEN              ' TO MSG
      WHEN 43 MOVE 'READ NOT DONE         ' TO MSG
      WHEN 44 MOVE 'RECORD OVERFLOW       ' TO MSG
      WHEN 46 MOVE 'READ ERROR            ' TO MSG
      WHEN 47 MOVE 'INPUT DENIED          ' TO MSG
      WHEN 48 MOVE 'OUTPUT DENIED         ' TO MSG
      WHEN 49 MOVE 'I/O DENIED            ' TO MSG
      WHEN 51 MOVE 'RECORD LOCKED         ' TO MSG
      WHEN 52 MOVE 'END-OF-PAGE           ' TO MSG
      WHEN 57 MOVE 'I/O LINAGE            ' TO MSG
      WHEN 61 MOVE 'FILE SHARING FAILURE  ' TO MSG
      WHEN 91 MOVE 'FILE NOT AVAILABLE    ' TO MSG
    END-EVALUATE.
```

2. COBDUMP

COBDUMP is a useful little utility subroutine to produce a formatted hexadecimal and character dump of the data area passed to it.

If you follow the GnuCOBOL forums, you've undoubtedly heard about the CBL_OC_DUMP subroutine that was the winning entry in a GnuCOBOL programming contest. It's a great tool for producing data dumps, and it's now included in the official GnuCOBOL distributions.

For now though, I'll keep using my good ol' "COBDUMP" routine. It's been my travelling companion from COBOL job to COBOL job since 1971. Here it is, all tuned up for GnuCOBOL, with new tires and a fresh coat of paint.

In addition to general GnuCOBOL concepts, this program provides a useful demonstration of the following:

- Coding a GnuCOBOL subroutine
- Using `USAGE POINTER` data items
- Using the `ANY LENGTH` data item attribute
- Coding for an `OPTIONAL` subprogram argument
- Using the `NUMBER-OF-CALL-PARAMETERS` special register
- Using the `C$PRINTABLE` built-in system subroutine

The program source and cross-reference listing, produced using the GnuCOBOL Interactive Compiler front-end (GCic.cbl, one of the sample programs included here), begins on the next page.

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                 C:/Users/tda010/Documents/Programs/Samples/COBDUMP.cbl
Line    Statement                                                             Page: 1
====== =================================================================================
    1         >>SOURCE FORMAT IS FIXED
    2          IDENTIFICATION DIVISION.
    3          PROGRAM-ID.   COBDUMP.
    4         *>**************************************************************
    5         *> This is an OpenCOBOL subroutine that will generate a        **
    6         *> formatted Hex/Char dump of a storage area.  To use this     **
    7         *> subroutine, simply CALL it as follows:                      **
    8         *>                                                             **
    9         *> CALL "COBDUMP" USING <data-item>                            **
   10         *>                    [ <length> ]                            **
   11         *>                                                             **
   12         *> If specified, the <length> argument specifies how many      **
   13         *> bytes of <data-item> are to be dumped.  If absent, all of   **
   14         *> <data-item> will be dumped (i.e. LENGTH(<data-item>) will   **
   15         *> be assumed for <length>).                                   **
   16         *>                                                             **
   17         *> >>> Note that the subroutine name MUST be specified in  <<< **
   18         *> >>> UPPERCASE                                          <<< **
   19         *>                                                             **
   20         *> The dump is generated to STDERR, so you may pipe it to a    **
   21         *> file when you execute your program using "2> file".         **
   22         *>                                                             **
   23         *> AUTHOR:      GARY L. CUTLER                                 **
   24         *>                                                             **
   25         *> NOTE:        The author has a sentimental attachment to     **
   26         *>              this subroutine - it's been around since 1971 **
   27         *>              and it's been converted to and run on 10 dif- **
   28         *>              ferent operating system/compiler environments **
   29         *>                                                             **
   30         *> DATE-WRITTEN: October 14, 1971                             **
   31         *>                                                             **
   32         *>**************************************************************
   33         *>  DATE   CHANGE DESCRIPTION                                  **
   34         *> ====== =================================================== **
   35         *> GC1071 Initial coding - Univac Dept. of Defense COBOL '68   **
   36         *> GC0577 Converted to Univac ASCII COBOL (ACOB) - COBOL '74   **
   37         *> GC1182 Converted to Univac UTS4000 COBOL - COBOL '74 w/     **
   38         *>        SCREEN SECTION enhancements                         **
   39         *> GC0883 Converted to Honeywell/Bull COBOL - COBOL '74        **
   40         *> GC0983 Converted to IBM VS COBOL - COBOL '74                **
   41         *> GC0887 Converted to IBM VS COBOL II - COBOL '85             **
   42         *> GC1294 Converted to Micro Focus COBOL V3.0 - COBOL '85 w/   **
   43         *>        extensions                                          **
   44         *> GC0703 Converted to Unisys Universal Compiling System (UCS) **
   45         *>        COBOL (UCOB) - COBOL '85                            **
   46         *> GC1204 Converted to Unisys Object COBOL (OCOB) - COBOL 2002 **
   47         *> GC0609 Converted to OpenCOBOL 1.1 - COBOL '85 w/ some COBOL **
   48         *>        2002 features                                       **
   49         *> GC0410 Enhanced to make 2nd argument (buffer length)        **

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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                   2014/03/27
                                 C:/Users/tda010/Documents/Programs/Samples/COBDUMP.cbl
Line   Statement                                                              Page: 2
====== =================================================================================
  50        *>        optional                                        **
  51        *> GC0211 Ported to IBM Enterprise COBOL                  **
  52        *> GC0612 Updated for OpenCOBOL 2.0                       **
  53        *>*************************************************************
  54         ENVIRONMENT DIVISION.
  55         CONFIGURATION SECTION.
  56         REPOSITORY.
  57             FUNCTION ALL INTRINSIC.
  58         DATA DIVISION.
  59         WORKING-STORAGE SECTION.
  60         01  WS-Addr-PTR                       USAGE POINTER.
  61         01  WS-Addr-NUM REDEFINES WS-Addr-PTR
  62                                               USAGE BINARY-LONG.
  63
  64         01  WS-Addr-SUB                       USAGE BINARY-CHAR.
  65
  66         01  WS-Addr-Value-NUM                 USAGE BINARY-LONG.
  67
  68         01  WS-Buffer-Byte-CHR.
  69             05 WS-Buffer-Byte-NUM             USAGE BINARY-CHAR.
  70
  71         01  WS-Buffer-Length-NUM             USAGE BINARY-LONG.
  72
  73         01  WS-Buffer-SUB                     PIC 9(4) COMP-5.
  74
  75         01  WS-Hex-Digit-TXT VALUE '0123456789ABCDEF'.
  76             05 WS-Hex-Digit-CHR               OCCURS 16 TIMES
  77                                               PIC X(1).
  78
  79         01  WS-Nibble-SUB                     PIC 9(1) COMP-5.
  80
  81         01  WS-Nibble-Left-SUB               PIC 9(1) COMP-5.
  82
  83         01  WS-Nibble-Right-SUB              PIC 9(1) COMP-5.
  84
  85         01  WS-Output-Detail-TXT.
  86             05 WS-OD-Addr-TXT.
  87                10 WS-OD-Addr-Hex-CHR          OCCURS 8 TIMES PIC X.
  88             05 FILLER                         PIC X(1).
  89             05 WS-OD-Relative-Byte-NUM        PIC Z(3)9.
  90             05 FILLER                         PIC X(1).
  91             05 WS-OD-Hex-TXT                   OCCURS 16 TIMES.
  92                10 WS-OD-Hex-1-CHR             PIC X.
  93                10 WS-OD-Hex-2-CHR             PIC X.
  94                10 FILLER                      PIC X.
  95             05 WS-OD-ASCII-Data-TXT.
  96                10 WS-OD-ASCII-CHR             OCCURS 16 TIMES
  97                                               PIC X.
  98

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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                           2014/03/27
                                       C:/Users/tda010/Documents/Programs/Samples/COBDUMP.cbl
Line    Statement                                                                    Page: 3
====== ==========================================================================================
   99        01  WS-Output-SUB                         PIC 9(2) COMP-5.
  100
  101        >>SOURCE FORMAT IS FREE
  102        01  WS-Output-Header-1-TXT.
  103            05 VALUE '<-Addr-> Byte <--------------- Hexadecimal ''---------------> <---
      - Char ---->' PIC X(80).
  104
  105        01  WS-Output-Header-2-TXT.
  106            05 VALUE '======== ==== ============================================= ======
      ==========' PIC X(80).
  107        >>SOURCE FORMAT IS FIXED
  108
  109        LINKAGE SECTION.
  110        01  L-Buffer-TXT                          PIC X ANY LENGTH.
  111
  112        01  L-Buffer-Length-NUM                   USAGE BINARY-LONG.
  113
  114        PROCEDURE DIVISION USING L-Buffer-TXT,
  115                              OPTIONAL L-Buffer-Length-NUM.
  116        000-Main SECTION.
  117            IF NUMBER-OF-CALL-PARAMETERS = 1
  118                MOVE LENGTH(L-Buffer-TXT) TO WS-Buffer-Length-NUM
  119            ELSE
  120                MOVE L-Buffer-Length-NUM  TO WS-Buffer-Length-NUM
  121            END-IF
  122            MOVE SPACES TO WS-Output-Detail-TXT
  123            SET WS-Addr-PTR TO ADDRESS OF L-Buffer-TXT
  124            PERFORM 100-Generate-Address
  125            MOVE 0 TO WS-Output-SUB
  126            DISPLAY WS-Output-Header-1-TXT UPON SYSERR
  127            DISPLAY WS-Output-Header-2-TXT UPON SYSERR
  128            PERFORM VARYING WS-Buffer-SUB FROM 1 BY 1
  129                    UNTIL WS-Buffer-SUB > WS-Buffer-Length-NUM
  130                ADD 1 TO WS-Output-SUB
  131                IF WS-Output-SUB = 1
  132                    MOVE WS-Buffer-SUB TO WS-OD-Relative-Byte-NUM
  133                END-IF
  134                MOVE L-Buffer-TXT (WS-Buffer-SUB : 1)
  135                  TO WS-OD-ASCII-CHR (WS-Output-SUB)
  136                     WS-Buffer-Byte-CHR
  137                DIVIDE WS-Buffer-Byte-NUM BY 16
  138                    GIVING WS-Nibble-Left-SUB
  139                    REMAINDER WS-Nibble-Right-SUB
  140                ADD 1 TO WS-Nibble-Left-SUB
  141                        WS-Nibble-Right-SUB
  142                MOVE WS-Hex-Digit-CHR (WS-Nibble-Left-SUB)
  143                  TO WS-OD-Hex-1-CHR  (WS-Output-SUB)
  144                MOVE WS-Hex-Digit-CHR (WS-Nibble-Right-SUB)
  145                  TO WS-OD-Hex-2-CHR  (WS-Output-SUB)

====== ==========================================================================================
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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                      2014/03/27
                                  C:/Users/tda010/Documents/Programs/Samples/COBDUMP.cbl
Line    Statement                                                                  Page: 4
====== ================================================================================
   146              IF WS-Output-SUB = 16
   147                  CALL "C$PRINTABLE" USING WS-OD-ASCII-Data-TXT
   148                  DISPLAY WS-Output-Detail-TXT UPON SYSERR
   149                  MOVE SPACES TO WS-Output-Detail-TXT
   150                  MOVE 0 TO WS-Output-SUB
   151                  SET WS-Addr-PTR UP BY 16
   152                  PERFORM 100-Generate-Address
   153              END-IF
   154          END-PERFORM
   155          IF WS-Output-SUB > 0
   156              CALL "C$PRINTABLE" USING WS-OD-ASCII-Data-TXT
   157              DISPLAY WS-Output-Detail-TXT UPON SYSERR
   158          END-IF
   159          EXIT PROGRAM
   160              .
   161      100-Generate-Address SECTION.
   162          MOVE 8 TO WS-Addr-SUB
   163          MOVE WS-Addr-NUM TO WS-Addr-Value-NUM
   164          MOVE ALL '0' TO WS-OD-Addr-TXT
   165          PERFORM WITH TEST BEFORE UNTIL WS-Addr-Value-NUM = 0
   166              DIVIDE WS-Addr-Value-NUM BY 16
   167                  GIVING WS-Addr-Value-NUM
   168                  REMAINDER WS-Nibble-SUB
   169              ADD 1 TO WS-Nibble-SUB
   170              MOVE WS-Hex-Digit-CHR (WS-Nibble-SUB)
   171                TO WS-OD-Addr-Hex-CHR (WS-Addr-SUB)
   172              SUBTRACT 1 FROM WS-Addr-SUB
   173          END-PERFORM
   174              .
```

```
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```

```
GNU COBOL 2.1 23NOV2013 Cross-Reference Listing                          2014/03/27
                                C:/Users/tda010/Documents/Programs/Samples/COBDUMP.cbl
PROGRAM-ID      Identifier/Register/Function   Defn  Where Defined   References      Page: 5
==============  =============================== ====== =============== ========================
COBDUMP         000-Main                         116 PROCEDURE
COBDUMP         100-Generate-Address             161 PROCEDURE        124    152
COBDUMP         L-Buffer-Length-NUM              112 LINKAGE          115    120
COBDUMP         L-Buffer-TXT                     110 LINKAGE          114    118     123
                                                                      134
COBDUMP         NUMBER-OF-CALL-PARAMETERS            PROCEDURE        117
COBDUMP         WS-Addr-NUM                       61 WORKING-STORAGE  163
COBDUMP         WS-Addr-PTR                       60 WORKING-STORAGE   61    123*    151*
COBDUMP         WS-Addr-SUB                       64 WORKING-STORAGE  162*   171     172
COBDUMP         WS-Addr-Value-NUM                 66 WORKING-STORAGE  163*   165     166
                                                                      167*
COBDUMP         WS-Buffer-Byte-CHR                68 WORKING-STORAGE  136
COBDUMP         WS-Buffer-Byte-NUM                69 WORKING-STORAGE  137
COBDUMP         WS-Buffer-Length-NUM              71 WORKING-STORAGE  118*   120*    129
COBDUMP         WS-Buffer-SUB                     73 WORKING-STORAGE  128*   129     132
                                                                      134
COBDUMP         WS-Hex-Digit-CHR                  76 WORKING-STORAGE  142    144     170
COBDUMP         WS-Hex-Digit-TXT                  75 WORKING-STORAGE
COBDUMP         WS-Nibble-Left-SUB                81 WORKING-STORAGE  138*   140*    142
COBDUMP         WS-Nibble-Right-SUB               83 WORKING-STORAGE  139*   141*    144
COBDUMP         WS-Nibble-SUB                     79 WORKING-STORAGE  168*   169*    170
COBDUMP         WS-OD-Addr-Hex-CHR                87 WORKING-STORAGE  171*
COBDUMP         WS-OD-Addr-TXT                    86 WORKING-STORAGE  164*
COBDUMP         WS-OD-ASCII-CHR                   96 WORKING-STORAGE  135*
COBDUMP         WS-OD-ASCII-Data-TXT              95 WORKING-STORAGE  147C   156C
COBDUMP         WS-OD-Hex-1-CHR                   92 WORKING-STORAGE  143*
COBDUMP         WS-OD-Hex-2-CHR                   93 WORKING-STORAGE  145*
COBDUMP         WS-OD-Hex-TXT                     91 WORKING-STORAGE
COBDUMP         WS-OD-Relative-Byte-NUM           89 WORKING-STORAGE  132*
COBDUMP         WS-Output-Detail-TXT              85 WORKING-STORAGE  122*   148     149*
                                                                      157
COBDUMP         WS-Output-Header-1-TXT           102 WORKING-STORAGE  126
COBDUMP         WS-Output-Header-2-TXT           105 WORKING-STORAGE  127
COBDUMP         WS-Output-SUB                     99 WORKING-STORAGE  125*   130*    131
                                                                      135    143     145
                                                                      146    150*    155
```

```
=====================================================================================================
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```

3. Colors

Colors is a handy little GnuCOBOL utility program that will produce a screen showing all possible combinations of:

- FOREGROUND-COLOR
- BACKGROUND-COLOR
- BLINKING (or absence of BLINKING)
- HIGHLIGHT, LOWLIGHT or absence of either (i.e. "Normal")
- REVERSE-VIDEO

Here is a sample of the screen generated by this program:

The program source and cross-reference listing, produced using the cobxref, begins on the next page.

```
ACS Cobol Xref v2.02.02      Dictionary File for COLORS    07/12/2019  16:57:00:16

    1          >>SOURCE FREE
    2     IDENTIFICATION DIVISION.
    3     PROGRAM-ID. colors.
    4     DATA DIVISION.
    5     WORKING-STORAGE SECTION.
    6     SCREEN SECTION.
    7     01 S-COLORTST-SCR BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 BLANK SCREEN.
    8     05 LINE 01.
    9     10 COL 1 VALUE ' LOWLIGHT  -------- HIGHLIGHT  LOWLIGHT  -------- HIGHLIGHT'.
   10     05 LINE + 1.
   11     10 COL 1 VALUE ' --------  --------  --------  --------  --------  --------'.
   12     05 LINE + 1.
   13     10 COL 1 VALUE ' --------  --------  --------   REVERSE   REVERSE   REVERSE'.
   14     05 LINE + 1.
   15     10 COL 1 VALUE ' 01234567  01234567  01234567  01234567  01234567  01234567'.
   16     05 LINE + 1.
   17     10 COL 1 VALUE '0         0         0         0         0         0         '.
   18     05 LINE + 1.
   19     10 COL 1 VALUE '1         1         1         1         1         1         '.
   20     05 LINE + 1.
   21     10 COL 1 VALUE '2         2         2         2         2         2         '.
   22     05 LINE + 1.
   23     10 COL 1 VALUE '3    1    3    2    3    3    3    4    3    5    3    6     '.
   24     05 LINE + 1.
   25     10 COL 1 VALUE '4         4         4         4         4         4         '.
   26     05 LINE + 1.
   27     10 COL 1 VALUE '5         5         5         5         5         5         '.
   28     05 LINE + 1.
   29     10 COL 1 VALUE '6         6         6         6         6         6         '.
   30     05 LINE + 1.
   31     10 COL 1 VALUE '7         7         7         7         7         7         '.
   32     05 LINE + 1.
   33     10 COL 1 VALUE ' LOWLIGHT  -------- HIGHLIGHT  LOWLIGHT  -------- HIGHLIGHT'.
   34     05 LINE + 1.
   35     10 COL 1 VALUE '   BLINK     BLINK     BLINK     BLINK     BLINK     BLINK'.
   36     05 LINE + 1.
   37     10 COL 1 VALUE ' --------  --------  --------   REVERSE   REVERSE   REVERSE'.
   38     05 LINE + 1.
   39     10 COL 1 VALUE ' 01234567  01234567  01234567  01234567  01234567  01234567'.
   40     05 LINE + 1.
   41     10 COL 1 VALUE '0         0         0         0         0         0         '.
   42     05 LINE + 1.
   43     10 COL 1 VALUE '1         1         1         1         1         1         '.
   44     05 LINE + 1.
   45     10 COL 1 VALUE '2         2         2         2         2         2         '.
   46     05 LINE + 1.
   47     10 COL 1 VALUE '3    7    3    8    3    9    3   10    3   11    3   12    '.
   48     05 LINE + 1.
   49     10 COL 1 VALUE '4         4         4         4         4         4         '.
   50     05 LINE + 1.
   51     10 COL 1 VALUE '5         5         5         5         5         5         '.
   52     05 LINE + 1.
   53     10 COL 1 VALUE '6         6         6         6         6         6         '.
   54     05 LINE + 1.
```

```
ACS Cobol Xref v2.02.02          Dictionary File for COLORS     07/12/2019  16:57:00:16
     55   10 COL 1 VALUE '7        7         7         7         7         7         '.
     56   *> #1
     57   05 LINE 05.
     58   10 COL 2   BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
     59   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
     60   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
     61   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
     62   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
     63   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
     64   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
     65   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
     66   05 LINE + 1.
     67   10 COL 2   BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
     68   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
     69   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
     70   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
     71   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
     72   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
     73   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
     74   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
     75   05 LINE + 1.
     76   10 COL 2   BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
     77   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
     78   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
     79   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
     80   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
     81   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
     82   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
     83   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
     84   05 LINE + 1.
     85   10 COL 2   BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
     86   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
     87   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
     88   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
     89   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
     90   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
     91   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
     92   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
     93   05 LINE + 1.
     94   10 COL 2   BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
     95   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
     96   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
     97   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
     98   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
     99   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
    100   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
    101   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
    102   05 LINE + 1.
    103   10 COL 2   BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
    104   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
    105   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
    106   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
    107   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
    108   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
```

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS     07/12/2019  16:57:00:17
    109   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
    110   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
    111   05 LINE + 1.
    112   10 COL 2   BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
    113   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
    114   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
    115   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
    116   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
    117   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
    118   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
    119   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
    120   05 LINE + 1.
    121   10 COL 2   BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT VALUE 'X'.
    122   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT VALUE 'X'.
    123   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT VALUE 'X'.
    124   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT VALUE 'X'.
    125   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT VALUE 'X'.
    126   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT VALUE 'X'.
    127   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT VALUE 'X'.
    128   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT VALUE 'X'.
    129   *> #2
    130   05 LINE 05.
    131   10 COL 12  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 VALUE 'X'.
    132   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 VALUE 'X'.
    133   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 VALUE 'X'.
    134   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 VALUE 'X'.
    135   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 VALUE 'X'.
    136   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 VALUE 'X'.
    137   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 VALUE 'X'.
    138   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 VALUE 'X'.
    139   05 LINE + 1.
    140   10 COL 12  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 VALUE 'X'.
    141   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 VALUE 'X'.
    142   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 VALUE 'X'.
    143   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 VALUE 'X'.
    144   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 VALUE 'X'.
    145   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 VALUE 'X'.
    146   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 VALUE 'X'.
    147   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 VALUE 'X'.
    148   05 LINE + 1.
    149   10 COL 12  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 VALUE 'X'.
    150   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 VALUE 'X'.
    151   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 VALUE 'X'.
    152   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 VALUE 'X'.
    153   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 VALUE 'X'.
    154   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 VALUE 'X'.
    155   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 VALUE 'X'.
    156   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 VALUE 'X'.
    157   05 LINE + 1.
    158   10 COL 12  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 VALUE 'X'.
    159   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 VALUE 'X'.
    160   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 VALUE 'X'.
    161   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 VALUE 'X'.
    162   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 VALUE 'X'.
```

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:17
    163    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 VALUE 'X'.
    164    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 VALUE 'X'.
    165    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 VALUE 'X'.
    166    05 LINE + 1.
    167    10 COL 12  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 VALUE 'X'.
    168    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 VALUE 'X'.
    169    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 VALUE 'X'.
    170    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 VALUE 'X'.
    171    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 VALUE 'X'.
    172    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 VALUE 'X'.
    173    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 VALUE 'X'.
    174    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 VALUE 'X'.
    175    05 LINE + 1.
    176    10 COL 12  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 VALUE 'X'.
    177    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 VALUE 'X'.
    178    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 VALUE 'X'.
    179    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 VALUE 'X'.
    180    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 VALUE 'X'.
    181    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 VALUE 'X'.
    182    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 VALUE 'X'.
    183    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 VALUE 'X'.
    184    05 LINE + 1.
    185    10 COL 12  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 VALUE 'X'.
    186    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 VALUE 'X'.
    187    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 VALUE 'X'.
    188    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 VALUE 'X'.
    189    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 VALUE 'X'.
    190    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 VALUE 'X'.
    191    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 VALUE 'X'.
    192    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 VALUE 'X'.
    193    05 LINE + 1.
    194    10 COL 12  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 VALUE 'X'.
    195    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 VALUE 'X'.
    196    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 VALUE 'X'.
    197    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 VALUE 'X'.
    198    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 VALUE 'X'.
    199    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 VALUE 'X'.
    200    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 VALUE 'X'.
    201    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 VALUE 'X'.
    202    *> #3
    203    05 LINE 05.
    204    10 COL 22  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
    205    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
    206    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
    207    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
    208    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    209    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    210    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    211    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    212    05 LINE + 1.
    213    10 COL 22  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
    214    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
    215    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
    216    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
```

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ACS Cobol Xref v2.02.02         Dictionary File for COLORS     07/12/2019  16:57:00:17
  217   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
  218   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
  219   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
  220   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
  221   05 LINE + 1.
  222   10 COL 22  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
  223   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
  224   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
  225   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
  226   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
  227   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
  228   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
  229   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
  230   05 LINE + 1.
  231   10 COL 22  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
  232   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
  233   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
  234   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
  235   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
  236   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
  237   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
  238   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
  239   05 LINE + 1.
  240   10 COL 22  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
  241   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
  242   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
  243   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
  244   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
  245   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
  246   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
  247   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
  248   05 LINE + 1.
  249   10 COL 22  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
  250   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
  251   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
  252   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
  253   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
  254   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
  255   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
  256   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
  257   05 LINE + 1.
  258   10 COL 22  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
  259   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
  260   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
  261   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
  262   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
  263   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
  264   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
  265   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
  266   05 LINE + 1.
  267   10 COL 22  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
  268   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
  269   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
  270   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
```

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ACS Cobol Xref v2.02.02          Dictionary File for COLORS     07/12/2019  16:57:00:18
271    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
272    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
273    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
274    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
275    *> #4
276    05 LINE 05.
277    10 COL 32  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
278    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
279    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
280    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
281    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
282    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
283    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
284    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
285    05 LINE + 1.
286    10 COL 32  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
287    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
288    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
289    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
290    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
291    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
292    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
293    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
294    05 LINE + 1.
295    10 COL 32  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
296    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
297    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
298    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
299    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
300    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
301    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
302    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
303    05 LINE + 1.
304    10 COL 32  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
305    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
306    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
307    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
308    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
309    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
310    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
311    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
312    05 LINE + 1.
313    10 COL 32  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
314    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
315    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
316    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
317    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
318    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
319    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
320    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
321    05 LINE + 1.
322    10 COL 32 BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
323    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
324    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
```

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ACS Cobol Xref v2.02.02         Dictionary File for COLORS    07/12/2019  16:57:00:18
   325    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   326    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   327    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   328    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   329    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   330    05 LINE + 1.
   331    10 COL 32  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   332    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   333    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   334    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   335    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   336    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   337    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   338    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   339    05 LINE + 1.
   340    10 COL 32  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   341    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   342    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   343    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   344    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   345    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   346    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   347    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   348    *> #5
   349    05 LINE 05.
   350    10 COL 42  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
   351    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
   352    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
   353    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
   354    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
   355    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
   356    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
   357    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
   358    05 LINE + 1.
   359    10 COL 42  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
   360    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
   361    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
   362    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
   363    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
   364    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
   365    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
   366    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
   367    05 LINE + 1.
   368    10 COL 42  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
   369    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
   370    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
   371    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
   372    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
   373    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
   374    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
   375    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
   376    05 LINE + 1.
   377    10 COL 42  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
   378    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
```

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ACS Cobol Xref v2.02.02          Dictionary File for COLORS     07/12/2019  16:57:00:18

379      10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
380      10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
381      10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
382      10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
383      10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
384      10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
385      05 LINE + 1.
386      10 COL 42  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
387      10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
388      10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
389      10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
390      10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
391      10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
392      10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
393      10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
394      05 LINE + 1.
395      10 COL 42  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
396      10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
397      10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
398      10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
399      10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
400      10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
401      10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
402      10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
403      05 LINE + 1.
404      10 COL 42  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
405      10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
406      10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
407      10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
408      10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
409      10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
410      10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
411      10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
412      05 LINE + 1.
413      10 COL 42  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
414      10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
415      10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
416      10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
417      10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
418      10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
419      10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
420      10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
421      *> #6
422      05 LINE 05.
423      10 COL 52  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
424      10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
425      10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
426      10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
427      10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
428      10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
429      10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
430      10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
431      05 LINE + 1.
432      10 COL 52  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
```

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ACS Cobol Xref v2.02.02          Dictionary File for COLORS    07/12/2019  16:57:00:19

   433   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   434   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   435   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   436   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   437   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   438   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   439   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   440   05 LINE + 1.
   441   10 COL 52  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   442   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   443   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   444   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   445   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   446   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   447   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   448   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   449   05 LINE + 1.
   450   10 COL 52  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   451   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   452   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   453   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   454   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   455   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   456   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   457   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   458   05 LINE + 1.
   459   10 COL 52  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   460   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   461   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   462   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   463   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   464   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   465   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   466   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   467   05 LINE + 1.
   468   10 COL 52  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   469   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   470   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   471   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   472   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   473   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   474   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   475   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   476   05 LINE + 1.
   477   10 COL 52  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   478   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   479   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   480   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   481   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   482   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   483   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   484   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   485   05 LINE + 1.
   486   10 COL 52  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
```

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:19

   487    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   488    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   489    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   490    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   491    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   492    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   493    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
   494    *> #7
   495    05 LINE 17.
   496    10 COL 02  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   497    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   498    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   499    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   500    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   501    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   502    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   503    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   504    05 LINE + 1.
   505    10 COL 02  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   506    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   507    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   508    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   509    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   510    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   511    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   512    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   513    05 LINE + 1.
   514    10 COL 02  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   515    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   516    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   517    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   518    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   519    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   520    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   521    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   522    05 LINE + 1.
   523    10 COL 02  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   524    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   525    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   526    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   527    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   528    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   529    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   530    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   531    05 LINE + 1.
   532    10 COL 02  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   533    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   534    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   535    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   536    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   537    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   538    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   539    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   540    05 LINE + 1.
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ACS Cobol Xref v2.02.02        Dictionary File for COLORS     07/12/2019  16:57:00:19
    541    10 COL 02  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
    542    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
    543    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
    544    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
    545    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
    546    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
    547    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
    548    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
    549    05 LINE + 1.
    550    10 COL 02  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
    551    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
    552    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
    553    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
    554    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
    555    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
    556    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
    557    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
    558    05 LINE + 1.
    559    10 COL 02  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
    560    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
    561    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
    562    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
    563    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
    564    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
    565    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
    566    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
    567    *> #8
    568    05 LINE 17.
    569    10 COL 12  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
    570    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
    571    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
    572    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
    573    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
    574    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
    575    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
    576    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
    577    05 LINE + 1.
    578    10 COL 12  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
    579    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
    580    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
    581    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
    582    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
    583    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
    584    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
    585    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
    586    05 LINE + 1.
    587    10 COL 12  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
    588    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
    589    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
    590    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
    591    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
    592    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
    593    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
    594    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:19
   595   05 LINE + 1.
   596   10 COL 12  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   597   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   598   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   599   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   600   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   601   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   602   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   603   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   604   05 LINE + 1.
   605   10 COL 12  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   606   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   607   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   608   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   609   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   610   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   611   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   612   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   613   05 LINE + 1.
   614   10 COL 12  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   615   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   616   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   617   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   618   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   619   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   620   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   621   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   622   05 LINE + 1.
   623   10 COL 12  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   624   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   625   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   626   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   627   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   628   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   629   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   630   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   631   05 LINE + 1.
   632   10 COL 12  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   633   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   634   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   635   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   636   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   637   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   638   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   639   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   640   *> #9
   641   05 LINE 17.
   642   10 COL 22  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
   643   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
   644   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
   645   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
   646   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
   647   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
   648   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
```

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:20
  649   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
  650   05 LINE + 1.
  651   10 COL 22  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
  652   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
  653   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
  654   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
  655   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
  656   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
  657   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
  658   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
  659   05 LINE + 1.
  660   10 COL 22  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
  661   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
  662   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
  663   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
  664   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
  665   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
  666   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
  667   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
  668   05 LINE + 1.
  669   10 COL 22  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
  670   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
  671   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
  672   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
  673   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
  674   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
  675   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
  676   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
  677   05 LINE + 1.
  678   10 COL 22  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
  679   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
  680   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
  681   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
  682   10 COL + 1 BACKGROUND-COLOR 4 FOREGRAUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
  683   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
  684   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
  685   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
  686   05 LINE + 1.
  687   10 COL 22  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
  688   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
  689   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
  690   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
  691   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
  692   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
  693   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
  694   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
  695   05 LINE + 1.
  696   10 COL 22  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
  697   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
  698   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
  699   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
  700   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
  701   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
  702   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:20

  703   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
  704   05 LINE + 1.
  705   10 COL 22  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
  706   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
  707   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
  708   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
  709   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
  710   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
  711   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
  712   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
  713   *> #10
  714   05 LINE 17.
  715   10 COL 32  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  716   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  717   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  718   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  719   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  720   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  721   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  722   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  723   05 LINE + 1.
  724   10 COL 32  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  725   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  726   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  727   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  728   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  729   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  730   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  731   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  732   05 LINE + 1.
  733   10 COL 32  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  734   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  735   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  736   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  737   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  738   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  739   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  740   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  741   05 LINE + 1.
  742   10 COL 32  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  743   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  744   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  745   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  746   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  747   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  748   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  749   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  750   05 LINE + 1.
  751   10 COL 32  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  752   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  753   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  754   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  755   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  756   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:20
  757    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  758    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  759    05 LINE + 1.
  760    10 COL 32  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  761    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  762    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  763    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  764    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  765    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  766    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  767    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  768    05 LINE + 1.
  769    10 COL 32  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  770    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  771    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  772    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  773    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  774    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  775    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  776    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  777    05 LINE + 1.
  778    10 COL 32  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  779    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  780    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  781    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  782    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  783    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  784    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  785    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  786    *> #11
  787    05 LINE 17.
  788    10 COL 42  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  789    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  790    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  791    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  792    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
  793    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
  794    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
  795    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
  796    05 LINE + 1.
  797    10 COL 42  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  798    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  799    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  800    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  801    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
  802    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
  803    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
  804    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
  805    05 LINE + 1.
  806    10 COL 42  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
  807    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
  808    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
  809    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
  810    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:21

   811    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   812    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   813    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   814    05 LINE + 1.
   815    10 COL 42  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
   816    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
   817    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   818    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   819    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
   820    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   821    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   822    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   823    05 LINE + 1.
   824    10 COL 42  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
   825    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
   826    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   827    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   828    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
   829    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   830    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   831    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   832    05 LINE + 1.
   833    10 COL 42  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
   834    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
   835    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   836    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   837    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
   838    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   839    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   840    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   841    05 LINE + 1.
   842    10 COL 42  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
   843    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
   844    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   845    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   846    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
   847    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   848    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   849    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   850    05 LINE + 1.
   851    10 COL 42  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
   852    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
   853    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   854    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   855    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
   856    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   857    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   858    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   859    *> #12
   860    05 LINE 17.
   861    10 COL 52  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   862    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   863    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   864    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
```

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS     07/12/2019  16:57:00:21

    865    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    866    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    867    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    868    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    869    05 LINE + 1.
    870    10 COL 52  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    871    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    872    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    873    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    874    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    875    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    876    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    877    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    878    05 LINE + 1.
    879    10 COL 52  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    880    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    881    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    882    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    883    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    884    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    885    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    886    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    887    05 LINE + 1.
    888    10 COL 52  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    889    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    890    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    891    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    892    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    893    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    894    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    895    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    896    05 LINE + 1.
    897    10 COL 52  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    898    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    899    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    900    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    901    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    902    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    903    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    904    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    905    05 LINE + 1.
    906    10 COL 52  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    907    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    908    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    909    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    910    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    911    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    912    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    913    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    914    05 LINE + 1.
    915    10 COL 52  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    916    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    917    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
    918    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
```

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:21
  919    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  920    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  921    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  922    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  923    05 LINE + 1.
  924    10 COL 52  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  925    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  926    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  927    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  928    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  929    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  930    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  931    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  932    PROCEDURE DIVISION.
  933    000-Main SECTION.
  934     DISPLAY S-COLORTST-SCR.
  935     STOP RUN.
  936        *>>>Info: Total Copy Depth Used = 01
```

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:22
Symbols of Module: COLORS (COLORS)
---------------------------------


Data Section (SCREEN)        Defn    Locations
-----------------------------+-----------------------------------------------------------


S-COLORTST-SCR               000007S  000934
```

```
ACS Cobol Xref v2.02.02          Dictionary File for COLORS     07/12/2019  16:57:00:22
Symbols of Module: COLORS (COLORS)
---------------------------------
Procedure                      Defn    Locations
-----------------------------+-------------------------------------------------------------

None
```

```
ACS Cobol Xref v2.02.02          Dictionary File for COLORS    07/12/2019  16:57:00:22
Symbols of Module: COLORS (COLORS)
----------------------------------
Unreferenced Working Storage Symbols

None
```

```
ACS Cobol Xref v2.02.02          Dictionary File for COLORS     07/12/2019  16:57:00:22
Symbols of Module: COLORS (COLORS)
---------------------------------
Unreferenced Procedures

None
```

4. DAY-FROM-DATE

DAY-FROM-DATE is a user-defined function that accepts a single numeric USAGE DISPLAY argument –æ either a 7-digit Julian date in the form *yyyyddd* or an 8-digit Gregorian date in the form *yyyymmdd*. This argument may be supplied either as a PIC 9(n) USAGE DISPLAY data item (n=7 or 8) or as a 7- or 8-digit numeric literal.

The subroutine will determine if the supplied date is a valid date in the year range 0000 through 9999 and what day of the week that date fell on.

The value returned will be zero if the date argument was invalid or an integer in the range 1-7, representing Sunday through Saturday.

In addition to general GnuCOBOL concepts, this program provides a useful demonstration of the following:

- Coding a GnuCOBOL user-defined function
- Using the ANY LENGTH data item attribute
- Using the RETURNING option in a subprogram
- Using the DATE-OF-INTEGER intrinsic function
- Using the C$PARAMSIZE built-in system subroutine

The program source and cross-reference listing, produced using the GnuCOBOL Interactive Compiler front-end (GCic.cbl, one of the sample programs included here), begins on the next page.

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                               C:/Users/tda010/Documents/Programs/Samples/DAY-FROM-DATE.cbl
Line    Statement                                                           Page: 1
====== =================================================================================
     1         >>SOURCE FORMAT IS FIXED
     2          IDENTIFICATION DIVISION.
     3          FUNCTION-ID. DAY-FROM-DATE.
     4         *>****************************************************************
     5         *> This GNU COBOL user-defined function converts a Gregorian or **
     6         *> Julian date into a numeric day of the week.               **
     7         *>****************************************************************
     8         *> Arguments:                                                **
     9         *>                                                           **
    10         *> Calendar-Date    A PIC 9 data item or numeric literal which **
    11         *>                  will be treated as a calendar date as fol- **
    12         *>                  lows:                                     **
    13         *>                                                           **
    14         *>                  7-digit value: Interpreted as a Julian date **
    15         *>                                   in the form yyyyddd       **
    16         *>                  8-digit value: Interpreted as a Gregorian  **
    17         *>                                   date in the form yyyymmdd **
    18         *>                                                           **
    19         *> The result returned will be one of the following:         **
    20         *>                                                           **
    21         *> 0:  The supplied date is invalid                          **
    22         *> 1:  The supplied date is a Sunday                         **
    23         *> 2:  The supplied date is a Monday                         **
    24         *> .                                                         **
    25         *> .                                                         **
    26         *> .                                                         **
    27         *> 7:  The supplied date is a Saturday                       **
    28         *>****************************************************************
    29          ENVIRONMENT DIVISION.
    30          CONFIGURATION SECTION.
    31          REPOSITORY.
    32              FUNCTION ALL INTRINSIC.
    33          DATA DIVISION.
    34          WORKING-STORAGE SECTION.
    35          01  WS-Input-Date-DT.
    36              05 WS-ID-YYYY-NUM                    PIC 9(4).
    37              05 WS-ID-MM-NUM                      PIC 9(2).
    38              05 WS-ID-DD-NUM                      PIC 9(2).
    39          01  WS-Y-NUM                             BINARY-LONG.
    40          01  WS-M-NUM                             BINARY-LONG.
    41          01  WS-Temp-NUM                          BINARY-LONG.
    42          LINKAGE SECTION.
    43          01  L-Input-Date-DT                      PIC 9 ANY LENGTH.
    44          01  L-Output-Day-NUM                     USAGE BINARY-LONG
    45                                                   SIGNED.
    46          PROCEDURE DIVISION USING L-Input-Date-DT
    47                     RETURNING L-Output-Day-NUM.
    48          000-Main SECTION.
    49              CALL "C$PARAMSIZE" USING 1

==================================================================================================
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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                      2014/03/27
                           C:/Users/tda010/Documents/Programs/Samples/DAY-FROM-DATE.cbl
Line    Statement                                                                Page: 2
====== ================================================================================
  50            EVALUATE RETURN-CODE
  51            WHEN 7
  52               IF TEST-DAY-YYYYDDD(L-Input-Date-DT) > 0
  53                   MOVE 0 TO L-Output-Day-NUM
  54                   GOBACK
  55               END-IF
  56               MOVE DATE-OF-INTEGER(INTEGER-OF-DAY(L-Input-Date-DT))
  57                 TO WS-Input-Date-DT
  58            WHEN 8
  59               IF TEST-DATE-YYYYMMDD(L-Input-Date-DT) > 0
  60                   MOVE 0 TO L-Output-Day-NUM
  61                   GOBACK
  62               END-IF
  63               MOVE L-Input-Date-DT TO WS-Input-Date-DT
  64            WHEN OTHER
  65               MOVE 0 TO L-Output-Day-NUM
  66               GOBACK
  67            END-EVALUATE
  68        *> IF january OR february
  69        *>    y = year - 1
  70        *>    m = month + 10
  71        *> ELSE
  72        *>    y = year
  73        *>    m = month - 2
  74        *> END-IF
  75        *> For Gregorian calendar:
  76        *>    result = (day + y + y/4 - y/100 + y/400 + (31*m)/12) mod 7
  77        *> (All divisions are integer divisions, discarding any remainder)
  78            IF WS-ID-MM-NUM = 1 OR 2
  79               SUBTRACT 1 FROM WS-ID-YYYY-NUM GIVING WS-Y-NUM
  80               ADD WS-ID-MM-NUM, 10 GIVING WS-M-NUM
  81            ELSE
  82               MOVE WS-ID-YYYY-NUM TO WS-Y-NUM
  83               SUBTRACT 2 FROM WS-ID-MM-NUM GIVING WS-M-NUM
  84            END-IF
  85            COMPUTE L-Output-Day-NUM =
  86               WS-ID-DD-NUM
  87             + WS-Y-NUM
  88             + INTEGER(WS-Y-NUM/4)
  89             - INTEGER(WS-Y-NUM/100)
  90             + INTEGER(WS-Y-NUM/400)
  91             + INTEGER((31*WS-M-NUM)/12)
  92            DIVIDE L-Output-Day-NUM BY 7
  93               GIVING WS-Temp-NUM
  94               REMAINDER L-Output-Day-NUM
  95            ADD 1 TO L-Output-Day-NUM
  96            GOBACK
  97            .
  98

==========================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                         Page: 2
```

```
GNU COBOL 2.1 23NOV2013 Cross-Reference Listing                        2014/03/27
                          C:/Users/tda010/Documents/Programs/Samples/DAY-FROM-DATE.cbl
PROGRAM-ID       Identifier/Register/Function   Defn   Where Defined   References        Page: 3
===============  ==============================  ======  ===============  ========================
DAY-FROM-DATE    000-Main                        48 PROCEDURE
DAY-FROM-DATE    L-Input-Date-DT                 43 LINKAGE           46      52      56
                                                                     59      63
DAY-FROM-DATE    L-Output-Day-NUM                44 LINKAGE           47      53*     60*
                                                                     65*     85*     92
                                                                     94*     95*
DAY-FROM-DATE    RETURN-CODE                        PROCEDURE         50
DAY-FROM-DATE    WS-ID-DD-NUM                    38 WORKING-STORAGE   86
DAY-FROM-DATE    WS-ID-MM-NUM                    37 WORKING-STORAGE   78      80      83
DAY-FROM-DATE    WS-ID-YYYY-NUM                  36 WORKING-STORAGE   79      82
DAY-FROM-DATE    WS-Input-Date-DT                35 WORKING-STORAGE   57*     63*
DAY-FROM-DATE    WS-M-NUM                        40 WORKING-STORAGE   80*     83*     91
DAY-FROM-DATE    WS-Temp-NUM                     41 WORKING-STORAGE   93*
DAY-FROM-DATE    WS-Y-NUM                        39 WORKING-STORAGE   79*     82*     87
                                                                     88      89      90
```

```
=================================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                            Page: 3
```

5. GCic

This is MUCH more than a mere demonstration program – it's also a very practical utility! The "GCic" (GnuCOBOL Interactive Compiler) is a TUI (Textual User Interface) program that may be used as a full-screen interface to the "cobc" compiler. In addition, GCic can produce neat, concise and useful cross-reference listings of GnuCOBOL programs, showing not only where user-defined names and built-in registers and intrinsic functions are referenced, but also where user-defined data items ARE MODIFIED by program code!

The program is well documented (IMHO) and you should find it fairly easy to follow. The GCic.cbl program was written to work with a native Windows or Windows/MinGW build of GnuCOBOL as well as a Windows/Cygwin, UNIX or OS X build.

Source listings generated by GCic will show the original source code of your programs, with all indentation and comments preserved. Additionally, any COPYed code will be included in the listing immediately (in compressed form) following the COPY statement that triggered its inclusion into your program.

Cross-reference listings will show all user-defined data items and procedures as well as intrinsic function and special register references. In addition to showing the line numbers at which items were defined and referenced, those references that MODIFY the contents of the data item will have an asterisk appended to them.

In addition to general GnuCOBOL concepts, this program provides a useful demonstration of the following:

- Creating a GnuCOBOL compilation unit that consists of multiple programs
- Using CDF conditional compilation facilities
- Using the `SCREEN SECTION` and associated `ACCEPT` and `DISPLAY` statements
- Using `DECLARATIVES` to trap file I/O errors
- Using `FILE-STATUS`
- Using the `REPLACING` clause on a CDF `COPY` statement
- Using the following statements:
    - o `ACCEPT FROM COMMAND-LINE` statement
    - o `ACCEPT FROM DATE/TIME` statement
    - o `ACCEPT FROM ENVIRONMENT` statement
    - o `EXIT PERFORM` statement
    - o `EXIT SECTION` statement
    - o `INSPECT` statement
    - o `PERFORM FOREVER` statement
    - o `SEARCH ALL` statement
    - o `SET ENVIRONMENT` statement
    - o `SORT` statement
    - o `STRING` statement
    - o `UNSTRING` statement

- Using the following built-in subroutines:
    - o `C$JUSTIFY` built-in system subroutine
    - o `C$SLEEP` built-in system subroutine
    - o `CBL_CHANGE_DIR` built-in system subroutine
    - o `CBL_CHECK_FILE_EXIST` built-in system subroutine
    - o `CBL_DELETE_FILE` built-in system subroutine
    - o `SYSTEM` built-in system subroutine
- Using the following intrinsic functions:
    - o `CONCATENATE` intrinsic function
    - o `LENGTH` intrinsic function
    - o `LOWER-CASE` intrinsic function
    - o `NUMVAL` intrinsic function
    - o `TRIM` intrinsic function
    - o `UPPER-CASE` intrinsic function
- Using the `COB-CRT-STATUS,Special Registers` special register
- Programmatically producing a report destined for either portrait or landscape printing

Here is a sample of the screen generated by this program:

The program source and cross-reference listing, produced using this program, begins on the next page.

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                              2017/12/24
                                               /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                                       Page: 1
====== =======================================================================================
    1         >>SOURCE FORMAT IS FIXED
    2         *> CONFIGURATION SETTINGS: Set these switches before compiling:
    3         *>
    4         *> LINEDRAW Set to:
    5         *>    0   To use spaces (no lines)
    6         *>    1   To use the line-drawing characterset (PC codepage 437)
    7         *>    2   To use conventional ASCII characters (+, -, |)
    8         *>
    9         *>          OSX USERS - To use the linedrawing characterset,
   10         *>                     set your 'terminal' font to 'Lucida Console'
   11         *>
   12         *> OS      Set to one of the following:
   13         *>          'CYGWIN'   For a Windows/Cygwin version
   14         *>          'MINGW'    For a Windows/MinGW version
   15         *>          'OSX'      For a Macintosh OSX version
   16         *>          'UNIX'     For a Unix/Linux version
   17         *>          'WINDOWS'  For a Native Windows version
   18         *>
   19         *> SELCHAR  Set to the desired single character to be used as the red
   20         *>          'feature selected' character on the screen.
   21         *>          SUGGESTIONS: '>', '*', '=', '+'
   22         *>
   23         *> LPP     Set to maximum printable lines per page when the listing
   24         *>          should be generated for LANDSCAPE orientation (can be over-
   25         *>          ridden at execution time using the GCXREF_LINES environment
   26         *>          variable.
   27         *>
   28         *> LPPP    Set to maximum printable lines per page when the listing
   29         *>          should be generated for PORTRAIT orientation (can be over-
   30         *>          ridden at execution time using the GCXREF_LINES_PORT
   31         *>          environment variable.
   32         *>
   33         *>****************************************************************
   34         *>**  Change the settings in the copy book const-set-1.cpy to reflect
   35         *>     your system set up. This notes are also present there.
   36         *>     This is to reduce the need to amend these every time a update
   37         *>     for GCic occurs.
   38         *>****************************************************************
   39         *>
   40          copy "const-set-1.cpy".
   41         *>
   42         *> -------------------------------------------------------------
   43         *> END CONFIGURATION SETTINGS
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                      Page: 2
====== =========================================================================
    45         IDENTIFICATION DIVISION.
    46        PROGRAM-ID. GCic.
    47        *>****************************************************************
    48        *>     >NOTE<   >NOTE<   >NOTE<   >NOTE<   >NOTE<   >NOTE<    **
    49        *>                                                           **
    50        *> If this program is compiled with '-fdebugging-line', you   **
    51        *> will need to pipe SYSERR to a text file when executing GCic **
    52        *> (by adding the text '2> filename' to the end of the GCic    **
    53        *> command).  You may also need to press the ENTER key when    **
    54        *> GCic is finished.                                          **
    55        *>****************************************************************
    56        *> This program provides a Textual User Interface (TUI) to the **
    57        *> process of compiling and (optionally) executing a GNU COBOL **
    58        *> program.                                                   **
    59        *>                                                           **
    60        *> This programs execution syntax is as follows:             **
    61        *>                                                           **
    62        *> GCic <program-path-and-filename> [ <switch>... ]           **
    63        *>                                                           **
    64        *> Once executed, a display screen will be presented showing  **
    65        *> the compilation options that will be used.  The user will  **
    66        *> have the opportunity to change options, specify new ones    **
    67        *> and specify any program execution arguments to be used if   **
    68        *> you select the 'Execute' option.  When you press the Enter  **
    69        *> key the program will be compiled.                          **
    70        *>                                                           **
    71        *> The SCREEN SECTION contains an image of the screen.        **
    72        *>                                                           **
    73        *> The '010-Parse-Args' section in the PROCEDURE DIVISION has  **
    74        *> documentation on switches and their function.              **
    75        *>****************************************************************
    76        *>                                                           **
    77        *> AUTHOR:      GARY L. CUTLER                                **
    78        *>             Copyright (C) 2009-2017, Gary L. Cutler, GPL    **
    79        *>                                                           **
    80        *> DATE-WRITTEN: June 14, 2009                                **
    81        *>                                                           **
    82        *>****************************************************************
    83        *>  DATE   CHANGE DESCRIPTION                                 **
    84        *> ====== ===================================================== **
    85        *> GC0609 Don't display compiler messages file if compilation  **
    86        *>  GLC   Is successful.  Also don't display messages if the   **
    87        *>        output file is busy (just put a message on the       **
    88        *>        screen, leave the OC screen up & let the user fix    **
    89        *>        the problem & resubmit.                             **
    90        *> GC0709 When 'EXECUTE' is selected, a 'FILE BUSY' error will **
    91        *>  CLC   still cause the (old) executable to be launched.     **
    92        *>        Also, the 'EXTRA SWITCHES' field is being ignored.   **
    93        *>        Changed the title bar to lowlighted reverse video &  **
    94        *>        the message area to highlighted reverse-video.       **
    95        *> GC0809 Add a SPACE in front of command-line args when       **
    96        *>  GLC   executing users program.  Add a SPACE after the      **
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                 2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                         Page: 3
====== ==========================================================================
   97        *>         -ftraceall switch when building cobc command.      **
   98        *> GC0909 Convert to work on Cygwin/Linux as well as MinGW    **
   99        *> GC0310 Virtualized the key codes for S-F1 thru S-F7 as they **
  100        *>   GLC   differ depending upon whether PDCurses or NCurses is **
  101        *>         being used.                                        **
  102        *> GC0410 Introduced the cross-reference and source listing   **
  103        *>   GLC   features.  Also fixed a bug in EXTRA switch proces- **
  104        *>         sing where garbage will result if more than the    **
  105        *>         EXTRA switch is specified.                         **
  106        *> GC1010 Corrected several problems reported by Vince Coen:  **
  107        *>   GLC   1) Listing/Xref wouldn't work if '-I' additional   **
  108        *>            cobc switch specified.                          **
  109        *>         2) Programs coded with lowercase reserved words did **
  110        *>            not get parsed properly when generating listing **
  111        *>            and/or xref reports.                            **
  112        *>         3) Reliance on a TEMP environment variable caused  **
  113        *>            non-recoverable errors when generating listing  **
  114        *>            and/or xref reports in a session that lacks a   **
  115        *>            TEMP variable.                                  **
  116        *>         As a result of this change, GCic no longer runs a  **
  117        *>         second 'cobc' when generating listing and/or xref  **
  118        *>         reports.  A '-save-temps' (without '=dir') specified **
  119        *>         in the EXTRA options field will be ignored.  A     **
  120        *>         '-save-temps=dir' specified in the EXTRA options    **
  121        *>         field will negate both the XREF and SOURCE opts,   **
  122        *>         if specified.                                      **
  123        *> GC0711 Tailored for 29APR2011 version of GNU COBOL 2.0     **
  124        *> GC0712 Replaced all switches with configuration settings;  **
  125        *>   GLC   Tailored for 11FEB2012 version of GNU COBOL 2.0;   **
  126        *>         Reformatted screen layout to fit a 24x80 screen    **
  127        *>         rather than a 25x81 screen and to accommodate shell **
  128        *>         environments having only F1-F12 (like 'terminal' in **
  129        *>         OSX); Fully tested under OSX (required a few altera- **
  130        *>         tions); Expanded both extra-options and runtime-   **
  131        *>         arguments areas to TWO lines (152 chars total) each; **
  132        *>         Added support for MF/IBM/BS2000 listing-control    **
  133        *>         directives EJECT,SKIP1,SKIP2,SKIP3 (any of these in **
  134        *>         copybooks will be ignored)                         **
  135        *> GC0313 Expand the source code record from 80 chars to 256  **
  136        *>   GLC   to facilitate looking for "LINKAGE SECTION" in a    **
  137        *>         free-format file.                                  **
  138        *> GC1113 Edited to support the change of "OpenCOBOL" to "GNU  **
  139        *>   GLC   COBOL"                                             **
  140        *> GC1213 Updated for 23NOV2013 version of GNU COBOL 2.1      **
  141        *> GC0114 Introduce a "Press ENTER to Close" action after run- **
  142        *>   GLC   ning the compiled program in the compiler window (F4)**
  143        *> VC0617 Remove the Blinking in meny screen as uncomfortable **
  144        *>   VBC   Update version printed to 2.2 30JUN2017.           **
  145        *>         Move the system constant settings to a copy file   **
  146        *>         const-set-1.cpy  in case GCic is updated.          **
  147        *>         Added  SET ENVIRONMENT "COB_EXIT_WAIT" TO "0" to    **
  148        *>         100-Initialization section.                        **
  149        *> VC0717 Replaced compile param instrinsic=all with          **
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                    /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                             Page: 4
====== =============================================================================
   150        *>  VBC    intrinstics=ALL. Changed mod detail inits for Gary   **
   151        *>         from GCL to GLC.                                      **
   152        *>         Update version printed to 2.2 20JUL2017.             **
   153        *>         Should really get this from the compiler if avail?   **
   154        *> VC1217 Update compiler version to v3.0 24DEC2017.            **
   155        *>         and copyright to 2018 (in 3 places).                 **
   156        *>****************************************************************
   157        *>
   158         ENVIRONMENT DIVISION.
   159         CONFIGURATION SECTION.
   160         REPOSITORY.
   161             FUNCTION ALL INTRINSIC.
   162         INPUT-OUTPUT SECTION.
   163         FILE-CONTROL.
   164 GC1010     SELECT F-Cobc-Output-FILE   ASSIGN TO WS-Listing-Filename-TXT
   165                                         ORGANIZATION IS LINE SEQUENTIAL.
   166
   167            SELECT F-Source-Code-FILE   ASSIGN TO WS-File-Name-TXT
   168                                         ORGANIZATION IS LINE SEQUENTIAL
   169                                         FILE STATUS IS WS-FSM-Status-CD.
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                            Page: 5
====== =================================================================================

  171        DATA DIVISION.
  172        FILE SECTION.
  173        FD  F-Cobc-Output-FILE.
  174        01  F-Cobc-Output-REC                 PIC X(256).
  175
  176        FD  F-Source-Code-FILE.
  177 GC0313 01  F-Source-Code-REC                 PIC X(256).
  178
  179        WORKING-STORAGE SECTION.
  180        >>source free
  181        COPY screenio.
       78 COB-COLOR-BLACK VALUE 0.
       78 COB-COLOR-BLUE VALUE 1.
       78 COB-COLOR-GREEN VALUE 2.
       78 COB-COLOR-CYAN VALUE 3.
       78 COB-COLOR-RED VALUE 4.
       78 COB-COLOR-MAGENTA VALUE 5.
       78 COB-COLOR-YELLOW VALUE 6.
       78 COB-COLOR-WHITE VALUE 7.
       78 COB-SCR-OK VALUE 0.
       78 COB-SCR-F1 VALUE 1001.
       78 COB-SCR-F2 VALUE 1002.
       78 COB-SCR-F3 VALUE 1003.
       78 COB-SCR-F4 VALUE 1004.
       78 COB-SCR-F5 VALUE 1005.
       78 COB-SCR-F6 VALUE 1006.
       78 COB-SCR-F7 VALUE 1007.
       78 COB-SCR-F8 VALUE 1008.
       78 COB-SCR-F9 VALUE 1009.
       78 COB-SCR-F10 VALUE 1010.
       78 COB-SCR-F11 VALUE 1011.
       78 COB-SCR-F12 VALUE 1012.
       78 COB-SCR-F13 VALUE 1013.
       78 COB-SCR-F14 VALUE 1014.
       78 COB-SCR-F15 VALUE 1015.
       78 COB-SCR-F16 VALUE 1016.
       78 COB-SCR-F17 VALUE 1017.
       78 COB-SCR-F18 VALUE 1018.
       78 COB-SCR-F19 VALUE 1019.
       78 COB-SCR-F20 VALUE 1020.
       78 COB-SCR-F21 VALUE 1021.
       78 COB-SCR-F22 VALUE 1022.
       78 COB-SCR-F23 VALUE 1023.
       78 COB-SCR-F24 VALUE 1024.
       78 COB-SCR-F25 VALUE 1025.
       78 COB-SCR-F26 VALUE 1026.
       78 COB-SCR-F27 VALUE 1027.
       78 COB-SCR-F28 VALUE 1028.
       78 COB-SCR-F29 VALUE 1029.
       78 COB-SCR-F30 VALUE 1030.
       78 COB-SCR-F31 VALUE 1031.
       78 COB-SCR-F32 VALUE 1032.
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                    /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                         Page: 6
====== =========================================================================
       78 COB-SCR-F33 VALUE 1033.
       78 COB-SCR-F34 VALUE 1034.
       78 COB-SCR-F35 VALUE 1035.
       78 COB-SCR-F36 VALUE 1036.
       78 COB-SCR-F37 VALUE 1037.
       78 COB-SCR-F38 VALUE 1038.
       78 COB-SCR-F39 VALUE 1039.
       78 COB-SCR-F40 VALUE 1040.
       78 COB-SCR-F41 VALUE 1041.
       78 COB-SCR-F42 VALUE 1042.
       78 COB-SCR-F43 VALUE 1043.
       78 COB-SCR-F44 VALUE 1044.
       78 COB-SCR-F45 VALUE 1045.
       78 COB-SCR-F46 VALUE 1046.
       78 COB-SCR-F47 VALUE 1047.
       78 COB-SCR-F48 VALUE 1048.
       78 COB-SCR-F49 VALUE 1049.
       78 COB-SCR-F50 VALUE 1050.
       78 COB-SCR-F51 VALUE 1051.
       78 COB-SCR-F52 VALUE 1052.
       78 COB-SCR-F53 VALUE 1053.
       78 COB-SCR-F54 VALUE 1054.
       78 COB-SCR-F55 VALUE 1055.
       78 COB-SCR-F56 VALUE 1056.
       78 COB-SCR-F57 VALUE 1057.
       78 COB-SCR-F58 VALUE 1058.
       78 COB-SCR-F59 VALUE 1059.
       78 COB-SCR-F60 VALUE 1060.
       78 COB-SCR-F61 VALUE 1061.
       78 COB-SCR-F62 VALUE 1062.
       78 COB-SCR-F63 VALUE 1063.
       78 COB-SCR-F64 VALUE 1064.
       78 COB-SCR-PAGE-UP VALUE 2001.
       78 Cob-Scr-Page_Up value 2001.
       78 COB-SCR-PAGE-DOWN VALUE 2002.
       78 Cob-Scr-Page_Down value 2002.
       78 COB-SCR-KEY-UP VALUE 2003.
       78 COB-SCR-KEY_UP VALUE 2003.
       78 COB-SCR-KEY-DOWN VALUE 2004.
       78 COB-SCR-KEY_DOWN VALUE 2004.
       78 COB-SCR-ESC VALUE 2005.
       78 COB-SCR-PRINT VALUE 2006.
       78 COB-SCR-TAB VALUE 2007.
       78 COB-SCR-BACK-TAB VALUE 2008.
       78 COB-SCR-KEY-LEFT VALUE 2009.
       78 COB-SCR-KEY-RIGHT VALUE 2010.
       78 COB-SCR-INSERT VALUE 2011.
       78 COB-SCR-DELETE VALUE 2012.
       78 COB-SCR-BACKSPACE VALUE 2013.
       78 COB-SCR-KEY-HOME VALUE 2014.
       78 COB-SCR-KEY-END VALUE 2015.
       78 COB-SCR-NO-FIELD VALUE 8000.
       78 COB-SCR-TIME-OUT VALUE 8001.
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                               2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                      Page: 7
====== =========================================================================
       78 COB-SCR-FATAL VALUE 9000.
       78 COB-SCR-MAX-FIELD VALUE 9001.
  182       >>source fixed
  183 GC0712 01  WS-Compilation-Switches-TXT.
  184 GC0712     05 WS-CS-Args-TXT VALUE SPACES.
  185 GC0712        10 WS-CS-Arg-H1-TXT                 PIC X(76).
  186 GC0712        10 WS-CS-Arg-H2-TXT                 PIC X(76).
  187 GC0712     05 WS-CS-Filenames-TXT.
  188 GC0712        10 VALUE 'BS2000'                   PIC X(9).
  189 GC0712        10 VALUE 'COBOL85'                  PIC X(9).
  190 GC0712        10 VALUE 'COBOL2002'                PIC X(9).
  191 GC0712        10 VALUE 'DEFAULT'                  PIC X(9).
  192 GC0712        10 VALUE 'IBM'                      PIC X(9).
  193 GC0712        10 VALUE 'MF'                       PIC X(9).
  194 GC0712        10 VALUE 'MVS'                      PIC X(9).
  195 GC0712     05 WS-CS-Filenames-Table-TXT REDEFINES WS-CS-Filenames-TXT.
  196 GC0712        10 WS-CS-Filename-TXT               OCCURS 7 TIMES
  197 GC0712                                            PIC X(9).
  198 GC0712 >>IF F12 < 1
  199 GC0712     05 WS-CS-Config-NUM     VALUE 4     PIC 9(1).
  200 GC0712 >>ELIF F12 > 7
  201 GC0712     05 WS-CS-Config-NUM     VALUE 4     PIC 9(1).
  202 GC0712 >>ELSE
  203 GC0712     05 WS-CS-Config-NUM     VALUE F12   PIC 9(1).
  204 GC0712 >>END-IF
  205 GC0712     05 WS-CS-Extra-TXT VALUE SPACES.
  206 GC0712        10 WS-CS-Extra-H1-TXT              PIC X(76).
  207 GC0712        10 WS-CS-Extra-H2-TXT              PIC X(76).
  208 GC0712     05 WS-CS-Switch-Defaults-TXT.
  209 GC0712        10 VALUE F1                        PIC 9(1). *> WS-CS-DEBUG-CHR
  210 GC0712        10 VALUE F4                        PIC 9(1). *> WS-CS-EXECUTE-CHR
  211 GC0712        10 VALUE F8                        PIC 9(1). *> WS-CS-FREE-CHR
  212 GC0712        10 VALUE F3                        PIC 9(1). *> WS-CS-LIBRARY-CHR
  213 GC0712        10 VALUE F5                        PIC 9(1). *> WS-CS-LISTING-CHR
  214 GC0712        10 VALUE F6                        PIC 9(1). *> WS-CS-NOFUNC-CHR
  215 GC0712        10 VALUE F9                        PIC 9(1). *> WS-CS-NOTRUNC-CHR
  216 GC0712        10 VALUE F2                        PIC 9(1). *> WS-CS-TRACEALL-CHR
  217 GC0712        10 VALUE F7                        PIC 9(1). *> WS-CS-WARNALL-CHR
  218 GC0712     05 WS-CS-All-Switches-TXT REDEFINES
  219 GC0712                          WS-CS-Switch-Defaults-TXT.
  220 GC0712        10 WS-CS-DEBUG-CHR                 PIC X(1).
  221 GC0712        10 WS-CS-EXECUTE-CHR               PIC X(1).
  222 GC0712        10 WS-CS-FREE-CHR                  PIC X(1).
  223 GC0712        10 WS-CS-LIBRARY-CHR               PIC X(1).
  224 GC0712        10 WS-CS-LISTING-CHR               PIC X(1).
  225 GC0712        10 WS-CS-NOFUNC-CHR                PIC X(1).
  226 GC0712        10 WS-CS-NOTRUNC-CHR               PIC X(1).
  227 GC0712        10 WS-CS-TRACEALL-CHR              PIC X(1).
  228 GC0712        10 WS-CS-WARNALL-CHR               PIC X(1).
  229
  230 GC0909 01  WS-Cmd-TXT                            PIC X(512).
  231
  232 GC0712 01  WS-Cmd-Args-TXT                       PIC X(256).
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                           Page: 8
====== ====================================================================================
   233
   234 GC0712 01  WS-Cmd-End-Quote-CHR                PIC X(1).
   235
   236 GC0712 01  WS-Cmd-SUB                          USAGE BINARY-LONG.
   237
   238        01  WS-Cobc-Cmd-TXT                     PIC X(256).
   239
   240        01  WS-Config-Fn-TXT                    PIC X(12).
   241
   242 GC1113 01  WS-Delete-Fn-TXT                    PIC X(256).
   243
   244        01  WS-File-Name-TXT.
   245            05 WS-FN-CHR                         OCCURS 256 TIMES
   246                                                PIC X(1).
   247
   248        01  WS-File-Status-Message-TXT.
   249            05 VALUE 'Status Code: '            PIC X(13).
   250            05 WS-FSM-Status-CD                 PIC 9(2).
   251            05 VALUE ', Meaning: '             PIC X(11).
   252            05 WS-FSM-Msg-TXT                   PIC X(25).
   253
   254 GC0909 01  WS-Horizontal-Line-TXT              PIC X(80).
   255 GC0909
   256        01  WS-I-SUB                            USAGE BINARY-LONG.
   257
   258        01  WS-J-SUB                            USAGE BINARY-LONG.
   259
   260 GC1213 01  WS-Listing-CD VALUE F5              PIC 9(1).
   261
   262 GC0712 01  WS-Listing-Filename-TXT             PIC X(256).
   263
   264 GC1213 01  WS-Listing-TXT VALUE SPACES         PIC X(27).
   265
   266        01  WS-OC-Compile-DT                    PIC XXXX/XX/XXBXX/XX.
   267
   268 GC0712 >>IF OS = 'CYGWIN'
   269 GC0712 01  WS-OS-Dir-CHR        VALUE '/'      PIC X(1).
   270 GC0712 78  WS-OS-Exe-Ext-CONST  VALUE '.exe'.
   271 GC0712 78  WS-OS-Lib-Ext-CONST  VALUE '.dll'.
   272 GC0712 78  WS-OS-Lib-Type-CONST VALUE 'DLL)'.
   273 GC0712 01  WS-OS-Type-CD        VALUE 2        PIC 9(1).
   274 GC0712 >>ELIF OS = 'MINGW'
   275 GC0712 01  WS-OS-Dir-CHR        VALUE '\'      PIC X(1).
   276 GC0712 78  WS-OS-Exe-Ext-CONST  VALUE '.exe'.
   277 GC0712 78  WS-OS-Lib-Ext-CONST  VALUE '.dll'.
   278 GC0712 78  WS-OS-Lib-Type-CONST VALUE 'DLL)'.
   279 GC0712 01  WS-OS-Type-CD        VALUE 5        PIC 9(1).
   280 GC0712 >>ELIF OS = 'OSX'
   281 GC0712 01  WS-OS-Dir-CHR        VALUE '/'      PIC X(1).
   282 GC0712 78  WS-OS-Exe-Ext-CONST  VALUE ' '.
   283 GC0712 78  WS-OS-Lib-Ext-CONST  VALUE '.dylib'.
   284 GC0712 78  WS-OS-Lib-Type-CONST VALUE 'DYLIB)'.
   285 GC0712 01  WS-OS-Type-CD        VALUE 4        PIC 9(1).
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 9
====== ===============================================================================
  286 GC0712 >>ELIF OS = 'UNIX'
  287 GC0712 01  WS-OS-Dir-CHR          VALUE '/'       PIC X(1).
  288 GC0712 78  WS-OS-Exe-Ext-CONST    VALUE ' '.
  289 GC0712 78  WS-OS-Lib-Ext-CONST    VALUE '.so'.
  290 GC0712 78  WS-OS-Lib-Type-CONST   VALUE 'SO)'.
  291 GC0712 01  WS-OS-Type-CD          VALUE 3         PIC 9(1).
  292 GC0712 >>ELIF OS = 'WINDOWS'
  293 GC0712 01  WS-OS-Dir-CHR          VALUE '\'       PIC X(1).
  294 GC0712 78  WS-OS-Exe-Ext-CONST    VALUE '.exe'.
  295 GC0712 78  WS-OS-Lib-Ext-CONST    VALUE '.dll'.
  296 GC0712 78  WS-OS-Lib-Type-CONST   VALUE 'DLL)'.
  297 GC0712 01  WS-OS-Type-CD          VALUE 1         PIC 9(1).
  298 GC0712 >>END-IF
  299 GC0909     88 WS-OS-Windows-BOOL VALUE 1, 5.
  300 GC0909     88 WS-OS-Cygwin-BOOL  VALUE 2.
  301 GC0712     88 WS-OS-UNIX-BOOL    VALUE 3, 4.
  302 GC0712     88 WS-OS-OSX-BOOL     VALUE 4.
  303
  304        01  WS-OS-Type-FILLER-TXT.
  305            05 VALUE 'Windows'                 PIC X(14).
  306            05 VALUE 'Windows/Cygwin'          PIC X(14).
  307            05 VALUE 'UNIX/Linux'              PIC X(14).
  308            05 VALUE 'OSX'                      PIC X(14).
  309            05 VALUE 'Windows/MinGW'           PIC X(14).
  310        01  WS-OS-Types-TXT REDEFINES WS-OS-Type-FILLER-TXT.
  311            05 WS-OS-Type-TXT                   OCCURS 5 TIMES
  312                                                PIC X(14).
  313
  314        01  WS-Output-Msg-TXT                   PIC X(80).
  315
  316        01  WS-Path-Delimiter-CHR              PIC X(1).
  317
  318        01  WS-Prog-Extension-TXT              PIC X(256).
  319
  320        01  WS-Prog-Folder-TXT                 PIC X(256).
  321
  322 GC0712 01  WS-Prog-File-Name-TXT.
  323 GC0712     05 WS-PFN-CHR                       OCCURS 256 TIMES
  324 GC0712                                         PIC X(1).
  325
  326 GC0712 01  WS-Pgm-Nm-TXT                       PIC X(31).
  327
  328        01  WS-Runtime-Switches-TXT.
  329            05 WS-RS-Compile-OK-CHR        PIC X(1).
  330               88 WS-RS-Compile-OK-BOOL        VALUE 'Y'.
  331 GC0909        88 WS-RS-Compile-OK-Warn-BOOL   VALUE 'W'.
  332               88 WS-RS-Compile-Failed-BOOL    VALUE 'N'.
  333 GC0609     05 WS-RS-Complete-CHR          PIC X(1).
  334 GC0609        88 WS-RS-Complete-BOOL          VALUE 'Y'.
  335 GC0609        88 WS-RS-Not-Complete-BOOL      VALUE 'N'.
  336 GC0712     05 WS-RS-Quote-CHR             PIC X(1).
  337 GC0712        88 WS-RS-Double-Quote-Used-BOOL VALUE 'Y' FALSE 'N'.
  338 GC0809     05 WS-RS-IDENT-DIV-CHR         PIC X(1).
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                           Page: 10
====== ====================================================================================
   339 GC0809       88 WS-RS-1st-Prog-Complete-BOOL     VALUE 'Y'.
   340 GC0809       88 WS-RS-More-To-1st-Prog-BOOL      VALUE 'N'.
   341            05 WS-RS-No-Switch-Chgs-CHR           PIC X(1).
   342              88 WS-RS-No-Switch-Changes-BOOL     VALUE 'Y'.
   343              88 WS-RS-Switch-Changes-BOOL        VALUE 'N'.
   344 GC0709     05 WS-RS-Output-File-Busy-CHR         PIC X(1).
   345 GC0709       88 WS-RS-Output-File-Busy-BOOL      VALUE 'Y'.
   346 GC0709       88 WS-RS-Output-File-Avail-BOOL     VALUE 'N'.
   347 GC0809     05 WS-RS-Source-Record-Type-CHR       PIC X(1).
   348 GC0809       88 WS-RS-Source-Rec-Linkage-BOOL    VALUE 'L'.
   349 GC0809       88 WS-RS-Source-Rec-Ident-BOOL      VALUE 'I'.
   350 GC0712       88 WS-RS-Source-Rec-Ignored-BOOL    VALUE ' '.
   351            05 WS-RS-Switch-Error-CHR             PIC X(1).
   352              88 WS-RS-Switch-Is-Bad-BOOL         VALUE 'Y'.
   353              88 WS-RS-Switch-Is-Good-BOOL        VALUE 'N'.
   354
   355        01  WS-Tally-QTY                          USAGE BINARY-LONG.
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                               Page: 11
====== =========================================================================

   357        SCREEN SECTION.
   358        *>
   359        *> Here is the layout of the GCic screen.
   360        *>
   361        *> The sample screen below shows how the screen would look if the LINEDRAW
   362        *> configuration setting is set to a value of 2
   363        *>
   364        *> The following sample screen layout shows how the screen looks with line-drawing
   365        *> characters disabled.
   366        *>
   367        *>          1         2         3         4         5         6         7         8
   368        *>123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
   369        *>================================================================================
   370    01 *> GCic (2017/12/24 08:52) - GNU COBOL V3.0 24DEC2017 Interactive Compilation
   371    02 *>+----------------------------------------------------------------------------+
   372    03 *>| Folder:   E:\GNU COBOL\Samples                                              |
   373    04 *>| Filename: GCic.cbl                                                          |
   374    05 *>+----------------------------------------------------------------------------+
   375    06 *> Set/Clr Switches Via F1-F9; Set Config Via F12; ENTER Key Compiles; ESC Quits
   376    07 *>+------------------------------------------------------------+------------+
   377    08 *>| F1  Assume WITH DEBUGGING MODE  F6  "FUNCTION" Is Optional  | Current    |
   378    09 *>| F2  Procedure+Statement Trace   F7  Enable All Warnings     | Config:    |
   379    10 *>| F3  Make A Library (DLL)        F8  Source Is Free-Format   | XXXXXXXXXX |
   380    11 *>| F4  Execute If Compilation OK   F9  No COMP/BINARY Truncation |          |
   381    12 *>| F5 >Produce Listing (Landscape)                            |            |
   382    13 *>+------------------------------------------------------------+------------+
   383    14 *> Extra "cobc" Switches, If Any ("-save-temps=xxx" Prevents Listings):
   384    15 *>+----------------------------------------------------------------------------+
   385    16 *>| _____ |
   386    17 *>| _____ |
   387    18 *>+----------------------------------------------------------------------------+
   388    19 *> Program Execution Arguments, If Any:
   389    20 *>+----------------------------------------------------------------------------+
   390    21 *>| _____ |
   391    22 *>| _____ |
   392    23 *>+----------------------------------------------------------------------------+
   393    24 *> GCic Copyright (C) 2009-2018, Gary L. Cutler, GPL
   394        *>================================================================================
   395        *>123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
   396        *>          1         2         3         4         5         6         7         8
   397        *>
   398        *> If this program is run on Windows, it must run with codepage 437 activated to
   399        *> display the line-drawing characters.  With a native Windows build or a
   400        *> Windows/MinGW build, one could use the command 'chcp 437' to set that codepage
   401        *> for display within a Windows console window (that should be the default though).
   402        *> With a Windows/Cygwin build, set the environment variable CYGWIN to a value of
   403        *> 'codepage:oem' (this cannot be done from within the program though - you will
   404        *> have to use the 'Computer/Advanced System Settings/Environment Variables' (Vista
   405        *> or Windows 7) function to define the variable.  XP Users: use 'My Computer/
   406        *> Properties/Advanced/Environment Variables'.
   407        *>
   408        *> OSX users may use line drawing characters in this and any GNU COBOL program
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                        2017/12/24
                                           /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                               Page: 12
====== =================================================================================
   409       *> simply by setting their 'terminal' application's font to "Lucida Console".
   410       *>
   411       >>IF LINEDRAW IS EQUAL TO 0
   412       78 LD-UL-Corner                 VALUE ' '.
   413       78 LD-LL-Corner                 VALUE ' '.
   414       78 LD-UR-Corner                 VALUE ' '.
   415       78 LD-LR-Corner                 VALUE ' '.
   416       78 LD-Upper-T                   VALUE ' '.
   417       78 LD-Lower-T                   VALUE ' '.
   418       78 LD-Horiz-Line                VALUE ' '.
   419       78 LD-Vert-Line                 VALUE ' '.
   420       >>ELIF LINEDRAW IS EQUAL TO 1
   421       78 LD-UL-Corner                 VALUE X'DA'.
   422       78 LD-LL-Corner                 VALUE X'C0'.
   423       78 LD-UR-Corner                 VALUE X'BF'.
   424       78 LD-LR-Corner                 VALUE X'D9'.
   425       78 LD-Upper-T                   VALUE X'C2'.
   426       78 LD-Lower-T                   VALUE X'C1'.
   427       78 LD-Horiz-Line                VALUE X'C4'.
   428       78 LD-Vert-Line                 VALUE X'B3'.
   429       >>ELSE
   430       78 LD-UL-Corner                 VALUE '+'.
   431       78 LD-LL-Corner                 VALUE '+'.
   432       78 LD-UR-Corner                 VALUE '+'.
   433       78 LD-LR-Corner                 VALUE '+'.
   434       78 LD-Upper-T                   VALUE '+'.
   435       78 LD-Lower-T                   VALUE '+'.
   436       78 LD-Horiz-Line                VALUE '-'.
   437       78 LD-Vert-Line                 VALUE '|'.
   438       >>END-IF
   439
   440       01 S-Blank-SCR LINE 1 COLUMN 1 BLANK SCREEN.
   441
   442       01 S-Switches-SCR BACKGROUND-COLOR COB-COLOR-BLACK
   443                         FOREGROUND-COLOR COB-COLOR-WHITE AUTO.
   444       *>
   445       *> GENERAL SCREEN FRAMEWORK
   446       *>
   447           03 BACKGROUND-COLOR COB-COLOR-BLACK
   448              FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
   449 GC0712     05 LINE 02 COL 01          VALUE LD-UL-Corner.
   450 GC0712     05         COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
   451           05         COL 80          VALUE LD-UR-Corner.
   452
   453 GC0712     05 LINE 03 COL 01          VALUE LD-Vert-Line.
   454           05         COL 80          VALUE LD-Vert-Line.
   455
   456 GC0712     05 LINE 04 COL 01          VALUE LD-Vert-Line.
   457           05         COL 80          VALUE LD-Vert-Line.
   458
   459 GC0712     05 LINE 05 COL 01          VALUE LD-LL-Corner.
   460 GC0712     05         COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
   461           05         COL 80          VALUE LD-LR-Corner.
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                             Page: 13
====== ================================================================================
   462
   463 GC0712     05 LINE 07 COL 01           VALUE LD-UL-Corner.
   464 GC0712     05         COL 02 PIC X(65) FROM  WS-Horizontal-Line-TXT.
   465 GC0712     05         COL 67           VALUE LD-Upper-T.
   466 GC0712     05         COL 68 PIC X(12) FROM  WS-Horizontal-Line-TXT.
   467        05         COL 80           VALUE LD-UR-Corner.
   468
   469 GC0712     05 LINE 08 COL 01           VALUE LD-Vert-Line.
   470 GC0712     05         COL 67           VALUE LD-Vert-Line.
   471        05         COL 80           VALUE LD-Vert-Line.
   472
   473 GC0712     05 LINE 09 COL 01           VALUE LD-Vert-Line.
   474 GC0712     05         COL 67           VALUE LD-Vert-Line.
   475        05         COL 80           VALUE LD-Vert-Line.
   476
   477 GC0712     05 LINE 10 COL 01           VALUE LD-Vert-Line.
   478 GC0712     05         COL 67           VALUE LD-Vert-Line.
   479        05         COL 80           VALUE LD-Vert-Line.
   480
   481 GC0712     05 LINE 11 COL 01           VALUE LD-Vert-Line.
   482 GC0712     05         COL 67           VALUE LD-Vert-Line.
   483        05         COL 80           VALUE LD-Vert-Line.
   484
   485 GC0712     05 LINE 12 COL 01           VALUE LD-Vert-Line.
   486 GC0712     05         COL 67           VALUE LD-Vert-Line.
   487        05         COL 80           VALUE LD-Vert-Line.
   488
   489 GC0712     05 LINE 13 COL 01           VALUE LD-LL-Corner.
   490 GC0712     05         COL 02 PIC X(65) FROM  WS-Horizontal-Line-TXT.
   491 GC0712     05         COL 67           VALUE LD-Lower-T.
   492 GC0712     05         COL 68 PIC X(12) FROM  WS-Horizontal-Line-TXT.
   493        05         COL 80           VALUE LD-LR-Corner.
   494
   495 GC0712     05 LINE 15 COL 01           VALUE LD-UL-Corner.
   496 GC0712     05         COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
   497        05         COL 80           VALUE LD-UR-Corner.
   498
   499 GC0712     05 LINE 16 COL 01           VALUE LD-Vert-Line.
   500        05         COL 80           VALUE LD-Vert-Line.
   501
   502 GC0712     05 LINE 17 COL 01           VALUE LD-Vert-Line.
   503        05         COL 80           VALUE LD-Vert-Line.
   504
   505 GC0712     05 LINE 18 COL 01           VALUE LD-LL-Corner.
   506 GC0712     05         COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
   507        05         COL 80           VALUE LD-LR-Corner.
   508
   509 GC0712     05 LINE 20 COL 01           VALUE LD-UL-Corner.
   510 GC0712     05         COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
   511        05         COL 80           VALUE LD-UR-Corner.
   512
   513 GC0712     05 LINE 21 COL 01           VALUE LD-Vert-Line.
   514        05         COL 80           VALUE LD-Vert-Line.
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 13
@end smallformat
@page
@smallformat
@verbatim
GNUCOBOL 3.0 24DEC2017  Source Listing                                             2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                                   Page: 14
====== =========================================================================================
   515
   516 GC0712      05 LINE 22 COL 01            VALUE LD-Vert-Line.
   517              05         COL 80            VALUE LD-Vert-Line.
   518
   519 GC0712      05 LINE 23 COL 01            VALUE LD-LL-Corner.
   520 GC0712      05         COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
   521              05         COL 80            VALUE LD-LR-Corner.
   522      *>
   523      *> TOP AND BOTTOM LINES
   524      *>
   525 GC0712   03 BACKGROUND-COLOR COB-COLOR-BLUE
   526            FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   527 GC0410      05 LINE 01 COL 01 VALUE ' GCic ('.
   528 GC0410      05         COL 08 PIC X(16) FROM WS-OC-Compile-DT.
   529 GC1213      05         COL 24 VALUE ') GNUCOBOL 3.0 24DEC2017 ' &
   530 GC0410                         'Interactive Compilation        '.
   531 VC0617   03 BACKGROUND-COLOR COB-COLOR-RED
   532 GC0712      FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   533 GC0712      05 LINE 24 COL 01 PIC X(80) FROM WS-Output-Msg-TXT.
   534      *>
   535      *> LABELS
   536      *>
   537         03 BACKGROUND-COLOR COB-COLOR-BLACK
   538            FOREGROUND-COLOR COB-COLOR-CYAN  HIGHLIGHT.
   539 GC0712      05 LINE 06 COL 02 VALUE 'Set/Clr Switches Via F1-F9; ' &
   540 GC0712                         'Set Config Via F12; Enter Key ' &
   541 GC0712                         'Compiles; Esc Quits'.
   542 GC0712      05 LINE 14 COL 02 VALUE 'Extra "cobc" Switches, If Any ' &
   543 GC0712                         '("-save-temps=xxx" Prevents ' &
   544 GC0712                         'Listings):'.
   545 GC0712      05 LINE 19 COL 02 VALUE 'Program Execution Arguments, ' &
   546 GC0712                         'If Any:'.
   547 GC0712   03 BACKGROUND-COLOR COB-COLOR-BLACK
   548 GC0712      FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   549 GC0712      05 LINE 06 COL 23 VALUE 'F1'.
   550 GC0712      05         COL 26 VALUE 'F9'.
   551 GC0712      05         COL 45 VALUE 'F12'.
   552 GC0712      05         COL 50 VALUE 'ENTER'.
   553 GC0712      05         COL 70 VALUE 'ESC'.
   554      *>
   555      *> TOP SECTION BACKGROUND
   556      *>
   557         03 BACKGROUND-COLOR COB-COLOR-BLACK
   558            FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   559 GC0712      05 LINE 03 COL 62 VALUE 'Enter'.
   560 GC0712      05 LINE 04 COL 62 VALUE 'Esc'.
```

```
561
562              03 BACKGROUND-COLOR COB-COLOR-BLACK
563                 FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
564 GC0712       05 LINE 04 COL 03 VALUE 'Folder:   '.
565 GC0712       05 LINE 03 COL 03 VALUE 'Filename: '.
566
567 GC0712       05 LINE 03 COL 67 VALUE ': Compile   '.
```

==

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                      2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                               Page: 15
====== ================================================================================
  568 GC0712       05 LINE 04 COL 65 VALUE ':   Quit      '.
  569       *>
  570       *> TOP SECTION PROGRAM INFO
  571       *>
  572           03 BACKGROUND-COLOR COB-COLOR-BLACK
  573              FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
  574 GC0712       05 LINE 03 COL 13 PIC X(66) FROM WS-Prog-File-Name-TXT.
  575 GC0712       05 LINE 04 COL 13 PIC X(66) FROM WS-Prog-Folder-TXT.
  576       *>
  577       *> MIDDLE LEFT SECTION F-KEYS
  578       *>
  579           03 BACKGROUND-COLOR COB-COLOR-BLACK
  580              FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
  581 GC0712       05 LINE 08 COL 03 VALUE 'F1'.
  582 GC0712       05 LINE 09 COL 03 VALUE 'F2'.
  583 GC0712       05 LINE 10 COL 03 VALUE 'F3'.
  584 GC0712       05 LINE 11 COL 03 VALUE 'F4'.
  585 GC0712       05 LINE 12 COL 03 VALUE 'F5'.
  586
  587 GC0712       05 LINE 08 COL 35 VALUE 'F6'.
  588 GC0712       05 LINE 09 COL 35 VALUE 'F7'.
  589 GC0712       05 LINE 10 COL 35 VALUE 'F8'.
  590 GC0712       05 LINE 11 COL 35 VALUE 'F9'.
  591       *>
  592       *> MIDDLE LEFT SECTION SWITCHES
  593       *>
  594           03 BACKGROUND-COLOR COB-COLOR-BLACK
  595              FOREGROUND-COLOR COB-COLOR-RED   HIGHLIGHT.
  596 GC0712       05 LINE 08 COL 06 PIC X(1) FROM WS-CS-DEBUG-CHR.
  597 GC0712       05 LINE 09 COL 06 PIC X(1) FROM WS-CS-TRACEALL-CHR.
  598 GC0712       05 LINE 10 COL 06 PIC X(1) FROM WS-CS-LIBRARY-CHR.
  599 GC0712       05 LINE 11 COL 06 PIC X(1) FROM WS-CS-EXECUTE-CHR.
  600 GC0712       05 LINE 12 COL 06 PIC X(1) FROM WS-CS-LISTING-CHR.
  601
  602 GC0712       05 LINE 08 COL 38 PIC X(1) FROM WS-CS-NOFUNC-CHR.
  603 GC0712       05 LINE 09 COL 38 PIC X(1) FROM WS-CS-WARNALL-CHR.
  604 GC0712       05 LINE 10 COL 38 PIC X(1) FROM WS-CS-FREE-CHR.
  605 GC0712       05 LINE 11 COL 38 PIC X(1) FROM WS-CS-NOTRUNC-CHR.
  606       *>
  607       *> MIDDLE LEFT SECTION BACKGROUND
  608       *>
  609           03 BACKGROUND-COLOR COB-COLOR-BLACK
  610              FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
  611 GC0712       05 LINE 08 COL 07 VALUE 'Assume WITH DEBUGGING MODE'.
  612 GC0712       05 LINE 09 COL 07 VALUE 'Procedure+Statement Trace '.
  613 GC0712       05 LINE 10 COL 07 VALUE 'Make a Library ('.
  614 GC0712       05        COL 23 VALUE WS-OS-Lib-Type-CONST.
  615 GC0712       05 LINE 11 COL 07 VALUE 'Execute If Compilation OK '.
  616 GC1213       05 LINE 12 COL 07 FROM  WS-Listing-TXT.
  617
  618 GC0712       05 LINE 08 COL 39 VALUE '"FUNCTION" Is Optional    '.
  619 GC0712       05 LINE 09 COL 39 VALUE 'Enable All Warnings       '.
  620 GC0712       05 LINE 10 COL 39 VALUE 'Source Is Free-Format     '.
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 15
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                            Page: 16
====== =========================================================================
   621 GC0712       05 LINE 11 COL 39 VALUE 'No COMP/BINARY Truncation '.
   622      *>
   623      *> MIDDLE RIGHT SECTION Text
   624      *>
   625          03 BACKGROUND-COLOR COB-COLOR-BLACK
   626             FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
   627 GC0712       05 LINE 08 COL 69 VALUE 'Current'.
   628 GC0712       05 LINE 09 COL 69 VALUE 'Config:'.
   629      *>
   630      *> MIDDLE RIGHT SECTION CONFIG FILE
   631      *>
   632          03 BACKGROUND-COLOR COB-COLOR-BLACK
   633             FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   634 GC0712       05 LINE 10 COL 69 PIC X(10)
   635 GC0712          FROM WS-CS-Filename-TXT (WS-CS-Config-NUM).
   636      *>
   637      *> FREE-FORM OPTIONS FIELDS
   638      *>
   639          03 BACKGROUND-COLOR COB-COLOR-BLACK
   640             FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
   641 GC0712       05 LINE 16 COL 03 PIC X(76) USING WS-CS-Extra-H1-TXT.
   642 GC0712       05 LINE 17 COL 03 PIC X(76) USING WS-CS-Extra-H2-TXT.
   643 GC0712       05 LINE 21 COL 03 PIC X(76) USING WS-CS-Arg-H1-TXT.
   644 GC0712       05 LINE 22 COL 03 PIC X(76) USING WS-CS-Arg-H2-TXT.
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                               2017/12/24
                                    /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                       Page: 17
====== =========================================================================

   646       PROCEDURE DIVISION.
   647       *>**************************************************************
   648       *> Legend to procedure names:                              **
   649       *>                                                         **
   650       *> 00x-xxx   All MAIN driver procedures                    **
   651       *> 0xx-xxx   All GLOBAL UTILITY procedures                 **
   652       *> 1xx-xxx   All INITIALIZATION procedures                 **
   653       *> 2xx-xxx   All CORE PROCESSING procedures                **
   654       *> 9xx-xxx   All TERMINATION procedures                    **
   655       *>**************************************************************
   656       DECLARATIVES.
   657       000-File-Error SECTION.
   658           USE AFTER STANDARD ERROR PROCEDURE ON F-Source-Code-FILE.
   659           COPY FileStat-Msgs
   660               REPLACING STATUS BY WS-FSM-Status-CD
   661                         MSG    BY WS-FSM-Msg-TXT.
         EVALUATE WS-FSM-Status-CD
         WHEN 00 MOVE 'SUCCESS                ' TO WS-FSM-Msg-TXT
         WHEN 02 MOVE 'SUCCESS DUPLICATE      ' TO WS-FSM-Msg-TXT
         WHEN 04 MOVE 'SUCCESS INCOMPLETE     ' TO WS-FSM-Msg-TXT
         WHEN 05 MOVE 'SUCCESS OPTIONAL       ' TO WS-FSM-Msg-TXT
         WHEN 07 MOVE 'SUCCESS NO UNIT        ' TO WS-FSM-Msg-TXT
         WHEN 10 MOVE 'END OF FILE            ' TO WS-FSM-Msg-TXT
         WHEN 14 MOVE 'OUT OF KEY RANGE       ' TO WS-FSM-Msg-TXT
         WHEN 21 MOVE 'KEY INVALID            ' TO WS-FSM-Msg-TXT
         WHEN 22 MOVE 'KEY EXISTS             ' TO WS-FSM-Msg-TXT
         WHEN 23 MOVE 'KEY NOT EXISTS         ' TO WS-FSM-Msg-TXT
         WHEN 30 MOVE 'PERMANENT ERROR        ' TO WS-FSM-Msg-TXT
         WHEN 31 MOVE 'INCONSISTENT FILENAME  ' TO WS-FSM-Msg-TXT
         WHEN 34 MOVE 'BOUNDARY VIOLATION     ' TO WS-FSM-Msg-TXT
         WHEN 35 MOVE 'FILE NOT FOUND         ' TO WS-FSM-Msg-TXT
         WHEN 37 MOVE 'PERMISSION DENIED      ' TO WS-FSM-Msg-TXT
         WHEN 38 MOVE 'CLOSED WITH LOCK       ' TO WS-FSM-Msg-TXT
         WHEN 39 MOVE 'CONFLICT ATTRIBUTE     ' TO WS-FSM-Msg-TXT
         WHEN 41 MOVE 'ALREADY OPEN           ' TO WS-FSM-Msg-TXT
         WHEN 42 MOVE 'NOT OPEN               ' TO WS-FSM-Msg-TXT
         WHEN 43 MOVE 'READ NOT DONE          ' TO WS-FSM-Msg-TXT
         WHEN 44 MOVE 'RECORD OVERFLOW        ' TO WS-FSM-Msg-TXT
         WHEN 46 MOVE 'READ ERROR             ' TO WS-FSM-Msg-TXT
         WHEN 47 MOVE 'INPUT DENIED           ' TO WS-FSM-Msg-TXT
         WHEN 48 MOVE 'OUTPUT DENIED          ' TO WS-FSM-Msg-TXT
         WHEN 49 MOVE 'I/O DENIED             ' TO WS-FSM-Msg-TXT
         WHEN 51 MOVE 'RECORD LOCKED          ' TO WS-FSM-Msg-TXT
         WHEN 52 MOVE 'END-OF-PAGE            ' TO WS-FSM-Msg-TXT
         WHEN 57 MOVE 'I/O LINAGE             ' TO WS-FSM-Msg-TXT
         WHEN 61 MOVE 'FILE SHARING FAILURE   ' TO WS-FSM-Msg-TXT
         WHEN 91 MOVE 'FILE NOT AVAILABLE     ' TO WS-FSM-Msg-TXT
         END-EVALUATE.
   662           MOVE SPACES TO WS-Output-Msg-TXT
   663           IF WS-FSM-Status-CD = 35
   664               DISPLAY
   665                   'File not found: "'
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                     2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                              Page: 18
====== ========================================================================================
   666                     TRIM(WS-File-Name-TXT,TRAILING)
   667                     ,"'
   668             ELSE
   669                 DISPLAY
   670                     'Error accessing file: "'
   671                     TRIM(WS-File-Name-TXT,TRAILING)
   672                     ,"'
   673             END-IF
   674             GOBACK
   675             .
   676         END DECLARATIVES.
   677
   678         000-Main SECTION.
   679             PERFORM 100-Initialization
   680 GC0609     SET WS-RS-Not-Complete-BOOL TO TRUE
   681 GC0609     PERFORM UNTIL WS-RS-Complete-BOOL
   682 GC0609         PERFORM 200-Let-User-Set-Switches
   683 GC0609         PERFORM 210-Run-Compiler
   684 GC0410         IF (WS-RS-Compile-OK-BOOL OR WS-RS-Compile-OK-Warn-BOOL)
   685 GC0712         AND (WS-CS-LISTING-CHR > SPACE)
   686 GC0712             DISPLAY S-Blank-SCR
   687 GC0410             PERFORM 220-Make-Listing
   688 GC0410         END-IF
   689 GC0709         IF  (WS-CS-EXECUTE-CHR NOT = SPACES)
   690 GC0709         AND (WS-RS-Output-File-Avail-BOOL)
   691 GC0609             PERFORM 230-Run-Program
   692 GC0609         END-IF
   693 GC0712         PERFORM 250-Autoload-Listing
   694 GC0609     END-PERFORM
   695             PERFORM 900-Terminate
   696       * -- Control will NOT return
   697             .
```

```
===================================================================================================
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```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                             2017/12/24
                                  /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                       Page: 19
====== ========================================================================

   699        *>****************************************************************
   700        *> Perform all program-wide initialization operations        **
   701        *>****************************************************************
   702         100-Initialization SECTION.
   703        *>****************************************************************
   704        *> Make sure full screen-handling is in effect               **
   705        *>****************************************************************
   706            SET ENVIRONMENT 'COB_SCREEN_EXCEPTIONS' TO 'Y'
   707            SET ENVIRONMENT 'COB_SCREEN_ESC'        TO 'Y'
   708 VC0617     SET ENVIRONMENT "COB_EXIT_WAIT"         TO "0".
   709        *>****************************************************************
   710        *> Get GCic Compilation Date/Time                            **
   711        *>****************************************************************
   712            MOVE WHEN-COMPILED (1:12) TO WS-OC-Compile-DT
   713            INSPECT WS-OC-Compile-DT
   714                REPLACING ALL '/' BY ':'
   715                AFTER INITIAL SPACE
   716        *>****************************************************************
   717        *> Convert WS-CS-All-Switches-TXT to Needed Alphanumeric Values**
   718        *>****************************************************************
   719            INSPECT WS-CS-All-Switches-TXT
   720                REPLACING ALL '0' BY SPACE
   721                          ALL '1' BY SELCHAR
   722 GC1213               ALL '2' BY SELCHAR
   723        *>****************************************************************
   724        *> Process filename (the only command-line argument)         **
   725        *>****************************************************************
   726 GC0712     ACCEPT WS-Cmd-Args-TXT FROM COMMAND-LINE
   727 GC0712     MOVE 1 TO WS-Cmd-SUB
   728 GC0712     IF WS-Cmd-Args-TXT(WS-Cmd-SUB:1) = '"' OR "'"
   729 GC0712        MOVE WS-Cmd-Args-TXT(WS-Cmd-SUB:1)
   730 GC0712          TO WS-Cmd-End-Quote-CHR
   731 GC0712        ADD 1 TO WS-Cmd-SUB
   732 GC0712        UNSTRING WS-Cmd-Args-TXT
   733 GC0712            DELIMITED BY WS-Cmd-End-Quote-CHR
   734 GC0712            INTO WS-File-Name-TXT
   735 GC0712            WITH POINTER WS-Cmd-SUB
   736 GC0712     ELSE
   737 GC0712        UNSTRING WS-Cmd-Args-TXT
   738 GC0712            DELIMITED BY ALL SPACES
   739 GC0712            INTO WS-File-Name-TXT
   740 GC0712            WITH POINTER WS-Cmd-SUB
   741 GC0712     END-IF
   742            IF WS-File-Name-TXT = SPACES
   743 GC0712        DISPLAY 'No program filename was specified'
   744            PERFORM 900-Terminate
   745        * ------ Control will NOT return
   746            END-IF
   747        *>****************************************************************
   748        *> Determine if 'Make A Library' feature should be forced 'ON' **
   749        *>****************************************************************
   750            PERFORM 240-Find-LINKAGE-SECTION
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                     /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                          Page: 20
====== =========================================================================
  751        *>************************************************************
  752        *> Split 'WS-File-Name-TXT' into 'WS-Prog-Folder-TXT' and      **
  753        *> 'WS-Prog-File-Name-TXT'                                     **
  754        *>************************************************************
  755 GC0909     IF WS-OS-Cygwin-BOOL AND WS-File-Name-TXT (2:1) = ':'
  756 GC0712         MOVE '\' TO WS-OS-Dir-CHR
  757 GC0909     END-IF
  758 GC0712     MOVE LENGTH(WS-File-Name-TXT) TO WS-I-SUB
  759 GC0712     PERFORM UNTIL WS-I-SUB = 0
  760 GC0712     OR WS-FN-CHR (WS-I-SUB) = WS-OS-Dir-CHR
  761                SUBTRACT 1 FROM WS-I-SUB
  762            END-PERFORM
  763            IF WS-I-SUB = 0
  764                MOVE SPACES    TO WS-Prog-Folder-TXT
  765                MOVE WS-File-Name-TXT TO WS-Prog-File-Name-TXT
  766            ELSE
  767                MOVE '*' TO WS-FN-CHR (WS-I-SUB)
  768                UNSTRING WS-File-Name-TXT DELIMITED BY '*'
  769                    INTO WS-Prog-Folder-TXT
  770                         WS-Prog-File-Name-TXT
  771 GC0712         MOVE WS-OS-Dir-CHR TO WS-FN-CHR (WS-I-SUB)
  772            END-IF
  773            IF WS-Prog-Folder-TXT = SPACES
  774                ACCEPT WS-Prog-Folder-TXT FROM ENVIRONMENT 'CD'
  775 GC0909     ELSE
  776 GC0909         CALL 'CBL_CHANGE_DIR'
  777 GC0909             USING TRIM(WS-Prog-Folder-TXT,TRAILING)
  778            END-IF
  779 GC0909     IF WS-OS-Cygwin-BOOL AND WS-File-Name-TXT (2:1) = ':'
  780 GC0712         MOVE '/' TO WS-OS-Dir-CHR
  781 GC0909     END-IF
  782        *>************************************************************
  783        *> Split 'WS-Prog-File-Name-TXT' into 'WS-Pgm-Nm-TXT' &        **
  784        *> 'WS-Prog-Extension-TXT'                                     **
  785        *>************************************************************
  786 GC0712     MOVE LENGTH(WS-Prog-File-Name-TXT) TO WS-I-SUB
  787 GC0712     PERFORM UNTIL WS-I-SUB = 0
  788 GC0712     OR WS-PFN-CHR (WS-I-SUB) = '.'
  789 GC0712         SUBTRACT 1 FROM WS-I-SUB
  790 GC0712     END-PERFORM
  791 GC0712     IF WS-I-SUB = 0
  792 GC0712         MOVE WS-Prog-File-Name-TXT TO WS-Pgm-Nm-TXT
  793 GC0712         MOVE SPACES        TO WS-Prog-Extension-TXT
  794 GC0712     ELSE
  795 GC0712         MOVE '*' TO WS-PFN-CHR (WS-I-SUB)
  796 GC0712         UNSTRING WS-Prog-File-Name-TXT DELIMITED BY '*'
  797 GC0712             INTO WS-Pgm-Nm-TXT
  798 GC0712                  WS-Prog-Extension-TXT
  799 GC0712         MOVE '.' TO WS-PFN-CHR (WS-I-SUB)
  800 GC0712     END-IF
  801        *>************************************************************
  802        *> Build initial Line 24 Message                              **
  803        *>************************************************************
```

```
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```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                     2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                             Page: 21
====== ====================================================================================
   804 GC0909     MOVE ALL LD-Horiz-Line TO WS-Horizontal-Line-TXT.
   805 GC0410     MOVE CONCATENATE(' GCic for '
   806 GC0410                     TRIM(WS-OS-Type-TXT(WS-OS-Type-CD),Trailing)
   807 GC1213                     ' Copyright (C) 2009-2018, Gary L. '
   808 GC0410                     'Cutler, GPL')
   809 GC0410        TO WS-Output-Msg-TXT.
   810 GC0909
```

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```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                             Page: 22
====== =============================================================================

   812         *>****************************************************************
   813         *> Show the user the current switch settings and allow them to **
   814         *> be changed.                                                  **
   815         *>****************************************************************
   816          200-Let-User-Set-Switches SECTION.
   817              SET WS-RS-Switch-Changes-BOOL TO TRUE
   818              PERFORM UNTIL WS-RS-No-Switch-Changes-BOOL
   819 GC1213          EVALUATE WS-Listing-CD
   820 GC1213          WHEN 0
   821 GC1213              MOVE 'Listing Off'         TO WS-Listing-TXT
   822 GC1213              MOVE SPACE                 TO WS-CS-LISTING-CHR
   823 GC1213          WHEN 1
   824 GC1213              MOVE 'Listing On (Landscape)' TO WS-Listing-TXT
   825 GC1213              MOVE SELCHAR               TO WS-CS-LISTING-CHR
   826 GC1213          WHEN 2
   827 GC1213              MOVE 'Listing On (Portrait)' TO WS-Listing-TXT
   828 GC1213              MOVE SELCHAR               TO WS-CS-LISTING-CHR
   829 GC1213          END-EVALUATE
   830              ACCEPT S-Switches-SCR
   831              IF COB-CRT-STATUS > 0
   832                  EVALUATE COB-CRT-STATUS
   833                      WHEN COB-SCR-F1
   834                          IF WS-CS-DEBUG-CHR = SPACE
   835 GC0712                      MOVE SELCHAR TO WS-CS-DEBUG-CHR
   836                          ELSE
   837                              MOVE ' ' TO WS-CS-DEBUG-CHR
   838                          END-IF
   839 GC0712              WHEN COB-SCR-F2
   840 GC0712                  IF  WS-CS-TRACEALL-CHR = SPACE
   841 GC0712                      MOVE SELCHAR TO WS-CS-TRACEALL-CHR
   842 GC0712                  ELSE
   843 GC0712                      MOVE ' ' TO WS-CS-TRACEALL-CHR
   844 GC0712                  END-IF
   845                      WHEN COB-SCR-F3
   846 GC0712                  IF WS-CS-LIBRARY-CHR = SPACE
   847 GC0712                      MOVE SELCHAR TO WS-CS-LIBRARY-CHR
   848                          ELSE
   849 GC0712                      MOVE ' ' TO WS-CS-LIBRARY-CHR
   850                          END-IF
   851                      WHEN COB-SCR-F4
   852                          IF  WS-CS-EXECUTE-CHR = SPACE
   853 GC0712                      MOVE SELCHAR TO WS-CS-EXECUTE-CHR
   854                          ELSE
   855                              MOVE ' ' TO WS-CS-EXECUTE-CHR
   856                          END-IF
   857 GC0712              WHEN COB-SCR-F5
   858 GC1213                  ADD 1 TO WS-Listing-CD
   859 GC1213                  IF WS-Listing-CD > 2
   860 GC1213                      MOVE 0 TO WS-Listing-CD
   861 GC1213                  END-IF
   862 GC0712              WHEN COB-SCR-F6
   863 GC0712                  IF WS-CS-NOFUNC-CHR = SPACE
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 23
====== =========================================================================================
   864 GC0712                         MOVE SELCHAR TO WS-CS-NOFUNC-CHR
   865 GC0712                  ELSE
   866 GC0712                     MOVE ' ' TO WS-CS-NOFUNC-CHR
   867 GC0712                  END-IF
   868 GC0712               WHEN COB-SCR-F7
   869 GC0712                  IF WS-CS-WARNALL-CHR = SPACE
   870 GC0712                     MOVE SELCHAR TO WS-CS-WARNALL-CHR
   871 GC0712                  ELSE
   872 GC0712                     MOVE ' ' TO WS-CS-WARNALL-CHR
   873 GC0712                  END-IF
   874 GC0712               WHEN COB-SCR-F8
   875 GC0712                  IF WS-CS-FREE-CHR = SPACE
   876 GC0712                     MOVE SELCHAR TO WS-CS-FREE-CHR
   877 GC0712                  ELSE
   878 GC0712                     MOVE ' ' TO WS-CS-FREE-CHR
   879 GC0712                  END-IF
   880 GC0712               WHEN COB-SCR-F9
   881 GC0712                  IF  WS-CS-NOTRUNC-CHR = SPACE
   882 GC0712                     MOVE SELCHAR TO WS-CS-NOTRUNC-CHR
   883 GC0712                  ELSE
   884 GC0712                     MOVE ' ' TO WS-CS-NOTRUNC-CHR
   885 GC0712                  END-IF
   886                        WHEN COB-SCR-ESC
   887                           PERFORM 900-Terminate
   888       * ----------------- Control will NOT return
   889 GC0712               WHEN COB-SCR-F12
   890 GC0712                  ADD 1 TO WS-CS-Config-NUM
   891 GC0712                  IF WS-CS-Config-NUM > 7
   892 GC0712                     MOVE 1 TO WS-CS-Config-NUM
   893 GC0712                  END-IF
   894                        WHEN OTHER
   895                           MOVE 'An unsupported key was pressed'
   896                             TO WS-Output-Msg-TXT
   897                     END-EVALUATE
   898                ELSE
   899                    SET WS-RS-No-Switch-Changes-BOOL TO TRUE
   900                END-IF
   901           END-PERFORM
   902           .
```

```
================================================================================
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```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                          Page: 24
====== =========================================================================

   904        *>**************************************************************
   905        *> Run the compiler using the switch settings we've prepared.  **
   906        *>**************************************************************
   907         210-Run-Compiler SECTION.
   908            MOVE SPACES TO WS-Cmd-TXT
   909                          WS-Cobc-Cmd-TXT
   910                          WS-Output-Msg-TXT
   911            DISPLAY S-Switches-SCR
   912            MOVE 1 TO WS-I-SUB
   913 GC0712     MOVE LOWER-CASE(WS-CS-Filename-TXT (WS-CS-Config-NUM))
   914 GC0712       TO WS-Config-Fn-TXT
   915        *>**************************************************************
   916        *> Build the 'cobc' command                                  **
   917        *>**************************************************************
   918 GC0909     MOVE SPACES TO WS-Cobc-Cmd-TXT
   919 GC0909     STRING 'cobc -v -std='
   920 GC0909        TRIM(WS-Config-Fn-TXT,TRAILING)
   921 GC0909        ' '
   922 GC0909        INTO WS-Cobc-Cmd-TXT
   923 GC0909        WITH POINTER WS-I-SUB
   924            IF WS-CS-LIBRARY-CHR NOT = ' '
   925                STRING '-m '
   926                    DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   927                    WITH POINTER WS-I-SUB
   928            ELSE
   929                STRING '-x '
   930                    DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   931                    WITH POINTER WS-I-SUB
   932            END-IF
   933            IF WS-CS-DEBUG-CHR NOT = ' '
   934                STRING '-fdebugging-line '
   935                    DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   936                    WITH POINTER WS-I-SUB
   937            END-IF
   938            IF WS-CS-NOTRUNC-CHR NOT = ' '
   939                STRING '-fnotrunc '
   940                    DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   941                    WITH POINTER WS-I-SUB
   942            END-IF
   943            IF WS-CS-TRACEALL-CHR NOT = ' '
   944 GC0809         STRING '-ftraceall '
   945                    DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   946                    WITH POINTER WS-I-SUB
   947            END-IF
   948 GC0712     IF WS-CS-NOFUNC-CHR NOT = ' '
   949 VC0717         STRING '-fintrinsics=ALL '
   950 GC0712             DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   951 GC0712             WITH POINTER WS-I-SUB
   952 GC0712     END-IF
   953 GC0712     IF WS-CS-WARNALL-CHR NOT = ' '
   954 GC0712         STRING '-Wall '
   955 GC0712             DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                            Page: 25
====== =============================================================================
   956 GC0712          WITH POINTER WS-I-SUB
   957 GC0712     END-IF
   958 GC0712     IF WS-CS-FREE-CHR NOT = ' '
   959 GC0712        STRING '-free '
   960 GC0712            DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   961 GC0712            WITH POINTER WS-I-SUB
   962 GC0712     ELSE
   963 GC0712        STRING '-fixed '
   964 GC0712            DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   965 GC0712            WITH POINTER WS-I-SUB
   966 GC0712     END-IF
   967
   968 GC0712     MOVE 0 TO WS-Tally-QTY
   969 GC0712     INSPECT WS-CS-Extra-TXT
   970 GC0712        TALLYING WS-Tally-QTY FOR ALL '-save-temps'
   971 GC0712     IF WS-CS-LISTING-CHR > SPACE
   972 GC0712     AND WS-Tally-QTY > 0
   973 GC0712        MOVE SPACE TO WS-CS-LISTING-CHR *> Can't generate listing if -save-temps u
       sed
   974 GC0712     END-IF
   975 GC0712     IF WS-CS-LISTING-CHR > SPACE
   976 GC1010        STRING '-save-temps '
   977 GC1010            DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   978 GC1010            WITH POINTER WS-I-SUB
   979 GC1010     END-IF
   980
   981 GC0709     IF WS-CS-Extra-TXT > SPACES
   982 GC0709        STRING ' '
   983 GC0709               TRIM(WS-CS-Extra-TXT,TRAILING)
   984 GC0709               ' '
   985 GC0709            DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   986 GC0709            WITH POINTER WS-I-SUB
   987 GC0709     END-IF
   988 GC0909     STRING TRIM(WS-Prog-File-Name-TXT,TRAILING)
   989 GC0909        DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
   990 GC0909        WITH POINTER WS-I-SUB
   991      *>*************************************************************
   992      *> Prepare the compilation listing file                     **
   993      *>*************************************************************
   994 GC1113     MOVE CONCATENATE(TRIM(WS-Pgm-Nm-TXT,Trailing),'.gclst')
   995 GC0712       TO WS-Listing-Filename-TXT
   996 GC0712     CALL 'CBL_DELETE_FILE' USING WS-Listing-Filename-TXT
   997      *>*************************************************************
   998      *> Now execute the 'cobc' command                           **
   999      *>*************************************************************
  1000 GC0410     MOVE ' Compiling...' TO WS-Output-Msg-TXT
  1001 GC0410     DISPLAY S-Switches-SCR
  1002 GC0609     SET WS-RS-Output-File-Avail-BOOL TO TRUE
  1003            MOVE SPACES TO WS-Cmd-TXT
  1004            STRING TRIM(WS-Cobc-Cmd-TXT,TRAILING)
  1005 GC0712            ' >' WS-Listing-Filename-TXT
  1006 GC0712            ' 2>&1'
  1007               DELIMITED SIZE
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                       Page: 26
====== =========================================================================
 1008                 INTO WS-Cmd-TXT
 1009 DEBUG D    DISPLAY WS-Cmd-TXT UPON SYSERR
 1010           CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
 1011 GC0712    OPEN EXTEND F-Cobc-Output-FILE
 1012 GC0712    WRITE F-Cobc-Output-REC FROM SPACES
 1013 GC0712    IF RETURN-CODE = 0
 1014 GC0712        SET WS-RS-Compile-OK-BOOL TO TRUE
 1015 GC0712        MOVE ' Compilation Was Successful' TO WS-Output-Msg-TXT
 1016 GC0712        MOVE CONCATENATE('GNU COBOL',WS-Output-Msg-TXT)
 1017 GC0712           TO F-Cobc-Output-REC
 1018 GC0712        WRITE F-Cobc-Output-REC
 1019 GC0712        SET WS-RS-Complete-BOOL TO TRUE
 1020 GC0712    ELSE
 1021 GC0712        SET WS-RS-Compile-Failed-BOOL TO TRUE
 1022 GC0712        MOVE CONCATENATE(' Compilation Failed - See ',
 1023 GC0712                 TRIM(WS-Listing-Filename-TXT,Trailing))
 1024 GC0712           TO WS-Output-Msg-TXT
 1025 GC0712        MOVE 'GNU COBOL Compilation HAS FAILED - See Above'
 1026 GC0712           TO F-Cobc-Output-REC
 1027 GC0712        WRITE F-Cobc-Output-REC
 1028 GC0712    END-IF
 1029 GC0712    CLOSE F-Cobc-Output-FILE
 1030 GC0712    DISPLAY S-Switches-SCR
 1031 GC0712    CALL 'C$SLEEP' USING 2
 1032 GC0712    MOVE SPACES TO WS-Output-Msg-TXT
 1033           IF WS-RS-Compile-Failed-BOOL
 1034 GC0712        PERFORM 250-Autoload-Listing
 1035           PERFORM 900-Terminate
 1036       *> ----- Control will not return
 1037           END-IF
 1038           .
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                      Page: 26
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                            Page: 27
====== =================================================================================

  1040        *>**************************************************************
  1041        *> Generate a source + xref listing using 'LISTING' subroutine **
  1042        *>**************************************************************
  1043 GC0410 220-Make-Listing SECTION.
  1044 GC0410     MOVE ' Generating listing...' TO WS-Output-Msg-TXT
  1045 GC0410     DISPLAY S-Switches-SCR
  1046 GC0410     MOVE 0 TO RETURN-CODE
  1047        *>**************************************************************
  1048        *> Create the listing                                        **
  1049        *>**************************************************************
  1050 GC0410     MOVE SPACES TO WS-Output-Msg-TXT
  1051 GC0410     CALL 'LISTING' USING WS-Listing-Filename-TXT
  1052 GC0712                          WS-File-Name-TXT
  1053 GC0712                          WS-OS-Type-CD
  1054 GC1213                          LPP
  1055 GC1213                          LPPP
  1056 GC1213                          WS-Listing-CD
  1057 GC0410     ON EXCEPTION
  1058 GC0410        MOVE ' LISTING module is not available'
  1059 GC0410          TO WS-Output-Msg-TXT
  1060 GC0410        MOVE 1 TO RETURN-CODE
  1061 GC0410     END-CALL
  1062 GC0410     IF RETURN-CODE = 0
  1063 GC0712        MOVE ' Source+Xref listing generated '
  1064 GC0712          TO WS-Output-Msg-TXT
  1065 GC0410     END-IF
  1066 GC0712     DISPLAY S-Switches-SCR
  1067 GC0712     CALL 'C$SLEEP' USING 2
  1068 GC0712     PERFORM 250-Autoload-Listing
  1069 GC0410     .
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                      Page: 27
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                             Page: 28
======  ================================================================================

  1071       *>*************************************************************
  1072       *> Run the compiled program                                  **
  1073       *>*************************************************************
  1074       230-Run-Program SECTION.
  1075 GC0114    MOVE ' Preparing to run program ... press ENTER to close '
  1076 GC0114      TO WS-Output-Msg-TXT
  1077 GC0114    DISPLAY S-Switches-SCR
  1078 GC0114    CALL 'C$SLEEP' USING 3
  1079 GC0909    MOVE SPACES TO WS-Cmd-TXT
  1080 GC0909    MOVE 1 TO WS-I-SUB
  1081       *>*************************************************************
  1082       *> If necessary, start with 'cobcrun' command                **
  1083       *>*************************************************************
  1084 GC0712    IF WS-CS-LIBRARY-CHR NOT = ' '
  1085              STRING 'cobcrun ' DELIMITED SIZE
  1086                    INTO WS-Cmd-TXT
  1087                    WITH POINTER WS-I-SUB
  1088            END-IF
  1089       *>*************************************************************
  1090       *> Add any necessary path prefix                             **
  1091       *>*************************************************************
  1092 GC0712    SET WS-RS-Double-Quote-Used-BOOL TO FALSE
  1093            IF WS-Prog-Folder-TXT NOT = SPACES
  1094 GC0909        IF WS-OS-Cygwin-BOOL AND WS-Prog-Folder-TXT (2:1) = ':'
  1095 GC0909            STRING '/cygdrive/'
  1096 GC0909                INTO WS-Cmd-TXT
  1097 GC0909                WITH POINTER WS-I-SUB
  1098 GC0909            STRING LOWER-CASE(WS-Prog-Folder-TXT (1:1))
  1099 GC0909                INTO WS-Cmd-TXT
  1100 GC0909                WITH POINTER WS-I-SUB
  1101 GC0909            PERFORM
  1102 GC0909                VARYING WS-J-SUB FROM 3 BY 1
  1103 GC0909                UNTIL WS-J-SUB > LENGTH(TRIM(WS-Prog-Folder-TXT))
  1104 GC0909                IF WS-Prog-Folder-TXT (WS-J-SUB:1) = '\'
  1105 GC0909                    STRING '/'
  1106 GC0909                        INTO WS-Cmd-TXT
  1107 GC0909                        WITH POINTER WS-I-SUB
  1108 GC0909                ELSE
  1109 GC0909                    STRING WS-Prog-Folder-TXT (WS-J-SUB:1)
  1110 GC0909                        INTO WS-Cmd-TXT
  1111 GC0909                        WITH POINTER WS-I-SUB
  1112 GC0909                END-IF
  1113 GC0909            END-PERFORM
  1114 GC0909        ELSE
  1115 GC0410            STRING '"' TRIM(WS-Prog-Folder-TXT,TRAILING)
  1116 GC0909                INTO WS-Cmd-TXT
  1117 GC0909                WITH POINTER WS-I-SUB
  1118 GC0712            SET WS-RS-Double-Quote-Used-BOOL TO TRUE
  1119 GC0909        END-IF
  1120 GC0712        STRING WS-OS-Dir-CHR
  1121 GC0909            INTO WS-Cmd-TXT
  1122 GC0909            WITH POINTER WS-I-SUB
```

```
================================================================================================
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```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                          Page: 29
====== =========================================================================
 1123 GC0909     ELSE
 1124 GC0909         IF WS-OS-Cygwin-BOOL OR WS-OS-UNIX-BOOL
 1125 GC0909             STRING './'
 1126 GC0909                 INTO WS-Cmd-TXT
 1127 GC0909                 WITH POINTER WS-I-SUB
 1128 GC0909         END-IF
 1129           END-IF
 1130      *>**************************************************************
 1131      *> Insert program filename                                   **
 1132      *>**************************************************************
 1133 GC0909     STRING TRIM(WS-Pgm-Nm-TXT,TRAILING)
 1134 GC0909         INTO WS-Cmd-TXT
 1135 GC0909         WITH POINTER WS-I-SUB
 1136      *>**************************************************************
 1137      *> Insert proper extension                                   **
 1138      *>**************************************************************
 1139 GC0712     IF WS-CS-LIBRARY-CHR = ' '
 1140 GC0712         IF WS-OS-Exe-Ext-CONST > ' '
 1141 GC0712             STRING WS-OS-Exe-Ext-CONST DELIMITED SPACE
 1142 GC0712                 INTO WS-Cmd-TXT
 1143 GC0712                 WITH POINTER WS-I-SUB
 1144 GC0712         END-IF
 1145 GC0712     ELSE
 1146 GC0712         IF WS-OS-Lib-Ext-CONST > ' '
 1147 GC0712             STRING WS-OS-Lib-Ext-CONST DELIMITED SPACE
 1148 GC0712                 INTO WS-Cmd-TXT
 1149 GC0712                 WITH POINTER WS-I-SUB
 1150 GC0712         END-IF
 1151 GC0712     END-IF
 1152 GC0712     IF WS-RS-Double-Quote-Used-BOOL
 1153 GC0712         STRING '"' DELIMITED SIZE
 1154 GC0712             INTO WS-Cmd-TXT
 1155 GC0712             WITH POINTER WS-I-SUB
 1156 GC0712     END-IF
 1157           IF WS-CS-Args-TXT NOT = SPACES
 1158 GC0809         STRING ' ' TRIM(WS-CS-Args-TXT,TRAILING)
 1159                 INTO WS-Cmd-TXT
 1160                 WITH POINTER WS-I-SUB
 1161           END-IF
 1162      *>**************************************************************
 1163      *> Run the program                                           **
 1164      *>**************************************************************
 1165 GC0114     CALL X'E4'
 1166           CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
 1167 GC0712     MOVE SPACES TO WS-Output-Msg-TXT
 1168 GC0114     ACCEPT WS-Output-Msg-TXT(1:1) AT 0101
 1169           PERFORM 900-Terminate
 1170      * -- Control will NOT return
 1171           .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                        Page: 30
====== =========================================================================

  1173        *>**********************************************************
  1174        *> Determine if the program being compiled is a MAIN program   **
  1175        *>**********************************************************
  1176         240-Find-LINKAGE-SECTION SECTION.
  1177             OPEN INPUT F-Source-Code-FILE
  1178 GC0712     MOVE ' ' TO WS-CS-LIBRARY-CHR
  1179             SET WS-RS-More-To-1st-Prog-BOOL   TO TRUE
  1180             PERFORM UNTIL WS-RS-1st-Prog-Complete-BOOL
  1181                 READ F-Source-Code-FILE AT END
  1182                     CLOSE F-Source-Code-FILE
  1183                     EXIT SECTION
  1184                 END-READ
  1185 GC0712         CALL 'CHECKSRC'
  1186 GC0712             USING BY CONTENT   F-Source-Code-REC
  1187 GC0712                   BY REFERENCE WS-RS-Source-Record-Type-CHR
  1188             IF WS-RS-Source-Rec-Ident-BOOL
  1189                 SET WS-RS-1st-Prog-Complete-BOOL TO TRUE
  1190             END-IF
  1191             END-PERFORM
  1192 GC0712     SET WS-RS-Source-Rec-Ignored-BOOL TO TRUE
  1193             PERFORM UNTIL WS-RS-Source-Rec-Linkage-BOOL
  1194                     OR WS-RS-Source-Rec-Ident-BOOL
  1195                 READ F-Source-Code-FILE AT END
  1196                     CLOSE F-Source-Code-FILE
  1197                     EXIT SECTION
  1198                 END-READ
  1199 GC0712         CALL 'CHECKSRC'
  1200 GC0712             USING BY CONTENT   F-Source-Code-REC
  1201 GC0712                   BY REFERENCE WS-RS-Source-Record-Type-CHR
  1202             END-PERFORM
  1203             CLOSE F-Source-Code-FILE
  1204             IF WS-RS-Source-Rec-Linkage-BOOL
  1205 GC0712         MOVE SELCHAR TO WS-CS-LIBRARY-CHR
  1206             END-IF
  1207             .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 31
====== =================================================================================

 1209 GC0712*>****************************************************************
 1210 GC0712*> Attempt to open the listing file as a command.  This will - **
 1211 GC1113*> if the user has associated filetype/extension 'gclst' with  **
 1212 GC0712*> an application - invoke the appropriate application to      **
 1213 GC0712*> allow the user to view the listing.                         **
 1214 GC0712*>****************************************************************'
 1215 GC0712 250-Autoload-Listing SECTION.
 1216 GC0712     EVALUATE TRUE
 1217 GC0712         WHEN WS-OS-Windows-BOOL OR WS-OS-Cygwin-BOOL
 1218 GC0712             MOVE SPACES TO WS-Cmd-TXT
 1219 GC0712             STRING
 1220 GC0712                 'cmd /c '
 1221 GC0712                 TRIM(WS-Listing-Filename-TXT,TRAILING)
 1222 GC0712                 DELIMITED SIZE INTO WS-Cmd-TXT
 1223 GC0712             CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
 1224 GC0712         WHEN WS-OS-OSX-BOOL
 1225 GC0712             MOVE SPACES TO WS-Cmd-TXT
 1226 GC0712             STRING
 1227 GC0712                 'open -t '
 1228 GC0712                 TRIM(WS-Listing-Filename-TXT,TRAILING)
 1229 GC0712                 DELIMITED SIZE INTO WS-Cmd-TXT
 1230 GC0712             CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
 1231 GC0712     END-EVALUATE
 1232 GC0712*>    ************************************************************
 1233 GC0712*>    ** Since we had to do our own '-save-temps' when we      **
 1234 GC0712*>    ** compiled (in order to generate the cross-reference    **
 1235 GC0712*>    ** listing) we now need to clean up after ourselves.     **
 1236 GC0712*>    ************************************************************
 1237 GC1112     DISPLAY S-Blank-SCR
 1238 GC0712     IF WS-OS-Windows-BOOL
 1239 GC0712         MOVE CONCATENATE('del ',TRIM(WS-Pgm-Nm-TXT,TRAILING))
 1240 GC0712           TO WS-Cmd-TXT
 1241 GC0712     ELSE
 1242 GC0712         MOVE CONCATENATE('rm ',TRIM(WS-Pgm-Nm-TXT,TRAILING))
 1243 GC0712           TO WS-Cmd-TXT
 1244 GC0712     END-IF
 1245 GC0712     CALL 'SYSTEM'
 1246 GC0712         USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.c')
 1247 GC0712     CALL 'SYSTEM'
 1248 GC0712         USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.c.h')
 1249 GC0712     CALL 'SYSTEM'
 1250 GC0712         USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.c.l*.h')
 1251 GC0712     CALL 'SYSTEM'
 1252 GC0712         USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.i')
 1253 GC0712     CALL 'SYSTEM'
 1254 GC0712         USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.o')
 1255
 1256 GC0712     .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                    /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                       Page: 32
====== =========================================================================

  1258        *>***********************************************************
  1259        *> Display a message and halt the program                 **
  1260        *>***********************************************************
  1261         900-Terminate SECTION.
  1262 GC0909     IF WS-Output-Msg-TXT > SPACES
  1263 GC0909         DISPLAY S-Switches-SCR
  1264 GC0909         CALL 'C$SLEEP' USING 2
  1265 GC0909     END-IF
  1266            DISPLAY S-Blank-SCR
  1267            STOP RUN
  1268            .
  1269
  1270        END PROGRAM GCic.
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                            2017/12/24
                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                    Page: 33
====== =====================================================================
  1272        IDENTIFICATION DIVISION.
  1273        PROGRAM-ID.  CHECKSRC.
  1274        *>***********************************************************
  1275        *> This subprogram will scan a line of source code it is given **
  1276        *> looking for 'LINKAGE SECTION' or 'IDENTIFICATION DIVISION'. **
  1277        *>                                                           **
  1278        *>   ****NOTE****   ****NOTE****    ****NOTE****   ****NOTE*** **
  1279        *>                                                           **
  1280        *> These two strings must be found IN THEIR ENTIRETY within   **
  1281        *> the 1st 80 columns of program source records, and cannot   **
  1282        *> follow either a '*>' sequence OR a '*' in col 7.           **
  1283        *>***********************************************************
  1284        *>  DATE   CHANGE DESCRIPTION                                **
  1285        *> ====== ================================================== **
  1286        *> GC0809 Initial coding.                                    **
  1287        *>***********************************************************
  1288        ENVIRONMENT DIVISION.
  1289        CONFIGURATION SECTION.
  1290        REPOSITORY.
  1291            FUNCTION ALL INTRINSIC.
  1292        DATA DIVISION.
  1293        WORKING-STORAGE SECTION.
  1294        01  WS-Compressed-Src-TXT.
  1295            05 WS-CS-CHR                     OCCURS 80 TIMES
  1296                                            PIC X(1).
  1297
  1298        01  WS-Runtime-Switches-TXT.
  1299            05 WS-RS-Found-SPACE-CHR        PIC X(1).
  1300               88 WS-RS-Skipping-SPACE-BOOL    VALUE 'Y'.
  1301               88 WS-RS-Not-Skipping-SPACE-BOOL VALUE 'N'.
  1302
  1303        01  WS-I-SUB                        USAGE BINARY-CHAR.
  1304
  1305        01  WS-J-SUB                        USAGE BINARY-CHAR.
  1306        LINKAGE SECTION.
  1307        01  L-Argument-1-TXT.
  1308            02 L-A1-CHR                     OCCURS 80 TIMES
  1309                                            PIC X(1).
  1310
  1311        01  L-Argument-2-CHR               PIC X(1).
  1312            88 L-A2-LINKAGE-SECTION-BOOL VALUE 'L'.
  1313            88 L-A2-IDENT-DIVISION-BOOL  VALUE 'I'.
  1314            88 L-A2-Nothing-Special-BOOL VALUE ' '.
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                         Page: 34
====== =========================================================================

 1316 GC0712 PROCEDURE DIVISION USING BY VALUE     L-Argument-1-TXT
 1317 GC0712                            BY REFERENCE L-Argument-2-CHR.
 1318       000-Main SECTION.
 1319           SET L-A2-Nothing-Special-BOOL TO TRUE
 1320           IF L-A1-CHR (7) = '*'
 1321               GOBACK
 1322           END-IF
 1323               .
 1324       *>
 1325       *> Compress multiple consecutive spaces
 1326       *>
 1327           SET WS-RS-Not-Skipping-SPACE-BOOL TO TRUE
 1328           MOVE 0 TO WS-J-SUB
 1329           MOVE SPACES TO WS-Compressed-Src-TXT
 1330           PERFORM VARYING WS-I-SUB FROM 1 BY 1
 1331                   UNTIL WS-I-SUB > 80
 1332               IF L-A1-CHR (WS-I-SUB) = SPACE
 1333                   IF WS-RS-Not-Skipping-SPACE-BOOL
 1334                       ADD 1 TO WS-J-SUB
 1335                       MOVE UPPER-CASE(L-A1-CHR (WS-I-SUB))
 1336                         TO WS-CS-CHR (WS-J-SUB)
 1337                       SET WS-RS-Skipping-SPACE-BOOL TO TRUE
 1338                   END-IF
 1339               ELSE
 1340                   SET WS-RS-Not-Skipping-SPACE-BOOL TO TRUE
 1341                   ADD 1 TO WS-J-SUB
 1342                   MOVE L-A1-CHR (WS-I-SUB) TO WS-CS-CHR (WS-J-SUB)
 1343               END-IF
 1344           END-PERFORM
 1345       *>
 1346       *> Scan the compressed source line
 1347       *>
 1348           PERFORM VARYING WS-I-SUB FROM 1 BY 1
 1349                   UNTIL WS-I-SUB > 66
 1350               EVALUATE TRUE
 1351                   WHEN WS-CS-CHR (WS-I-SUB) = '*'
 1352                       IF WS-Compressed-Src-TXT (WS-I-SUB : 2) = '*>'
 1353                           GOBACK
 1354                       END-IF
 1355                   WHEN (WS-CS-CHR (WS-I-SUB) = 'L') AND (WS-I-SUB < 66)
 1356                       IF WS-Compressed-Src-TXT (WS-I-SUB : 15)
 1357                          = 'LINKAGE SECTION'
 1358                           SET L-A2-LINKAGE-SECTION-BOOL TO TRUE
 1359                           GOBACK
 1360                       END-IF
 1361                   WHEN (WS-CS-CHR (WS-I-SUB) = 'I') AND (WS-I-SUB < 58)
 1362                       IF WS-Compressed-Src-TXT (WS-I-SUB : 23)
 1363                          = 'IDENTIFICATION DIVISION'
 1364                           SET L-A2-IDENT-DIVISION-BOOL TO TRUE
 1365                           GOBACK
 1366                       END-IF
 1367               END-EVALUATE
```

===
```
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```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                     /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                      Page: 35
====== =========================================================================
 1368          END-PERFORM
 1369       *>
 1370       *> If we get to here, we never found anything!
 1371       *>
 1372 +        GOBACK
 1373          .
 1374       END PROGRAM CHECKSRC.
 1375
 1376       IDENTIFICATION DIVISION.
 1377       PROGRAM-ID.  LISTING.
 1378       *>*************************************************************
 1379       *> This subprogram generates a cross-reference listing of an   **
 1380       *> GNU COBOL program.                                          **
 1381       *>*************************************************************
 1382       *>                                                             **
 1383       *> AUTHOR:      GARY L. CUTLER                                 **
 1384       *>              Copyright (C) 2010, Gary L. Cutler, GPL         **
 1385       *>                                                             **
 1386       *> DATE-WRITTEN: April 1, 2010                                 **
 1387       *>                                                             **
 1388       *>*************************************************************
 1389       *>  DATE  CHANGE DESCRIPTION                                   **
 1390       *> ====== =================================================== **
 1391       *> GC0410 Initial coding                                       **
 1392       *> GC0711 Updates to accommodate the 12MAR2010 version of OC   **
 1393       *> GC0710 Handle duplicate data names (i.e. 'CORRESPONDING' or **
 1394       *>        qualified items) better; ignore 'END PROGRAM' recs   **
 1395       *>        so program name doesn't appear in listing.           **
 1396       *> GC0313 Fix problem where the first procedure name defined   **
 1397       *>        in the PROCEDURE DIVISION lacks a "Defined" line      **
 1398       *>        number.                                              **
 1399       *> GC1213 Updated for 23NOV2013 version of GNU COBOL 2.1; Stop **
 1400       *>        showing functions as if they were identifiers in the **
 1401       *>        xref listing; Flag all CALL argument references with **
 1402       *>        a "C" rather than "*" because they aren't necessari- **
 1403       *>        ly altered; Fixed assorted formatting bugs; DOWN-     **
 1404       *>        WARD COMPATIBLE WITH GNU COBOL 2.0 SYNTAX             **
 1405       *> GC0314 Fix problem where 1st char of 1st token on a line is **
 1406       *>        lost if >>SOURCE MODE IS FREE is in effect and the    **
 1407       *>        1st character is non-blank.                          **
 1408       *> VC1217 Updated compiler version & date to v3.0 & 24DEC2017. **
 1409       *>*************************************************************
 1410       ENVIRONMENT DIVISION.
 1411       CONFIGURATION SECTION.
 1412       REPOSITORY.
 1413           FUNCTION ALL INTRINSIC.
 1414       INPUT-OUTPUT SECTION.
 1415       FILE-CONTROL.
 1416           SELECT F-Expanded-Src-FILE  ASSIGN TO WS-Expanded-Src-Fn-TXT
 1417                                       ORGANIZATION IS LINE SEQUENTIAL.
 1418 GC0712    SELECT F-Listing-FILE       ASSIGN TO L-Listing-Fn-TXT
 1419                                       ORGANIZATION IS LINE SEQUENTIAL.
 1420           SELECT F-Original-Src-FILE  ASSIGN TO L-Src-Fn-TXT
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 36
====== =========================================================================
 1421                                  ORGANIZATION IS LINE SEQUENTIAL.
 1422          SELECT F-Sort-Work-FILE    ASSIGN TO DISK.
 1423       DATA DIVISION.
 1424       FILE SECTION.
 1425       FD  F-Expanded-Src-FILE.
 1426       01  F-Expanded-Src-REC.
 1427           05 F-ES-1-CHR                  PIC X.
 1428           05 F-ES-2-256-TXT-256          PIC X(256).
 1429 GC0712 01  F-Expanded-Src2-REC.
 1430 GC0712     05 F-ES-1-7-TXT               PIC X(7).
 1431 GC0712     05 F-ES-8-256-TXT             PIC X(249).
 1432
 1433 GC0712 FD  F-Listing-FILE.
 1434 GC1213 01  F-Listing-96-REC              PIC X(96).
 1435 GC1213 01  F-Listing-135-REC             PIC X(135).
 1436       01  F-Listing-REC                  PIC X(135).
 1437
 1438       FD  F-Original-Src-FILE.
 1439       01  F-Original-Src-REC.
 1440 GC0410     05 F-OS-1-128-TXT.
 1441 GC0410        10 FILLER                   PIC X(6).
 1442 GC0410        10 F-OS-7-CHR               PIC X(1).
 1443 GC0712        10 F-OS-8-72-TXT            PIC X(65).
 1444 GC0712        10 FILLER                   PIC X(56).
 1445           05 F-OS-129-256-TXT            PIC X(128).
 1446
 1447       SD  F-Sort-Work-FILE.
 1448       01  F-Sort-Work-REC.
 1449           05 F-SW-Prog-ID-TXT            PIC X(15).
 1450           05 F-SW-Token-Uc-TXT           PIC X(32).
 1451           05 F-SW-Token-TXT              PIC X(32).
 1452           05 F-SW-Section-TXT            PIC X(15).
 1453           05 F-SW-Def-Line-NUM           PIC 9(6).
 1454           05 F-SW-Reference-TXT.
 1455              10 F-SW-Ref-Line-NUM         PIC 9(6).
 1456              10 F-SW-Ref-Flag-CHR         PIC X(1).
 1457
 1458       WORKING-STORAGE SECTION.
 1459 GC1213 01  WS-Copyright-TXT              PIC X(86).
 1460
 1461       01  WS-Curr-CHR                    PIC X(1).
 1462           88 WS-Curr-Char-Is-Punct-BOOL      VALUE '=', '(', ')',
 1463                                               '*', '/', '&',
 1464                                               ';', ',', '<',
 1465                                               '>', ':'.
 1466           88 WS-Curr-Char-Is-Quote-BOOL      VALUE "'", '"'.
 1467           88 WS-Curr-Char-Is-X-BOOL          VALUE 'x', 'X'.
 1468           88 WS-Curr-Char-Is-Z-BOOL          VALUE 'z', 'Z'.
 1469
 1470       01  WS-Curr-Division-TXT           PIC X(1).
 1471 GC1010     88 WS-CD-In-IDENT-DIV-BOOL         VALUE 'i', 'I', '?'.
 1472 GC1010     88 WS-CD-In-ENV-DIV-BOOL           VALUE 'e', 'E'.
 1473 GC1010     88 WS-CD-In-DATA-DIV-BOOL          VALUE 'd', 'D'.
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                 2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 37
====== ========================================================================
 1474 GC1010      88 WS-CD-In-PROC-DIV-BOOL            VALUE 'p', 'P'.
 1475
 1476        01  WS-Curr-Line-NUM                      PIC 9(6).
 1477
 1478        01  WS-Curr-Prog-ID-TXT.
 1479            05 FILLER                             PIC X(12).
 1480            05 WS-CPI-13-15-TXT                   PIC X(3).
 1481 GC0712     05 WS-CPI-16-CHR                      PIC X(1).
 1482
 1483        01  WS-Curr-Section-TXT.
 1484            05 WS-CS-1-CHR                        PIC X(1).
 1485            05 WS-CS-2-14-TXT.
 1486                10 FILLER                         PIC X(10).
 1487                10 WS-CS-11-14-TXT                PIC X(3).
 1488            05 WS-CS-15-CHR                       PIC X(1).
 1489
 1490        01  WS-Curr-Verb-TXT                      PIC X(12).
 1491
 1492        01  WS-Delim-TXT                          PIC X(2).
 1493
 1494        01  WS-Dummy-TXT                          PIC X(1).
 1495
 1496        01  WS-Expanded-Src-Fn-TXT                PIC X(256).
 1497
 1498        01  WS-Filename-TXT                       PIC X(256).
 1499
 1500 GC1213 01  WS-Flags-TXT.
 1501 GC1213     05 WS-Suppress-FF-CHR                 PIC X(1).
 1502
 1503 GC1213 01  WS-Formatted-DT                       PIC 9999/99/99.
 1504
 1505        01  WS-Group-Indicators-TXT.
 1506            05 WS-GI-Prog-ID-TXT                  PIC X(15).
 1507            05 WS-GI-Token-TXT                    PIC X(32).
 1508
 1509        01  WS-Held-Reference-TXT                 PIC X(100).
 1510
 1511        01  WS-I-SUB                              USAGE BINARY-LONG.
 1512
 1513        01  WS-J-SUB                              USAGE BINARY-LONG.
 1514
 1515        01  WS-Lines-Left-NUM                     USAGE BINARY-LONG.
 1516
 1517        01  WS-Lines-Per-Page-NUM                 USAGE BINARY-LONG.
 1518
 1519        01  WS-Lines-Per-Page-Env-TXT             PIC X(256).
 1520
 1521 GC1010 01  WS-Main-Module-Name-TXT               PIC X(256).
 1522
 1523        01  WS-Next-CHR                           PIC X(1).
 1524            88 WS-Next-Char-Is-Quote-BOOL         VALUE '"', "'".
 1525
 1526        01  WS-OS-Type-FILLER-TXT.
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                                 Page: 38
====== =================================================================================
 1527           05 VALUE 'Windows'                PIC X(14).
 1528           05 VALUE 'Windows/Cygwin'         PIC X(14).
 1529           05 VALUE 'UNIX/Linux'             PIC X(14).
 1530           05 VALUE 'OSX'                    PIC X(14).
 1531           05 VALUE 'Windows/MinGW'          PIC X(14).
 1532       01  WS-OS-Types-TXT REDEFINES WS-OS-Type-FILLER-TXT.
 1533           05 WS-OS-Type-TXT                 PIC X(14)
 1534                                   OCCURS 5 TIMES .
 1535
 1536 GC0712 01  WS-Page-NUM                      USAGE BINARY-LONG.
 1537
 1538 GC0712 01  WS-Page-No-TXT.
 1539 GC0712     05 WS-PN-Literal-TXT             PIC X(6).
 1540 GC0712     05 WS-PN-Page-NUM                PIC Z(3)9.
 1541
 1542 GC1213 01  WS-Program-Path-TXT             PIC X(135).
 1543
 1544       01  WS-Reserved-Words-TXT.
 1545           05 VALUE '                        ' PIC X(33).
 1546 GC1213     05 VALUE 'FABS                   ' PIC X(33).
 1547           05 VALUE 'VACCEPT                 ' PIC X(33).
 1548           05 VALUE ' ACCESS                 ' PIC X(33).
 1549 GC1213     05 VALUE 'FACOS                  ' PIC X(33).
 1550           05 VALUE ' ACTIVE-CLASS           ' PIC X(33).      UNIMPLEMENTED
 1551           05 VALUE 'VADD                    ' PIC X(33).
 1552           05 VALUE ' ADDRESS                ' PIC X(33).
 1553           05 VALUE ' ADVANCING              ' PIC X(33).
 1554           05 VALUE 'KAFTER                  ' PIC X(33).
 1555           05 VALUE ' ALIGNED                ' PIC X(33).      UNIMPLEMENTED
 1556           05 VALUE ' ALL                    ' PIC X(33).
 1557           05 VALUE 'VALLOCATE               ' PIC X(33).
 1558           05 VALUE ' ALPHABET               ' PIC X(33).
 1559           05 VALUE ' ALPHABETIC             ' PIC X(33).
 1560           05 VALUE ' ALPHABETIC-LOWER       ' PIC X(33).
 1561           05 VALUE ' ALPHABETIC-UPPER       ' PIC X(33).
 1562           05 VALUE ' ALPHANUMERIC           ' PIC X(33).
 1563           05 VALUE ' ALPHANUMERIC-EDITED    ' PIC X(33).
 1564           05 VALUE ' ALSO                   ' PIC X(33).
 1565           05 VALUE 'VALTER                  ' PIC X(33).
 1566           05 VALUE ' ALTERNATE              ' PIC X(33).
 1567           05 VALUE ' AND                    ' PIC X(33).
 1568 GC1213     05 VALUE 'FANNUITY               ' PIC X(33).
 1569           05 VALUE ' ANY                    ' PIC X(33).
 1570           05 VALUE ' ANYCASE                ' PIC X(33).      UNIMPLEMENTED
 1571           05 VALUE ' ARE                    ' PIC X(33).
 1572           05 VALUE ' AREA                   ' PIC X(33).
 1573           05 VALUE ' AREAS                  ' PIC X(33).
 1574           05 VALUE ' ARGUMENT-NUMBER        ' PIC X(33).
 1575           05 VALUE ' ARGUMENT-VALUE         ' PIC X(33).
 1576           05 VALUE ' ARITHMETIC             ' PIC X(33).      UNIMPLEMENTED
 1577           05 VALUE ' AS                     ' PIC X(33).
 1578           05 VALUE ' ASCENDING              ' PIC X(33).
 1579           05 VALUE ' ASCII                  ' PIC X(33).
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 39
====== ==========================================================================
 1580 GC1213     05 VALUE 'FASIN                  ' PIC X(33).
 1581             05 VALUE ' ASSIGN                ' PIC X(33).
 1582             05 VALUE ' AT                    ' PIC X(33).
 1583 GC1213     05 VALUE 'FATAN                  ' PIC X(33).
 1584 GC0711     05 VALUE ' ATTRIBUTE             ' PIC X(33).
 1585             05 VALUE ' AUTHOR                ' PIC X(33).     OBSOLETE
 1586             05 VALUE ' AUTO                  ' PIC X(33).
 1587             05 VALUE ' AUTO-SKIP             ' PIC X(33).
 1588             05 VALUE ' AUTOMATIC             ' PIC X(33).
 1589             05 VALUE ' AUTOTERMINATE         ' PIC X(33).
 1590             05 VALUE ' AWAY-FROM-ZERO        ' PIC X(33).
 1591             05 VALUE ' B-AND                 ' PIC X(33).     UNIMPLEMENTED
 1592             05 VALUE ' B-NOT                 ' PIC X(33).     UNIMPLEMENTED
 1593             05 VALUE ' B-OR                  ' PIC X(33).     UNIMPLEMENTED
 1594             05 VALUE ' B-XOR                 ' PIC X(33).     UNIMPLEMENTED
 1595             05 VALUE ' BACKGROUND-COLOR      ' PIC X(33).
 1596             05 VALUE ' BACKGROUND-COLOUR     ' PIC X(33).
 1597             05 VALUE ' BASED                 ' PIC X(33).
 1598             05 VALUE ' BEEP                  ' PIC X(33).
 1599             05 VALUE ' BEFORE                ' PIC X(33).
 1600             05 VALUE ' BELL                  ' PIC X(33).
 1601             05 VALUE ' BINARY                ' PIC X(33).
 1602             05 VALUE ' BINARY-C-LONG         ' PIC X(33).
 1603             05 VALUE ' BINARY-CHAR           ' PIC X(33).
 1604             05 VALUE ' BINARY-DOUBLE         ' PIC X(33).
 1605             05 VALUE ' BINARY-INT            ' PIC X(33).
 1606             05 VALUE ' BINARY-LONG           ' PIC X(33).
 1607             05 VALUE ' BINARY-LONG-LONG      ' PIC X(33).
 1608             05 VALUE ' BINARY-SHORT          ' PIC X(33).
 1609             05 VALUE ' BIT                   ' PIC X(33).     UNIMPLEMENTED
 1610             05 VALUE ' BLANK                 ' PIC X(33).
 1611             05 VALUE ' BLINK                 ' PIC X(33).
 1612             05 VALUE ' BLOCK                 ' PIC X(33).
 1613             05 VALUE ' BOOLEAN               ' PIC X(33).     UNIMPLEMENTED
 1614 GC1213     05 VALUE 'FBOOLEAN-OF-INTEGER    ' PIC X(33).     UNIMPLEMENTED
 1615             05 VALUE ' BOTTOM                ' PIC X(33).
 1616             05 VALUE 'YBY                    ' PIC X(33).
 1617 GC1213     05 VALUE 'FBYTE-LENGTH           ' PIC X(33).
 1618             05 VALUE 'MC01                   ' PIC X(33).
 1619             05 VALUE 'MC02                   ' PIC X(33).
 1620             05 VALUE 'MC03                   ' PIC X(33).
 1621             05 VALUE 'MC04                   ' PIC X(33).
 1622             05 VALUE 'MC05                   ' PIC X(33).
 1623             05 VALUE 'MC06                   ' PIC X(33).
 1624             05 VALUE 'MC07                   ' PIC X(33).
 1625             05 VALUE 'MC08                   ' PIC X(33).
 1626             05 VALUE 'MC09                   ' PIC X(33).
 1627             05 VALUE 'MC10                   ' PIC X(33).
 1628             05 VALUE 'MC11                   ' PIC X(33).
 1629             05 VALUE 'MC12                   ' PIC X(33).
 1630             05 VALUE 'VCALL                  ' PIC X(33).
 1631             05 VALUE 'MCALL-CONVENTION       ' PIC X(33).
 1632             05 VALUE 'VCANCEL                ' PIC X(33).
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 40
====== ================================================================================
 1633           05 VALUE ' CAPACITY                    ' PIC X(33).     UNIMPLEMENTED
 1634           05 VALUE ' CD                          ' PIC X(33).     OBSOLETE
 1635           05 VALUE ' CENTER                      ' PIC X(33).     UNIMPLEMENTED
 1636           05 VALUE ' CF                          ' PIC X(33).
 1637           05 VALUE ' CH                          ' PIC X(33).
 1638           05 VALUE ' CHAIN                       ' PIC X(33).     UNIMPLEMENTED
 1639           05 VALUE ' CHAINING                    ' PIC X(33).
 1640 GC1213    05 VALUE 'FCHAR                        ' PIC X(33).
 1641 GC1213    05 VALUE 'FCHAR-NATIONAL               ' PIC X(33).     UNIMPLEMENTED
 1642           05 VALUE ' CHARACTER                   ' PIC X(33).
 1643           05 VALUE ' CHARACTERS                  ' PIC X(33).
 1644           05 VALUE ' CLASS                       ' PIC X(33).
 1645           05 VALUE ' CLASS-ID                    ' PIC X(33).     UNIMPLEMENTED
 1646 GC0711    05 VALUE ' CLASSIFICATION              ' PIC X(33).
 1647           05 VALUE 'VCLOSE                       ' PIC X(33).
 1648 GC1213    05 VALUE 'FCOB-CRT-STATUS              ' PIC X(33).
 1649           05 VALUE ' CODE                        ' PIC X(33).
 1650           05 VALUE ' CODE-SET                    ' PIC X(33).
 1651           05 VALUE ' COL                         ' PIC X(33).
 1652           05 VALUE ' COLLATING                   ' PIC X(33).
 1653           05 VALUE ' COLS                        ' PIC X(33).
 1654           05 VALUE ' COLUMN                      ' PIC X(33).
 1655           05 VALUE ' COLUMNS                     ' PIC X(33).
 1656 GC1213    05 VALUE 'FCOMBINED-DATETIME           ' PIC X(33).
 1657           05 VALUE ' COMMA                       ' PIC X(33).
 1658           05 VALUE ' COMMAND-LINE                ' PIC X(33).
 1659           05 VALUE 'VCOMMIT                      ' PIC X(33).
 1660           05 VALUE ' COMMON                      ' PIC X(33).
 1661           05 VALUE ' COMMUNICATION               ' PIC X(33).     OBSOLETE
 1662           05 VALUE ' COMP                        ' PIC X(33).
 1663           05 VALUE ' COMP-1                      ' PIC X(33).
 1664           05 VALUE ' COMP-2                      ' PIC X(33).
 1665           05 VALUE ' COMP-3                      ' PIC X(33).
 1666           05 VALUE ' COMP-4                      ' PIC X(33).
 1667           05 VALUE ' COMP-5                      ' PIC X(33).
 1668           05 VALUE ' COMP-6                      ' PIC X(33).
 1669           05 VALUE ' COMP-X                      ' PIC X(33).
 1670           05 VALUE ' COMPUTATIONAL               ' PIC X(33).
 1671           05 VALUE ' COMPUTATIONAL-1             ' PIC X(33).
 1672           05 VALUE ' COMPUTATIONAL-2             ' PIC X(33).
 1673           05 VALUE ' COMPUTATIONAL-3             ' PIC X(33).
 1674           05 VALUE ' COMPUTATIONAL-4             ' PIC X(33).
 1675           05 VALUE ' COMPUTATIONAL-5             ' PIC X(33).
 1676           05 VALUE ' COMPUTATIONAL-X             ' PIC X(33).
 1677           05 VALUE 'VCOMPUTE                     ' PIC X(33).
 1678 GC1213    05 VALUE 'FCONCATENATE                 ' PIC X(33).
 1679 GC0712    05 VALUE ' CONDITION                   ' PIC X(33).
 1680           05 VALUE 'KCONFIGURATION               ' PIC X(33).
 1681           05 VALUE 'MCONSOLE                     ' PIC X(33).
 1682           05 VALUE ' CONSTANT                    ' PIC X(33).
 1683           05 VALUE ' CONTAINS                    ' PIC X(33).
 1684 GC0712    05 VALUE 'ACONTENT                     ' PIC X(33).
 1685           05 VALUE 'VCONTINUE                    ' PIC X(33).
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GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                   Page: 41
====== =========================================================================
 1686           05 VALUE ' CONTROL              ' PIC X(33).
 1687           05 VALUE ' CONTROLS             ' PIC X(33).
 1688 GC0711    05 VALUE ' CONVERSION           ' PIC X(33).
 1689           05 VALUE 'KCONVERTING           ' PIC X(33).
 1690           05 VALUE ' COPY                 ' PIC X(33).
 1691           05 VALUE ' CORR                 ' PIC X(33).
 1692           05 VALUE ' CORRESPONDING        ' PIC X(33).
 1693 GC1213    05 VALUE 'FCOS                  ' PIC X(33).
 1694           05 VALUE 'KCOUNT                ' PIC X(33).
 1695           05 VALUE ' CRT                  ' PIC X(33).
 1696           05 VALUE ' CRT-UNDER            ' PIC X(33).
 1697           05 VALUE 'MCSP                  ' PIC X(33).
 1698           05 VALUE ' CURRENCY             ' PIC X(33).
 1699 GC1213    05 VALUE 'FCURRENCY-SYMBOL      ' PIC X(33).
 1700 GC1213    05 VALUE 'FCURRENT-DATE         ' PIC X(33).
 1701           05 VALUE ' CURSOR               ' PIC X(33).
 1702           05 VALUE ' CYCLE                ' PIC X(33).
 1703           05 VALUE 'KDATA                 ' PIC X(33).
 1704           05 VALUE ' DATA-POINTER         ' PIC X(33).    UNIMPLEMENTED
 1705           05 VALUE ' DATE                 ' PIC X(33).
 1706           05 VALUE ' DATE-COMPILED        ' PIC X(33).    OBSOLETE
 1707           05 VALUE ' DATE-MODIFIED        ' PIC X(33).    OBSOLETE
 1708 GC1213    05 VALUE 'FDATE-OF-INTEGER      ' PIC X(33).
 1709 GC1213    05 VALUE 'FDATE-TO-YYYYMMDD     ' PIC X(33).
 1710           05 VALUE ' DATE-WRITTEN         ' PIC X(33).    OBSOLETE
 1711           05 VALUE ' DAY                  ' PIC X(33).
 1712 GC1213    05 VALUE 'FDAY-OF-INTEGER       ' PIC X(33).
 1713           05 VALUE ' DAY-OF-WEEK          ' PIC X(33).
 1714 GC1213    05 VALUE 'IDAY-TO-YYYYDDD       ' PIC X(33).
 1715           05 VALUE ' DE                   ' PIC X(33).
 1716 GC0712    05 VALUE 'IDEBUG-CONTENTS       ' PIC X(33).
 1717 GC0712    05 VALUE 'IDEBUG-ITEM           ' PIC X(33).
 1718 GC0712    05 VALUE 'IDEBUG-LINE           ' PIC X(33).
 1719 GC0712    05 VALUE 'IDEBUG-NAME           ' PIC X(33).
 1720 GC0712    05 VALUE 'IDEBUG-SUB-1          ' PIC X(33).
 1721 GC0712    05 VALUE 'IDEBUG-SUB-2          ' PIC X(33).
 1722 GC0712    05 VALUE 'IDEBUG-SUB-3          ' PIC X(33).
 1723           05 VALUE ' DEBUGGING            ' PIC X(33).
 1724           05 VALUE ' DECIMAL-POINT        ' PIC X(33).
 1725           05 VALUE ' DECLARATIVES         ' PIC X(33).
 1726           05 VALUE ' DEFAULT              ' PIC X(33).
 1727           05 VALUE 'VDELETE               ' PIC X(33).
 1728           05 VALUE ' DELIMITED            ' PIC X(33).
 1729           05 VALUE 'KDELIMITER            ' PIC X(33).
 1730           05 VALUE ' DEPENDING            ' PIC X(33).
 1731           05 VALUE ' DESCENDING           ' PIC X(33).
 1732           05 VALUE ' DESTINATION          ' PIC X(33).    UNIMPLEMENTED
 1733           05 VALUE ' DETAIL               ' PIC X(33).
 1734 GC0711    05 VALUE ' DISC                 ' PIC X(33).
 1735           05 VALUE ' DISK                 ' PIC X(33).
 1736           05 VALUE 'VDISPLAY              ' PIC X(33).
 1737 GC1213    05 VALUE 'FDISPLAY-OF           ' PIC X(33).    UNIMPLEMENTED
 1738           05 VALUE 'VDIVIDE               ' PIC X(33).
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GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 42
====== ===============================================================================
 1739              05 VALUE 'KDIVISION                   ' PIC X(33).
 1740              05 VALUE 'KDOWN                       ' PIC X(33).
 1741              05 VALUE ' DUPLICATES                 ' PIC X(33).
 1742              05 VALUE ' DYNAMIC                    ' PIC X(33).
 1743 GC1213       05 VALUE 'FE                          ' PIC X(33).
 1744              05 VALUE ' EBCDIC                     ' PIC X(33).
 1745 GC0712       05 VALUE ' EC                         ' PIC X(33).
 1746              05 VALUE ' EGI                        ' PIC X(33).     OBSOLETE
 1747              05 VALUE 'VELSE                       ' PIC X(33).
 1748              05 VALUE ' EMI                        ' PIC X(33).     OBSOLETE
 1749              05 VALUE ' EMPTY-CHECK                ' PIC X(33).
 1750              05 VALUE 'VENABLE                     ' PIC X(33).     OBSOLETE
 1751 GC0710       05 VALUE 'KEND                        ' PIC X(33).
 1752              05 VALUE ' END-ACCEPT                 ' PIC X(33).
 1753              05 VALUE ' END-ADD                    ' PIC X(33).
 1754              05 VALUE ' END-CALL                   ' PIC X(33).
 1755              05 VALUE ' END-CHAIN                  ' PIC X(33).     UNIMPLEMENTED
 1756              05 VALUE ' END-COMPUTE                ' PIC X(33).
 1757              05 VALUE ' END-DELETE                 ' PIC X(33).
 1758              05 VALUE ' END-DISPLAY                ' PIC X(33).
 1759              05 VALUE ' END-DIVIDE                 ' PIC X(33).
 1760              05 VALUE ' END-EVALUATE               ' PIC X(33).
 1761              05 VALUE ' END-IF                     ' PIC X(33).
 1762              05 VALUE ' END-MULTIPLY               ' PIC X(33).
 1763              05 VALUE ' END-OF-PAGE                ' PIC X(33).
 1764              05 VALUE ' END-PERFORM                ' PIC X(33).
 1765              05 VALUE ' END-READ                   ' PIC X(33).
 1766              05 VALUE ' END-RECEIVE                ' PIC X(33).     OBSOLETE
 1767              05 VALUE ' END-RETURN                 ' PIC X(33).
 1768              05 VALUE ' END-REWRITE                ' PIC X(33).
 1769              05 VALUE ' END-SEARCH                 ' PIC X(33).
 1770              05 VALUE ' END-START                  ' PIC X(33).
 1771              05 VALUE ' END-STRING                 ' PIC X(33).
 1772              05 VALUE ' END-SUBTRACT               ' PIC X(33).
 1773              05 VALUE ' END-UNSTRING               ' PIC X(33).
 1774              05 VALUE ' END-WRITE                  ' PIC X(33).
 1775              05 VALUE 'VENTRY                      ' PIC X(33).
 1776              05 VALUE ' ENTRY-CONVENTION           ' PIC X(33).     UNIMPLEMENTED
 1777              05 VALUE 'KENVIRONMENT                ' PIC X(33).
 1778              05 VALUE ' ENVIRONMENT-NAME           ' PIC X(33).
 1779              05 VALUE ' ENVIRONMENT-VALUE          ' PIC X(33).
 1780              05 VALUE ' EO                         ' PIC X(33).     UNIMPLEMENTED
 1781              05 VALUE ' EOL                        ' PIC X(33).
 1782              05 VALUE ' EOP                        ' PIC X(33).
 1783              05 VALUE ' EOS                        ' PIC X(33).
 1784              05 VALUE ' EQUAL                      ' PIC X(33).
 1785              05 VALUE 'KEQUALS                     ' PIC X(33).
 1786              05 VALUE ' ERASE                      ' PIC X(33).
 1787              05 VALUE ' ERROR                      ' PIC X(33).
 1788              05 VALUE ' ESCAPE                     ' PIC X(33).
 1789              05 VALUE ' ESI                        ' PIC X(33).     OBSOLETE
 1790              05 VALUE 'VEVALUATE                   ' PIC X(33).
 1791              05 VALUE ' EXCEPTION                  ' PIC X(33).
```

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  1792 GC1213     05 VALUE 'FEXCEPTION-FILE              ' PIC X(33).
  1793 GC1213     05 VALUE 'FEXCEPTION-FILE-N            ' PIC X(33).    UNIMPLEMENTED
  1794 GC1213     05 VALUE 'FEXCEPTION-LOCATION          ' PIC X(33).
  1795 GC1213     05 VALUE 'FEXCEPTION-LOCATION-N        ' PIC X(33).    UNIMPLEMENTED
  1796        05 VALUE ' EXCEPTION-OBJECT            ' PIC X(33).    UNIMPLEMENTED
  1797 GC1213     05 VALUE 'FEXCEPTION-STATEMENT         ' PIC X(33).
  1798 GC1213     05 VALUE 'FEXCEPTION-STATUS            ' PIC X(33).
  1799        05 VALUE ' EXCLUSIVE                   ' PIC X(33).
  1800        05 VALUE 'VEXIT                        ' PIC X(33).
  1801 GC1213     05 VALUE 'FEXP                         ' PIC X(33).
  1802 GC1213     05 VALUE 'FEXP10                       ' PIC X(33).
  1803        05 VALUE ' EXPANDS                     ' PIC X(33).    UNIMPLEMENTED
  1804        05 VALUE ' EXTEND                      ' PIC X(33).
  1805        05 VALUE ' EXTERNAL                    ' PIC X(33).
  1806 GC1213     05 VALUE 'FFACTORIAL                   ' PIC X(33).
  1807        05 VALUE ' FACTORY                     ' PIC X(33).    UNIMPLEMENTED
  1808        05 VALUE ' FALSE                       ' PIC X(33).
  1809        05 VALUE 'KFD                          ' PIC X(33).
  1810        05 VALUE 'KFILE                        ' PIC X(33).
  1811        05 VALUE ' FILE-CONTROL                ' PIC X(33).
  1812        05 VALUE ' FILE-ID                     ' PIC X(33).
  1813 GC1113     05 VALUE ' FILLER                      ' PIC X(33).
  1814        05 VALUE ' FINAL                       ' PIC X(33).
  1815        05 VALUE ' FIRST                       ' PIC X(33).
  1816 GC0712     05 VALUE ' FLOAT-BINARY-128            ' PIC X(33).    UNIMPLEMENTED
  1817 GC0712     05 VALUE ' FLOAT-BINARY-32             ' PIC X(33).    UNIMPLEMENTED
  1818 GC0712     05 VALUE ' FLOAT-BINARY-64             ' PIC X(33).    UNIMPLEMENTED
  1819        05 VALUE ' FLOAT-DECIMAL-16            ' PIC X(33).
  1820        05 VALUE ' FLOAT-DECIMAL-34            ' PIC X(33).
  1821        05 VALUE ' FLOAT-EXTENDED              ' PIC X(33).    UNIMPLEMENTED
  1822 GC0712     05 VALUE ' FLOAT-INFINITY              ' PIC X(33).    UNIMPLEMENTED
  1823        05 VALUE ' FLOAT-LONG                  ' PIC X(33).
  1824 GC0712     05 VALUE ' FLOAT-NOT-A-NUMBER          ' PIC X(33).    UNIMPLEMENTED
  1825        05 VALUE ' FLOAT-SHORT                 ' PIC X(33).
  1826        05 VALUE ' FOOTING                     ' PIC X(33).
  1827        05 VALUE ' FOR                         ' PIC X(33).
  1828        05 VALUE ' FOREGROUND-COLOR            ' PIC X(33).
  1829        05 VALUE ' FOREGROUND-COLOUR           ' PIC X(33).
  1830 GC0711     05 VALUE ' FOREVER                     ' PIC X(33).
  1831        05 VALUE ' FORMAT                      ' PIC X(33).    UNIMPLEMENTED
  1832 GC1213     05 VALUE 'FFORMATTED-CURRENT-DATE      ' PIC X(33).    UNIMPLEMENTED
  1833 GC1213     05 VALUE 'FFORMATTED-DATE              ' PIC X(33).    UNIMPLEMENTED
  1834 GC1213     05 VALUE 'FFORMATTED-DATETIME          ' PIC X(33).    UNIMPLEMENTED
  1835 GC1213     05 VALUE 'FFORMATTED-TIME              ' PIC X(33).    UNIMPLEMENTED
  1836        05 VALUE 'MFORMFEED                    ' PIC X(33).
  1837 GC1213     05 VALUE 'FFRACTION-PART               ' PIC X(33).
  1838        05 VALUE 'VFREE                        ' PIC X(33).
  1839        05 VALUE ' FROM                        ' PIC X(33).
  1840        05 VALUE ' FULL                        ' PIC X(33).
  1841        05 VALUE ' FUNCTION                    ' PIC X(33).
  1842 GC0712     05 VALUE 'KFUNCTION-ID                 ' PIC X(33).
  1843        05 VALUE ' FUNCTION-POINTER            ' PIC X(33).    UNIMPLEMENTED
  1844        05 VALUE 'VGENERATE                    ' PIC X(33).
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 1845             05 VALUE ' GET                    ' PIC X(33).    UNIMPLEMENTED
 1846             05 VALUE 'KGIVING                  ' PIC X(33).
 1847             05 VALUE ' GLOBAL                  ' PIC X(33).
 1848             05 VALUE 'VGO                      ' PIC X(33).
 1849             05 VALUE 'VGOBACK                  ' PIC X(33).
 1850             05 VALUE ' GREATER                 ' PIC X(33).
 1851             05 VALUE ' GROUP                   ' PIC X(33).
 1852             05 VALUE ' GROUP-USAGE             ' PIC X(33).    UNIMPLEMENTED
 1853             05 VALUE ' HEADING                 ' PIC X(33).
 1854             05 VALUE ' HIGH-VALUE              ' PIC X(33).
 1855             05 VALUE ' HIGH-VALUES             ' PIC X(33).
 1856 GC1213      05 VALUE 'FHIGHEST-ALGEBRAIC       ' PIC X(33).
 1857             05 VALUE ' HIGHLIGHT               ' PIC X(33).
 1858             05 VALUE ' I-O                     ' PIC X(33).
 1859             05 VALUE ' I-O-CONTROL             ' PIC X(33).
 1860             05 VALUE 'KID                      ' PIC X(33).
 1861             05 VALUE 'KIDENTIFICATION          ' PIC X(33).
 1862             05 VALUE 'VIF                      ' PIC X(33).
 1863             05 VALUE ' IGNORE                  ' PIC X(33).
 1864             05 VALUE ' IGNORING                ' PIC X(33).
 1865             05 VALUE ' IMPLEMENTS              ' PIC X(33).    UNIMPLEMENTED
 1866             05 VALUE ' IN                      ' PIC X(33).
 1867             05 VALUE ' INDEX                   ' PIC X(33).
 1868             05 VALUE 'KINDEXED                 ' PIC X(33).
 1869             05 VALUE ' INDICATE                ' PIC X(33).
 1870             05 VALUE ' INDIRECT                ' PIC X(33).    UNIMPLEMENTED
 1871             05 VALUE ' INHERITS                ' PIC X(33).    UNIMPLEMENTED
 1872             05 VALUE ' INITIAL                 ' PIC X(33).
 1873             05 VALUE 'VINITIALISE              ' PIC X(33).
 1874             05 VALUE ' INITIALISED             ' PIC X(33).
 1875             05 VALUE 'VINITIALIZE              ' PIC X(33).
 1876             05 VALUE ' INITIALIZED             ' PIC X(33).
 1877             05 VALUE 'VINITIATE                ' PIC X(33).
 1878             05 VALUE ' INPUT                   ' PIC X(33).
 1879             05 VALUE 'KINPUT-OUTPUT            ' PIC X(33).
 1880             05 VALUE 'VINSPECT                 ' PIC X(33).
 1881             05 VALUE ' INSTALLATION            ' PIC X(33).    OBSOLETE
 1882 GC1213      05 VALUE 'FINTEGER                 ' PIC X(33).
 1883 GC1213      05 VALUE 'FINTEGER-OF-BOOLEAN      ' PIC X(33).    UNIMPLEMENTED
 1884 GC1213      05 VALUE 'FINTEGER-OF-DATE         ' PIC X(33).
 1885 GC1213      05 VALUE 'FINTEGER-OF-DAY          ' PIC X(33).
 1886 GC1213      05 VALUE 'FINTEGER-OF-FORMATTED-DATE ' PIC X(33).  UNIMPLEMENTED
 1887 GC1213      05 VALUE 'FINTEGER-PART            ' PIC X(33).
 1888             05 VALUE ' INTERFACE               ' PIC X(33).    UNIMPLEMENTED
 1889             05 VALUE ' INTERFACE-ID            ' PIC X(33).    UNIMPLEMENTED
 1890             05 VALUE ' INTERMEDIATE            ' PIC X(33).    UNIMPLEMENTED
 1891             05 VALUE 'KINTO                    ' PIC X(33).
 1892             05 VALUE ' INTRINSIC               ' PIC X(33).
 1893             05 VALUE ' INVALID                 ' PIC X(33).
 1894             05 VALUE ' INVOKE                  ' PIC X(33).    UNIMPLEMENTED
 1895             05 VALUE ' IS                      ' PIC X(33).
 1896             05 VALUE ' JUST                    ' PIC X(33).
 1897             05 VALUE ' JUSTIFIED               ' PIC X(33).
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 1898           05 VALUE ' KEPT                        ' PIC X(33).
 1899           05 VALUE ' KEY                         ' PIC X(33).
 1900           05 VALUE ' KEYBOARD                    ' PIC X(33).
 1901           05 VALUE ' LABEL                       ' PIC X(33).
 1902           05 VALUE ' LAST                        ' PIC X(33).
 1903           05 VALUE ' LC_ALL                      ' PIC X(33).    UNIMPLEMENTED
 1904           05 VALUE ' LC_COLLATE                  ' PIC X(33).    UNIMPLEMENTED
 1905           05 VALUE ' LC_CTYPE                    ' PIC X(33).    UNIMPLEMENTED
 1906           05 VALUE ' LC_MESSAGES                 ' PIC X(33).    UNIMPLEMENTED
 1907           05 VALUE ' LC_MONETARY                 ' PIC X(33).    UNIMPLEMENTED
 1908           05 VALUE ' LC_NUMERIC                  ' PIC X(33).    UNIMPLEMENTED
 1909           05 VALUE ' LC_TIME                     ' PIC X(33).    UNIMPLEMENTED
 1910           05 VALUE ' LEADING                     ' PIC X(33).
 1911           05 VALUE ' LEFT                        ' PIC X(33).
 1912           05 VALUE ' LEFT-JUSTIFY                ' PIC X(33).    UNIMPLEMENTED
 1913           05 VALUE ' LEFTLINE                    ' PIC X(33).
 1914 GC1213    05 VALUE 'FLENGTH                      ' PIC X(33).
 1915 GC1213    05 VALUE 'FLENGTH-AN                   ' PIC X(33).
 1916           05 VALUE ' LENGTH-CHECK                ' PIC X(33).
 1917           05 VALUE ' LESS                        ' PIC X(33).
 1918           05 VALUE ' LIMIT                       ' PIC X(33).
 1919           05 VALUE ' LIMITS                      ' PIC X(33).
 1920           05 VALUE ' LINAGE                      ' PIC X(33).
 1921           05 VALUE 'ILINAGE-COUNTER              ' PIC X(33).
 1922           05 VALUE ' LINE                        ' PIC X(33).
 1923 GC1213    05 VALUE 'ILINE-COUNTER                ' PIC X(33).
 1924           05 VALUE ' LINES                       ' PIC X(33).
 1925           05 VALUE 'KLINKAGE                     ' PIC X(33).
 1926           05 VALUE 'KLOCAL-STORAGE               ' PIC X(33).
 1927           05 VALUE ' LOCALE                      ' PIC X(33).
 1928 GC1213    05 VALUE 'FLOCALE-COMPARE              ' PIC X(33).
 1929 GC1213    05 VALUE 'FLOCALE-DATE                 ' PIC X(33).
 1930 GC1213    05 VALUE 'FLOCALE-TIME                 ' PIC X(33).
 1931 GC1213    05 VALUE 'FLOCALE-TIME-FROM-SECONDS    ' PIC X(33).
 1932           05 VALUE ' LOCK                        ' PIC X(33).
 1933 GC1213    05 VALUE 'FLOG                         ' PIC X(33).
 1934 GC1213    05 VALUE 'FLOG10                       ' PIC X(33).
 1935           05 VALUE ' LOW-VALUE                   ' PIC X(33).
 1936           05 VALUE ' LOW-VALUES                  ' PIC X(33).
 1937           05 VALUE ' LOWER                       ' PIC X(33).
 1938 GC1213    05 VALUE 'FLOWER-CASE                  ' PIC X(33).
 1939 GC1213    05 VALUE 'FLOWEST-ALGEBRAIC            ' PIC X(33).
 1940           05 VALUE ' LOWLIGHT                    ' PIC X(33).
 1941           05 VALUE ' MANUAL                      ' PIC X(33).
 1942 GC1213    05 VALUE 'FMAX                         ' PIC X(33).
 1943 GC1213    05 VALUE 'FMEAN                        ' PIC X(33).
 1944 GC1213    05 VALUE 'FMEDIAN                      ' PIC X(33).
 1945           05 VALUE ' MEMORY                      ' PIC X(33).
 1946           05 VALUE 'VMERGE                       ' PIC X(33).
 1947           05 VALUE ' MESSAGE                     ' PIC X(33).    OBSOLETE
 1948           05 VALUE ' METHOD                      ' PIC X(33).    UNIMPLEMENTED
 1949           05 VALUE ' METHOD-ID                   ' PIC X(33).    UNIMPLEMENTED
 1950 GC1213    05 VALUE 'FMIDRANGE                    ' PIC X(33).
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 1951 GC1213     05 VALUE 'FMIN                        ' PIC X(33).
 1952            05 VALUE ' MINUS                       ' PIC X(33).
 1953 GC1213     05 VALUE 'FMOD                        ' PIC X(33).
 1954            05 VALUE ' MODE                        ' PIC X(33).
 1955 GC1213     05 VALUE 'FMODULE-CALLER-ID            ' PIC X(33).
 1956 GC1213     05 VALUE 'FMODULE-DATE                 ' PIC X(33).
 1957 GC1213     05 VALUE 'FMODULE-FORMATTED-DATE       ' PIC X(33).
 1958 GC1213     05 VALUE 'FMODULE-ID                   ' PIC X(33).
 1959 GC1213     05 VALUE 'FMODULE-PATH                 ' PIC X(33).
 1960 GC1213     05 VALUE 'FMODULE-SOURCE               ' PIC X(33).
 1961 GC1213     05 VALUE 'FMODULE-TIME                 ' PIC X(33).
 1962 GC1213     05 VALUE 'FMONETARY-DECIMAL-POINT      ' PIC X(33).
 1963 GC1213     05 VALUE 'FMONETARY-THOUSANDS-SEPARATOR ' PIC X(33).
 1964            05 VALUE 'VMOVE                        ' PIC X(33).
 1965            05 VALUE ' MULTIPLE                    ' PIC X(33).
 1966            05 VALUE 'VMULTIPLY                    ' PIC X(33).
 1967 GC0711     05 VALUE ' NAME                        ' PIC X(33).
 1968            05 VALUE ' NATIONAL                    ' PIC X(33).
 1969            05 VALUE ' NATIONAL-EDITED             ' PIC X(33).
 1970 GC1213     05 VALUE 'FNATIONAL-OF                 ' PIC X(33).    UNIMPLEMENTED
 1971            05 VALUE ' NATIVE                      ' PIC X(33).
 1972            05 VALUE ' NEAREST-AWAY-FROM-ZERO      ' PIC X(33).
 1973            05 VALUE ' NEAREST-EVEN                ' PIC X(33).
 1974            05 VALUE ' NEAREST-TOWARD-ZERO         ' PIC X(33).
 1975            05 VALUE ' NEGATIVE                    ' PIC X(33).
 1976            05 VALUE ' NESTED                      ' PIC X(33).    UNIMPLEMENTED
 1977            05 VALUE 'VNEXT                        ' PIC X(33).
 1978            05 VALUE ' NO                          ' PIC X(33).
 1979            05 VALUE ' NO-ECHO                     ' PIC X(33).
 1980            05 VALUE ' NONE                        ' PIC X(33).    UNIMPLEMENTED
 1981            05 VALUE ' NORMAL                      ' PIC X(33).
 1982            05 VALUE ' NOT                         ' PIC X(33).
 1983            05 VALUE ' NULL                        ' PIC X(33).
 1984            05 VALUE ' NULLS                       ' PIC X(33).
 1985            05 VALUE ' NUMBER                      ' PIC X(33).
 1986            05 VALUE 'INUMBER-OF-CALL-PARAMETERS   ' PIC X(33).
 1987            05 VALUE ' NUMBERS                     ' PIC X(33).
 1988            05 VALUE ' NUMERIC                     ' PIC X(33).
 1989 GC1213     05 VALUE 'FNUMERIC-DECIMAL-POINT       ' PIC X(33).
 1990            05 VALUE ' NUMERIC-EDITED              ' PIC X(33).
 1991 GC1213     05 VALUE 'FNUMERIC-THOUSANDS-SEPARATOR ' PIC X(33).
 1992 GC1213     05 VALUE 'FNUMVAL                      ' PIC X(33).
 1993 GC1213     05 VALUE 'FNUMVAL-C                    ' PIC X(33).
 1994 GC1213     05 VALUE 'FNUMVAL-F                    ' PIC X(33).
 1995            05 VALUE ' OBJECT                      ' PIC X(33).    UNIMPLEMENTED
 1996            05 VALUE ' OBJECT-COMPUTER             ' PIC X(33).
 1997            05 VALUE ' OBJECT-REFERENCE            ' PIC X(33).    UNIMPLEMENTED
 1998            05 VALUE ' OCCURS                      ' PIC X(33).
 1999            05 VALUE ' OF                          ' PIC X(33).
 2000            05 VALUE ' OFF                         ' PIC X(33).
 2001            05 VALUE ' OMITTED                     ' PIC X(33).
 2002            05 VALUE ' ON                          ' PIC X(33).
 2003            05 VALUE ' ONLY                        ' PIC X(33).
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 2004              05 VALUE 'VOPEN                          ' PIC X(33).
 2005              05 VALUE ' OPTIONAL                       ' PIC X(33).
 2006              05 VALUE ' OPTIONS                        ' PIC X(33).        UNIMPLEMENTED
 2007              05 VALUE ' OR                             ' PIC X(33).
 2008 GC1213       05 VALUE 'FORD                            ' PIC X(33).
 2009 GC1213       05 VALUE 'FORD-MAX                        ' PIC X(33).
 2010 GC1213       05 VALUE 'FORD-MIN                        ' PIC X(33).
 2011              05 VALUE ' ORDER                          ' PIC X(33).
 2012              05 VALUE ' ORGANISATION                   ' PIC X(33).
 2013              05 VALUE ' ORGANIZATION                   ' PIC X(33).
 2014              05 VALUE ' OTHER                          ' PIC X(33).
 2015              05 VALUE ' OUTPUT                         ' PIC X(33).
 2016              05 VALUE ' OVERFLOW                       ' PIC X(33).
 2017              05 VALUE ' OVERLINE                       ' PIC X(33).
 2018              05 VALUE ' OVERRIDE                       ' PIC X(33).
 2019              05 VALUE ' PACKED-DECIMAL                 ' PIC X(33).
 2020              05 VALUE ' PADDING                        ' PIC X(33).
 2021              05 VALUE ' PAGE                           ' PIC X(33).
 2022 GC1213       05 VALUE 'IPAGE-COUNTER                   ' PIC X(33).
 2023              05 VALUE ' PARAGRAPH                      ' PIC X(33).
 2024              05 VALUE 'VPERFORM                        ' PIC X(33).
 2025              05 VALUE ' PF                             ' PIC X(33).
 2026              05 VALUE ' PH                             ' PIC X(33).
 2027 GC1213       05 VALUE 'FPI                             ' PIC X(33).
 2028              05 VALUE 'KPIC                            ' PIC X(33).
 2029              05 VALUE 'KPICTURE                        ' PIC X(33).
 2030              05 VALUE ' PLUS                           ' PIC X(33).
 2031              05 VALUE 'KPOINTER                        ' PIC X(33).
 2032              05 VALUE ' POSITION                       ' PIC X(33).
 2033              05 VALUE ' POSITIVE                       ' PIC X(33).
 2034              05 VALUE ' PREFIXED                       ' PIC X(33).        UNIMPLEMENTED
 2035              05 VALUE ' PRESENT                        ' PIC X(33).
 2036 GC1213       05 VALUE 'FPRESENT-VALUE                  ' PIC X(33).
 2037              05 VALUE ' PREVIOUS                       ' PIC X(33).
 2038              05 VALUE 'MPRINTER                        ' PIC X(33).
 2039              05 VALUE ' PRINTING                       ' PIC X(33).
 2040              05 VALUE 'KPROCEDURE                      ' PIC X(33).
 2041              05 VALUE ' PROCEDURE-POINTER              ' PIC X(33).
 2042              05 VALUE ' PROCEDURES                     ' PIC X(33).
 2043              05 VALUE ' PROCEED                        ' PIC X(33).
 2044              05 VALUE ' PROGRAM                        ' PIC X(33).
 2045              05 VALUE 'KPROGRAM-ID                     ' PIC X(33).
 2046              05 VALUE ' PROGRAM-POINTER                ' PIC X(33).
 2047              05 VALUE ' PROHIBITED                     ' PIC X(33).
 2048              05 VALUE ' PROMPT                         ' PIC X(33).
 2049              05 VALUE ' PROPERTY                       ' PIC X(33).        UNIMPLEMENTED
 2050              05 VALUE ' PROTOTYPE                      ' PIC X(33).        UNIMPLEMENTED
 2051              05 VALUE ' PURGE                          ' PIC X(33).        OBSOLETE
 2052              05 VALUE ' QUEUE                          ' PIC X(33).        OBSOLETE
 2053              05 VALUE ' QUOTE                          ' PIC X(33).
 2054              05 VALUE ' QUOTES                         ' PIC X(33).
 2055              05 VALUE ' RAISE                          ' PIC X(33).        UNIMPLEMENTED
 2056              05 VALUE ' RAISING                        ' PIC X(33).        UNIMPLEMENTED
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 2057 GC1213      05 VALUE 'FRANDOM                        ' PIC X(33).
 2058 GC1213      05 VALUE 'FRANGE                         ' PIC X(33).
 2059 GC1213      05 VALUE 'KRD                            ' PIC X(33).
 2060             05 VALUE 'VREAD                          ' PIC X(33).
 2061             05 VALUE 'VREADY                         ' PIC X(33).
 2062             05 VALUE 'VRECEIVE                       ' PIC X(33).     OBSOLETE
 2063             05 VALUE ' RECORD                        ' PIC X(33).
 2064             05 VALUE ' RECORDING                     ' PIC X(33).
 2065             05 VALUE ' RECORDS                       ' PIC X(33).
 2066             05 VALUE ' RECURSIVE                     ' PIC X(33).
 2067             05 VALUE 'KREDEFINES                     ' PIC X(33).
 2068             05 VALUE ' REEL                          ' PIC X(33).
 2069 GC0712      05 VALUE 'AREFERENCE                     ' PIC X(33).
 2070             05 VALUE ' REFERENCES                    ' PIC X(33).
 2071             05 VALUE ' RELATION                      ' PIC X(33).     UNIMPLEMENTED
 2072             05 VALUE ' RELATIVE                      ' PIC X(33).
 2073             05 VALUE 'VRELEASE                       ' PIC X(33).
 2074 GC1213      05 VALUE 'FREM                           ' PIC X(33).
 2075             05 VALUE ' REMAINDER                     ' PIC X(33).
 2076             05 VALUE ' REMARKS                       ' PIC X(33).     OBSOLETE
 2077             05 VALUE ' REMOVAL                       ' PIC X(33).
 2078             05 VALUE 'KRENAMES                       ' PIC X(33).
 2079             05 VALUE ' REPLACE                       ' PIC X(33).
 2080             05 VALUE 'KREPLACING                     ' PIC X(33).
 2081             05 VALUE 'KREPORT                        ' PIC X(33).
 2082             05 VALUE ' REPORTING                     ' PIC X(33).
 2083             05 VALUE ' REPORTS                       ' PIC X(33).
 2084             05 VALUE ' REPOSITORY                    ' PIC X(33).
 2085             05 VALUE ' REQUIRED                      ' PIC X(33).
 2086             05 VALUE ' RESERVE                       ' PIC X(33).
 2087             05 VALUE 'VRESET                         ' PIC X(33).
 2088             05 VALUE ' RESUME                        ' PIC X(33).     UNIMPLEMENTED
 2089             05 VALUE ' RETRY                         ' PIC X(33).     UNIMPLEMENTED
 2090             05 VALUE 'VRETURN                        ' PIC X(33).
 2091             05 VALUE 'IRETURN-CODE                   ' PIC X(33).
 2092             05 VALUE 'KRETURNING                     ' PIC X(33).
 2093 GC1213      05 VALUE 'FREVERSE                       ' PIC X(33).
 2094             05 VALUE ' REVERSE-VIDEO                 ' PIC X(33).
 2095             05 VALUE ' REVERSED                      ' PIC X(33).
 2096             05 VALUE ' REWIND                        ' PIC X(33).
 2097             05 VALUE 'VREWRITE                       ' PIC X(33).
 2098             05 VALUE ' RF                            ' PIC X(33).
 2099             05 VALUE ' RH                            ' PIC X(33).
 2100             05 VALUE ' RIGHT                         ' PIC X(33).
 2101             05 VALUE ' RIGHT-JUSTIFY                 ' PIC X(33).     UNIMPLEMENTED
 2102             05 VALUE 'VROLLBACK                      ' PIC X(33).
 2103             05 VALUE ' ROUNDED                       ' PIC X(33).
 2104             05 VALUE ' ROUNDING                      ' PIC X(33).     UNIMPLEMENTED
 2105             05 VALUE ' RUN                           ' PIC X(33).
 2106             05 VALUE ' SAME                          ' PIC X(33).
 2107             05 VALUE 'KSCREEN                        ' PIC X(33).
 2108             05 VALUE ' SCROLL                        ' PIC X(33).
 2109             05 VALUE 'KSD                            ' PIC X(33).
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 2111           05 VALUE ' SECONDS             ' PIC X(33).     UNIMPLEMENTED
 2112 GC1213    05 VALUE 'FSECONDS-FROM-FORMATTED-TIME ' PIC X(33).
 2113 GC1213    05 VALUE 'FSECONDS-PAST-MIDNIGHT ' PIC X(33).
 2114           05 VALUE 'KSECTION             ' PIC X(33).
 2115           05 VALUE ' SECURE              ' PIC X(33).
 2116           05 VALUE ' SECURITY            ' PIC X(33).     OBSOLETE
 2117           05 VALUE ' SEGMENT             ' PIC X(33).     OBSOLETE
 2118           05 VALUE ' SEGMENT-LIMIT        ' PIC X(33).
 2119           05 VALUE ' SELECT              ' PIC X(33).
 2120           05 VALUE ' SELF                ' PIC X(33).     UNIMPLEMENTED
 2121           05 VALUE 'VSEND                ' PIC X(33).     OBSOLETE
 2122           05 VALUE ' SENTENCE            ' PIC X(33).
 2123           05 VALUE ' SEPARATE            ' PIC X(33).
 2124           05 VALUE ' SEQUENCE            ' PIC X(33).
 2125           05 VALUE ' SEQUENTIAL          ' PIC X(33).
 2126           05 VALUE 'VSET                 ' PIC X(33).
 2127           05 VALUE ' SHARING             ' PIC X(33).
 2128 GC1213    05 VALUE 'FSIGN                ' PIC X(33).
 2129           05 VALUE ' SIGNED              ' PIC X(33).
 2130           05 VALUE ' SIGNED-INT          ' PIC X(33).
 2131           05 VALUE ' SIGNED-LONG         ' PIC X(33).
 2132           05 VALUE ' SIGNED-SHORT        ' PIC X(33).
 2133 GC1213    05 VALUE 'FSIN                 ' PIC X(33).
 2134           05 VALUE ' SIZE                ' PIC X(33).
 2135           05 VALUE 'VSORT                ' PIC X(33).
 2136           05 VALUE ' SORT-MERGE          ' PIC X(33).
 2137           05 VALUE 'ISORT-RETURN         ' PIC X(33).
 2138           05 VALUE ' SOURCE              ' PIC X(33).
 2139           05 VALUE ' SOURCE-COMPUTER     ' PIC X(33).
 2140           05 VALUE ' SOURCES             ' PIC X(33).     UNIMPLEMENTED
 2141           05 VALUE ' SPACE               ' PIC X(33).
 2142           05 VALUE ' SPACE-FILL          ' PIC X(33).     UNIMPLEMENTED
 2143           05 VALUE ' SPACES              ' PIC X(33).
 2144           05 VALUE ' SPECIAL-NAMES       ' PIC X(33).
 2145 GC1213    05 VALUE 'FSQRT                ' PIC X(33).
 2146           05 VALUE ' STANDARD            ' PIC X(33).
 2147           05 VALUE ' STANDARD-1          ' PIC X(33).
 2148           05 VALUE ' STANDARD-2          ' PIC X(33).
 2149           05 VALUE ' STANDARD-BINARY     ' PIC X(33).     UNIMPLEMENTED
 2150 GC1213    05 VALUE 'FSTANDARD-COMPARE    ' PIC X(33).     UNIMPLEMENTED
 2151           05 VALUE ' STANDARD-DECIMAL    ' PIC X(33).     UNIMPLEMENTED
 2152 GC1213    05 VALUE 'FSTANDARD-DEVIATION  ' PIC X(33).
 2153           05 VALUE 'VSTART               ' PIC X(33).
 2154           05 VALUE ' STATEMENT           ' PIC X(33).     UNIMPLEMENTED
 2155           05 VALUE ' STATIC              ' PIC X(33).
 2156           05 VALUE ' STATUS              ' PIC X(33).
 2157           05 VALUE ' STDCALL             ' PIC X(33).
 2158           05 VALUE 'MSTDERR              ' PIC X(33).
 2159           05 VALUE 'MSTDIN               ' PIC X(33).
 2160           05 VALUE 'MSTDOUT              ' PIC X(33).
 2161           05 VALUE ' STEP                ' PIC X(33).
 2162           05 VALUE 'VSTOP                ' PIC X(33).
```

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====================================================================================================
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```

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                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                       Page: 50
====== =========================================================================
 2163 GC1213    05 VALUE 'FSTORED-CHAR-LENGTH           ' PIC X(33).
 2164           05 VALUE 'VSTRING                       ' PIC X(33).
 2165           05 VALUE ' STRONG                       ' PIC X(33).     UNIMPLEMENTED
 2166           05 VALUE ' SUB-QUEUE-1                  ' PIC X(33).     OBSOLETE
 2167           05 VALUE ' SUB-QUEUE-2                  ' PIC X(33).     OBSOLETE
 2168           05 VALUE ' SUB-QUEUE-3                  ' PIC X(33).     OBSOLETE
 2169 GC1213    05 VALUE 'FSUBSTITUTE                   ' PIC X(33).
 2170 GC1213    05 VALUE 'FSUBSTITUTE-CASE              ' PIC X(33).
 2171           05 VALUE 'VSUBTRACT                     ' PIC X(33).
 2172 GC1213    05 VALUE 'FSUM                          ' PIC X(33).
 2173           05 VALUE ' SUPER                        ' PIC X(33).     UNIMPLEMENTED
 2174           05 VALUE 'VSUPPRESS                     ' PIC X(33).
 2175           05 VALUE 'MSW0                          ' PIC X(33).
 2176           05 VALUE 'MSW1                          ' PIC X(33).
 2177           05 VALUE 'MSW10                         ' PIC X(33).
 2178           05 VALUE 'MSW11                         ' PIC X(33).
 2179           05 VALUE 'MSW12                         ' PIC X(33).
 2180           05 VALUE 'MSW13                         ' PIC X(33).
 2181           05 VALUE 'MSW14                         ' PIC X(33).
 2182           05 VALUE 'MSW15                         ' PIC X(33).
 2183           05 VALUE 'MSW2                          ' PIC X(33).
 2184           05 VALUE 'MSW3                          ' PIC X(33).
 2185           05 VALUE 'MSW4                          ' PIC X(33).
 2186           05 VALUE 'MSW5                          ' PIC X(33).
 2187           05 VALUE 'MSW6                          ' PIC X(33).
 2188           05 VALUE 'MSW7                          ' PIC X(33).
 2189           05 VALUE 'MSW8                          ' PIC X(33).
 2190           05 VALUE 'MSW9                          ' PIC X(33).
 2191           05 VALUE 'MSWITCH-0                     ' PIC X(33).
 2192           05 VALUE 'MSWITCH-1                     ' PIC X(33).
 2193           05 VALUE 'MSWITCH-10                    ' PIC X(33).
 2194           05 VALUE 'MSWITCH-11                    ' PIC X(33).
 2195           05 VALUE 'MSWITCH-12                    ' PIC X(33).
 2196           05 VALUE 'MSWITCH-13                    ' PIC X(33).
 2197           05 VALUE 'MSWITCH-14                    ' PIC X(33).
 2198           05 VALUE 'MSWITCH-15                    ' PIC X(33).
 2199           05 VALUE 'MSWITCH-2                     ' PIC X(33).
 2200           05 VALUE 'MSWITCH-3                     ' PIC X(33).
 2201           05 VALUE 'MSWITCH-4                     ' PIC X(33).
 2202           05 VALUE 'MSWITCH-5                     ' PIC X(33).
 2203           05 VALUE 'MSWITCH-6                     ' PIC X(33).
 2204           05 VALUE 'MSWITCH-7                     ' PIC X(33).
 2205           05 VALUE 'MSWITCH-8                     ' PIC X(33).
 2206           05 VALUE 'MSWITCH-9                     ' PIC X(33).
 2207           05 VALUE ' SYMBOL                       ' PIC X(33).     UNIMPLEMENTED
 2208           05 VALUE ' SYMBOLIC                     ' PIC X(33).
 2209           05 VALUE ' SYNC                         ' PIC X(33).
 2210           05 VALUE ' SYNCHRONISED                 ' PIC X(33).
 2211           05 VALUE ' SYNCHRONIZED                 ' PIC X(33).
 2212           05 VALUE 'MSYSERR                       ' PIC X(33).
 2213           05 VALUE 'MSYSIN                        ' PIC X(33).
 2214           05 VALUE 'MSYSIPT                       ' PIC X(33).
 2215           05 VALUE 'MSYSLIST                      ' PIC X(33).
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                      2017/12/24
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Line    Statement                                                              Page: 51
====== ===============================================================================
 2216            05 VALUE 'MSYSLST                      ' PIC X(33).
 2217            05 VALUE 'MSYSOUT                      ' PIC X(33).
 2218            05 VALUE ' SYSTEM-DEFAULT              ' PIC X(33).
 2219            05 VALUE ' TABLE                       ' PIC X(33).      UNIMPLEMENTED
 2220            05 VALUE 'KTALLYING                    ' PIC X(33).
 2221 GC1213     05 VALUE 'FTAN                         ' PIC X(33).
 2222            05 VALUE ' TAPE                        ' PIC X(33).
 2223            05 VALUE ' TERMINAL                    ' PIC X(33).      OBSOLETE
 2224            05 VALUE 'VTERMINATE                   ' PIC X(33).
 2225            05 VALUE ' TEST                        ' PIC X(33).
 2226 GC1213     05 VALUE 'FTEST-DATE-YYYYMMDD          ' PIC X(33).
 2227 GC1213     05 VALUE 'FTEST-DAY-YYYYDDD            ' PIC X(33).
 2228 GC1213     05 VALUE 'FTEST-FORMATTED-DATETIME     ' PIC X(33).      UNIMPLEMENTED
 2229 GC1213     05 VALUE 'FTEST-NUMVAL                 ' PIC X(33).
 2230 GC1213     05 VALUE 'FTEST-NUMVAL-C               ' PIC X(33).
 2231 GC1213     05 VALUE 'FTEST-NUMVAL-F               ' PIC X(33).
 2232            05 VALUE ' TEXT                        ' PIC X(33).      OBSOLETE
 2233            05 VALUE ' THAN                        ' PIC X(33).
 2234            05 VALUE ' THEN                        ' PIC X(33).
 2235            05 VALUE ' THROUGH                     ' PIC X(33).
 2236            05 VALUE ' THRU                        ' PIC X(33).
 2237            05 VALUE ' TIME                        ' PIC X(33).
 2238 GC0711     05 VALUE ' TIME-OUT                    ' PIC X(33).
 2239 GC0711     05 VALUE ' TIMEOUT                     ' PIC X(33).
 2240            05 VALUE ' TIMES                       ' PIC X(33).
 2241            05 VALUE 'KTO                          ' PIC X(33).
 2242            05 VALUE ' TOP                         ' PIC X(33).
 2243            05 VALUE ' TOWARD-GREATER              ' PIC X(33).
 2244            05 VALUE ' TOWARD-LESSER               ' PIC X(33).
 2245            05 VALUE ' TRAILING                    ' PIC X(33).
 2246            05 VALUE ' TRAILING-SIGN               ' PIC X(33).      UNIMPLEMENTED
 2247            05 VALUE 'VTRANSFORM                   ' PIC X(33).
 2248 GC1213     05 VALUE 'FTRIM                        ' PIC X(33).
 2249            05 VALUE ' TRUE                        ' PIC X(33).
 2250            05 VALUE ' TRUNCATION                  ' PIC X(33).
 2251            05 VALUE ' TYPE                        ' PIC X(33).
 2252            05 VALUE ' TYPEDEF                     ' PIC X(33).      UNIMPLEMENTED
 2253            05 VALUE ' UCS-4                       ' PIC X(33).      UNIMPLEMENTED
 2254            05 VALUE ' UNDERLINE                   ' PIC X(33).
 2255            05 VALUE ' UNIT                        ' PIC X(33).
 2256            05 VALUE ' UNIVERSAL                   ' PIC X(33).      UNIMPLEMENTED
 2257            05 VALUE 'VUNLOCK                      ' PIC X(33).
 2258            05 VALUE ' UNSIGNED                    ' PIC X(33).
 2259            05 VALUE ' UNSIGNED-INT                ' PIC X(33).
 2260            05 VALUE ' UNSIGNED-LONG               ' PIC X(33).
 2261            05 VALUE ' UNSIGNED-SHORT              ' PIC X(33).
 2262            05 VALUE 'VUNSTRING                    ' PIC X(33).
 2263            05 VALUE ' UNTIL                       ' PIC X(33).
 2264            05 VALUE 'KUP                          ' PIC X(33).
 2265            05 VALUE ' UPDATE                      ' PIC X(33).
 2266            05 VALUE ' UPON                        ' PIC X(33).
 2267            05 VALUE ' UPPER                       ' PIC X(33).
 2268 GC1213     05 VALUE 'FUPPER-CASE                  ' PIC X(33).
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 52
====== =====================================================================================
 2269           05 VALUE ' USAGE                          ' PIC X(33).
 2270           05 VALUE 'VUSE                            ' PIC X(33).
 2271 GC0711    05 VALUE ' USER                           ' PIC X(33).
 2272           05 VALUE ' USER-DEFAULT                   ' PIC X(33).
 2273           05 VALUE 'KUSING                          ' PIC X(33).
 2274           05 VALUE ' UTF-16                         ' PIC X(33).    UNIMPLEMENTED
 2275           05 VALUE ' UTF-8                          ' PIC X(33).    UNIMPLEMENTED
 2276           05 VALUE ' VAL-STATUS                     ' PIC X(33).    UNIMPLEMENTED
 2277           05 VALUE ' VALID                          ' PIC X(33).    UNIMPLEMENTED
 2278           05 VALUE ' VALIDATE                       ' PIC X(33).    UNIMPLEMENTED
 2279           05 VALUE ' VALIDATE-STATUS                ' PIC X(33).    UNIMPLEMENTED
 2280 GC0712    05 VALUE 'AVALUE                          ' PIC X(33).
 2281           05 VALUE ' VALUES                         ' PIC X(33).
 2282 GC1213    05 VALUE 'FVARIANCE                       ' PIC X(33).
 2283           05 VALUE 'KVARYING                        ' PIC X(33).
 2284           05 VALUE ' VDISABLE                       ' PIC X(33).    UNIMPLEMENTED
 2285           05 VALUE ' WAIT                           ' PIC X(33).
 2286           05 VALUE 'VWHEN                           ' PIC X(33).
 2287 GC1213    05 VALUE 'FWHEN-COMPILED                  ' PIC X(33).
 2288           05 VALUE ' WITH                           ' PIC X(33).
 2289           05 VALUE ' WORDS                          ' PIC X(33).
 2290           05 VALUE 'KWORKING-STORAGE                ' PIC X(33).
 2291           05 VALUE 'VWRITE                          ' PIC X(33).
 2292 GC1213    05 VALUE 'FYEAR-TO-YYYY                   ' PIC X(33).
 2293           05 VALUE ' YYYYDDD                        ' PIC X(33).
 2294           05 VALUE ' YYYYMMDD                       ' PIC X(33).
 2295           05 VALUE ' ZERO                           ' PIC X(33).
 2296           05 VALUE ' ZERO-FILL                      ' PIC X(33).    UNIMPLEMENTED
 2297           05 VALUE ' ZEROES                         ' PIC X(33).
 2298           05 VALUE ' ZEROS                          ' PIC X(33).
 2299        01 WS-Reserved-Word-Table-TXT REDEFINES WS-Reserved-Words-TXT.
 2300 GC1113    05 WS-Reserved-Word-TXT       OCCURS 754 TIMES
 2301                                         ASCENDING KEY
 2302                                             WS-RW-Word-TXT
 2303                                         INDEXED WS-RW-IDX.
 2304             10 WS-RW-Type-CD            PIC X(1).
 2305             10 WS-RW-Word-TXT           PIC X(32).
 2306
 2307        01 WS-Runtime-Switches.
 2308 GC0710    05 WS-RS-Duplicate-CHR          PIC X(1).
 2309           05 WS-RS-In-Which-Pgm-CHR       PIC X(1).
 2310             88 WS-RS-In-Main-Module-BOOL    VALUE 'M'.
 2311             88 WS-RS-In-Copybook-BOOL       VALUE 'C'.
 2312           05 WS-RS-Last-Token-Ended-Sent-CHR PIC X(1).
 2313           05 WS-RS-Processing-PICTURE-CHR PIC X(1).
 2314           05 WS-RS-Token-Ended-Sentence-CHR PIC X(1).
 2315 GC0710    05 WS-RS-Verb-Has-Been-Found-CHR PIC X(1).
 2316
 2317        01 WS-Saved-Section-TXT          PIC X(15).
 2318
 2319 GC1213 01 WS-Src-Dashes-TXT.
 2320 GC0712    05 VALUE '======'             PIC X(7).
 2321 GC0712    05 VALUE ALL '='              PIC X(128).
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 53
====== ============================================================================
 2322
 2323       01  WS-Src-Detail-Line-TXT.
 2324           05 WS-SDL-Line-NUM                   PIC ZZZZZ9.
 2325           05 FILLER                            PIC X(1).
 2326           05 WS-SDL-Statement-TXT              PIC X(256).
 2327
 2328 GC1213 01  WS-Src-Hold-TXT                     PIC X(256).
 2329
 2330       01  WS-Src-Line-NUM                      PIC 9(6).
 2331
 2332 GC1213 01  WS-Src-Lines-NUM                    USAGE BINARY-LONG.
 2333
 2334       01  WS-Src-SUB                           USAGE BINARY-LONG.
 2335
 2336       01  WS-Tally-QTY                         USAGE BINARY-LONG.
 2337
 2338       01  WS-Temp-10-Chars-TXT                 PIC X(10).
 2339
 2340       01  WS-Temp-32-Chars-1-TXT               PIC X(32).
 2341
 2342 GC0711 01  WS-Temp-32-Chars-2-TXT              PIC X(32).
 2343
 2344 GC0711 01  WS-Temp-32-Chars-3-TXT              PIC X(32).
 2345
 2346 GC0712 01  WS-Temp-65-Chars-TXT                PIC X(65).
 2347
 2348       01  WS-Temp-256-Chars-TXT               PIC X(256).
 2349
 2350       01  WS-Today-DT                          PIC 9(8).
 2351
 2352       01  WS-Token-Curr-TXT                    PIC X(32).
 2353
 2354       01  WS-Token-Curr-Uc-TXT                 PIC X(32).
 2355
 2356       01  WS-Token-Prev-TXT                    PIC X(32).
 2357
 2358       01  WS-Token-Search-TXT                  PIC X(32).
 2359
 2360       01  WS-Token-Type-CD                     PIC X(1).
 2361 GC0712     88 WS-TT-Token-Is-Argtype-BOOL      VALUE 'A'.
 2362           88 WS-TT-Token-Is-EOF-BOOL           VALUE HIGH-VALUES.
 2363 GC1213     88 WS-TT-Token-Is-Function-BOOL     VALUE 'F'.
 2364           88 WS-TT-Token-Is-Identifier-BOOL    VALUE 'I'.
 2365 GC0712     88 WS-TT-Token-Is-Keyword-BOOL      VALUE 'K', 'V', 'A'.
 2366           88 WS-TT-Token-Is-Lit-Alpha-BOOL     VALUE 'L'.
 2367           88 WS-TT-Token-Is-Lit-Number-BOOL    VALUE 'N'.
 2368           88 WS-TT-Token-Is-Verb-BOOL          VALUE 'V'.
 2369 GC1213     88 WS-TT-Token-Is-Reserved-Wd-BOOL  VALUE ' ', 'F'.
 2370
 2371       01  WS-Usernames-QTY                     USAGE BINARY-LONG.
 2372
 2373       01  WS-Version-TXT                       PIC X(23).
 2374
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 54
====== =================================================================================
  2375       01  WS-Xref-Detail-Line-TXT.
  2376           05 WS-XDL-Prog-ID-TXT              PIC X(15).
  2377           05 FILLER                          PIC X(1).
  2378           05 WS-XDL-Token-TXT                PIC X(32).
  2379           05 FILLER                          PIC X(1).
  2380           05 WS-XDL-Def-Line-NUM             PIC ZZZZZ9.
  2381           05 FILLER                          PIC X(1).
  2382           05 WS-XDL-Section-TXT              PIC X(15).
  2383           05 FILLER                          PIC X(1).
  2384           05 WS-XDL-Reference-TXT            OCCURS 8 TIMES.
  2385               10 WS-XDL-Ref-Line-NUM         PIC ZZZZZ9.
  2386               10 WS-XDL-Ref-Flag-CHR         PIC X(1).
  2387               10 FILLER                      PIC X(1).
  2388
  2389 GC1213 01  WS-Xref-Lines-Per-Rec-NUM         PIC 9(1).
  2390
  2391       LINKAGE SECTION.
  2392 GC0712 01  L-Listing-Fn-TXT                  PIC X(256).
  2393
  2394       01  L-Src-Fn-TXT                       PIC X(256).
  2395
  2396 GC0712 01  L-OS-Type-CD                      PIC 9(1).
  2397
  2398 GC1213 01  L-LPP-NUM                         USAGE BINARY-LONG.
  2399
  2400 GC1213 01  L-LPP-Port-NUM                    USAGE BINARY-LONG.
  2401
  2402 GC1213 01  L-Listing-CD                      PIC 9(1).
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                           Page: 55
====== ===============================================================================

 2404 GC0712 PROCEDURE DIVISION USING L-Listing-Fn-TXT
 2405 GC0712                          L-Src-Fn-TXT
 2406 GC0712                          L-OS-Type-CD
 2407 GC1213                          L-LPP-NUM
 2408 GC1213                          L-LPP-Port-NUM
 2409 GC1213                          L-Listing-CD.
 2410        000-Main SECTION.
 2411            PERFORM 100-Initialization
 2412 GC0712     OPEN OUTPUT F-Listing-FILE
 2413 GC0712     PERFORM 500-Produce-Source-Listing
 2414 GC0712     SORT F-Sort-Work-FILE
 2415 GC0712         ASCENDING KEY    F-SW-Prog-ID-TXT
 2416 GC0712                          F-SW-Token-Uc-TXT
 2417 GC0712                          F-SW-Ref-Line-NUM
 2418 GC0712         INPUT PROCEDURE  300-Tokenize-Source
 2419 GC0712         OUTPUT PROCEDURE 400-Produce-Xref-Listing
 2420 GC0712     CLOSE F-Listing-FILE
 2421            GOBACK
 2422            .
```

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                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                   Page: 56
====== =========================================================================

  2424       *>****************************************************************
  2425       *> Perform all program-wide initialization operations         **
  2426       *>****************************************************************
  2427        100-Initialization SECTION.
  2428 GC1213    MOVE 0 TO WS-Page-NUM
  2429 GC1213    MOVE 'N' TO WS-Suppress-FF-CHR
  2430 GC1213    MOVE SPACES TO WS-Copyright-TXT
  2431 GC1213    STRING 'GCic for '                    DELIMITED SIZE
  2432 GC1213           WS-OS-Type-TXT(L-OS-Type-CD) DELIMITED SPACE
  2433 GC1213           ' Copyright (C) 2009-2018, Gary L. Cutler, GPL'
  2434 GC1213                                         DELIMITED SIZE
  2435 GC1213           INTO WS-Copyright-TXT
  2436 GC1213    MOVE 'GNUCOBOL 3.0 24DEC2017' TO WS-Version-TXT
  2437           MOVE TRIM(L-Src-Fn-TXT,Leading) TO L-Src-Fn-TXT
  2438 GC1010    PERFORM VARYING WS-I-SUB FROM LENGTH(L-Src-Fn-TXT) BY -1 *> Locate last direct
        ory delimiter character so that the filename can be extracted
  2439 GC1010            UNTIL L-Src-Fn-TXT(WS-I-SUB:1) = '/' OR '\'
  2440 GC1010               OR WS-I-SUB = 0
  2441 GC1010    END-PERFORM
  2442 GC1010    IF WS-I-SUB = 0
  2443 GC1010       MOVE UPPER-CASE(L-Src-Fn-TXT) TO WS-Main-Module-Name-TXT *> No directory d
        elimiter, whole thing is filename
  2444 GC1010    ELSE
  2445 GC1010       ADD 1 TO WS-I-SUB
  2446 GC1010       MOVE UPPER-CASE(L-Src-Fn-TXT(WS-I-SUB:))
  2447 GC1010         TO WS-Main-Module-Name-TXT *> Extract filename
  2448 GC1010    END-IF
  2449 GC1213    IF L-Listing-CD = 1 *> LANDSCAPE
  2450 GC1213       MOVE 8 TO WS-Xref-Lines-Per-Rec-NUM
  2451 GC1213       ACCEPT WS-Lines-Per-Page-Env-TXT
  2452 GC1213          FROM ENVIRONMENT 'GCXREF_LINES'
  2453 GC1213    ELSE *> PORTRAIT
  2454 GC1213       MOVE 3 TO WS-Xref-Lines-Per-Rec-NUM
  2455 GC1213       ACCEPT WS-Lines-Per-Page-Env-TXT
  2456 GC1213          FROM ENVIRONMENT 'GCXREF_LINES_PORT'
  2457 GC1213    END-IF
  2458           INSPECT L-Src-Fn-TXT REPLACING ALL '\' BY '/'
  2459           MOVE L-Src-Fn-TXT TO WS-Program-Path-TXT
  2460           CALL 'C$JUSTIFY' USING WS-Program-Path-TXT, 'Right'
  2461           MOVE LENGTH(TRIM(L-Src-Fn-TXT,Trailing)) TO WS-I-SUB
  2462           MOVE 0 TO WS-J-SUB
  2463           PERFORM UNTIL L-Src-Fn-TXT(WS-I-SUB:1) = '/'
  2464                   OR WS-I-SUB = 0
  2465              SUBTRACT 1 FROM WS-I-SUB
  2466              ADD     1 TO   WS-J-SUB
  2467           END-PERFORM
  2468           UNSTRING L-Src-Fn-TXT((WS-I-SUB + 1):WS-J-SUB)
  2469              DELIMITED BY '.'
  2470              INTO WS-Filename-TXT
  2471                   WS-Dummy-TXT
  2472 GC1010    STRING
  2473 GC1010           TRIM(WS-Filename-TXT,Trailing)
```

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====== =============================================================================
  2474 GC1010            '.i'
  2475 GC1010              DELIMITED SIZE
  2476 GC1010              INTO WS-Expanded-Src-Fn-TXT
  2477 GC1010     CALL 'CBL_CHECK_FILE_EXIST' USING WS-Expanded-Src-Fn-TXT
  2478 GC1010                                       WS-Temp-256-Chars-TXT
  2479 GC1010     IF RETURN-CODE NOT = 0
  2480 GC1010        GOBACK
  2481 GC1010     END-IF
  2482            IF WS-Lines-Per-Page-Env-TXT NOT = SPACES
  2483                MOVE NUMVAL(WS-Lines-Per-Page-Env-TXT)
  2484                  TO WS-Lines-Per-Page-NUM
  2485            ELSE
  2486 GC1213        IF L-LISTING-CD = 1 *> LANDSCAPE
  2487 GC1213            MOVE L-LPP-NUM TO WS-Lines-Per-Page-NUM
  2488 GC1213        ELSE               *> PORTRAIT
  2489 GC1213            MOVE L-LPP-Port-NUM TO WS-Lines-Per-Page-NUM
  2490 GC1213        END-IF
  2491            END-IF
  2492 GC1213     SUBTRACT 3 FROM WS-Lines-Per-Page-NUM *> FOR PAGE FOOTER
  2493            ACCEPT WS-Today-DT FROM DATE YYYYMMDD
  2494 GC1213     MOVE WS-Today-DT TO WS-Formatted-DT
  2495            MOVE '????????????...' TO WS-Curr-Prog-ID-TXT
  2496            MOVE SPACES          TO WS-Curr-Verb-TXT
  2497                                    WS-Held-Reference-TXT
  2498            .
```

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                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 58
======  =========================================================================

  2500         300-Tokenize-Source SECTION.
  2501             OPEN INPUT F-Expanded-Src-FILE
  2502             MOVE SPACES TO F-Expanded-Src-REC
  2503             MOVE 256 TO WS-Src-SUB
  2504             MOVE 0 TO WS-Usernames-QTY
  2505                       WS-Curr-Line-NUM
  2506             MOVE '?' TO WS-Curr-Division-TXT
  2507 GC0710      MOVE 'N' TO WS-RS-Verb-Has-Been-Found-CHR
  2508             PERFORM FOREVER
  2509                 PERFORM 310-Get-Token
  2510                 IF WS-TT-Token-Is-EOF-BOOL
  2511                     EXIT PERFORM
  2512                 END-IF
  2513                 MOVE UPPER-CASE(WS-Token-Curr-TXT)
  2514                   TO WS-Token-Curr-Uc-TXT
  2515 GC1010        IF WS-TT-Token-Is-Keyword-BOOL
  2516 GC1010        OR WS-TT-Token-Is-Reserved-Wd-BOOL
  2517 GC1010            MOVE WS-Token-Curr-Uc-TXT TO WS-Token-Curr-TXT
  2518 GC1010        END-IF
  2519                 IF WS-TT-Token-Is-Verb-BOOL
  2520                     MOVE WS-Token-Curr-Uc-TXT TO WS-Curr-Verb-TXT
  2521                                                  WS-Token-Prev-TXT
  2522                     IF WS-Held-Reference-TXT NOT = SPACES
  2523                         MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
  2524                         MOVE SPACES          TO WS-Held-Reference-TXT
  2525                         RELEASE F-Sort-Work-REC
  2526                     END-IF
  2527                 END-IF
  2528                 EVALUATE TRUE
  2529                 WHEN WS-CD-In-IDENT-DIV-BOOL
  2530                     PERFORM 320-IDENTIFICATION-DIVISION
  2531                 WHEN WS-CD-In-ENV-DIV-BOOL
  2532                     PERFORM 330-ENVIRONMENT-DIVISION
  2533                 WHEN WS-CD-In-DATA-DIV-BOOL
  2534                     PERFORM 340-DATA-DIVISION
  2535                 WHEN WS-CD-In-PROC-DIV-BOOL
  2536                     PERFORM 350-PROCEDURE-DIVISION
  2537                 END-EVALUATE
  2538                 IF WS-TT-Token-Is-Keyword-BOOL
  2539                     MOVE WS-Token-Curr-Uc-TXT TO WS-Token-Prev-TXT
  2540                 END-IF
  2541                 IF WS-RS-Token-Ended-Sentence-CHR = 'Y'
  2542                 AND WS-Curr-Division-TXT NOT = 'I'
  2543                     MOVE SPACES TO WS-Token-Prev-TXT
  2544                                    WS-Curr-Verb-TXT
  2545                 END-IF
  2546
  2547             END-PERFORM
  2548             CLOSE F-Expanded-Src-FILE
  2549             .
```

```
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                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                           Page: 59
======  ================================================================================

  2551        310-Get-Token SECTION.
  2552        *>-- Position to 1st non-blank character
  2553            MOVE WS-RS-Token-Ended-Sentence-CHR
  2554              TO WS-RS-Last-Token-Ended-Sent-CHR
  2555            MOVE 'N' TO WS-RS-Token-Ended-Sentence-CHR
  2556            PERFORM UNTIL F-Expanded-Src-REC(WS-Src-SUB : 1) NOT = SPACE
  2557               IF WS-Src-SUB > 255
  2558                   READ F-Expanded-Src-FILE AT END
  2559                       IF WS-Held-Reference-TXT NOT = SPACES
  2560                           MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
  2561                           MOVE SPACES        TO WS-Held-Reference-TXT
  2562                           RELEASE F-Sort-Work-REC
  2563                       END-IF
  2564                       SET WS-TT-Token-Is-EOF-BOOL TO TRUE
  2565                       MOVE 0 TO WS-Curr-Line-NUM
  2566                       EXIT SECTION
  2567                   END-READ
  2568 GC0712            IF F-ES-1-7-TXT NOT = '#DEFLIT'
  2569 GC0712                IF F-ES-1-CHR = '#'
  2570 GC0712                    PERFORM 311-Control-Record
  2571 GC0712                ELSE
  2572 GC0712                    PERFORM 312-Expanded-Src-Record
  2573 GC0712                END-IF
  2574 GC0712            END-IF
  2575               ELSE
  2576                   ADD 1 TO WS-Src-SUB
  2577               END-IF
  2578            END-PERFORM
  2579        *>-- Extract token string
  2580            MOVE F-Expanded-Src-REC(WS-Src-SUB : 1)
  2581              TO WS-Curr-CHR
  2582            MOVE F-Expanded-Src-REC(WS-Src-SUB + 1: 1)
  2583              TO WS-Next-CHR
  2584            IF WS-Curr-CHR = '.'
  2585                ADD 1 TO WS-Src-SUB
  2586                MOVE WS-Curr-CHR TO WS-Token-Curr-TXT
  2587                MOVE SPACE TO WS-Token-Type-CD
  2588                MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
  2589                EXIT SECTION
  2590            END-IF
  2591            IF WS-Curr-Char-Is-Punct-BOOL
  2592            AND WS-Curr-CHR = '='
  2593            AND WS-Curr-Division-TXT = 'P'
  2594                ADD 1 TO WS-Src-SUB
  2595                MOVE 'EQUALS' TO WS-Token-Curr-TXT
  2596                MOVE 'K'      TO WS-Token-Type-CD
  2597                EXIT SECTION
  2598            END-IF
  2599            IF WS-Curr-Char-Is-Punct-BOOL *> So subscripts don't get flagged w/ '*'
  2600            AND WS-Curr-CHR = '('
  2601            AND WS-Curr-Division-TXT = 'P'
  2602                MOVE SPACES TO WS-Token-Prev-TXT
```

```
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======  ===================================================================================
 2603           END-IF
 2604           IF WS-Curr-Char-Is-Punct-BOOL
 2605               ADD 1 TO WS-Src-SUB
 2606               MOVE WS-Curr-CHR TO WS-Token-Curr-TXT
 2607               MOVE SPACE TO WS-Token-Type-CD
 2608               EXIT SECTION
 2609           END-IF
 2610           IF WS-Curr-Char-Is-Quote-BOOL
 2611               ADD 1 TO WS-Src-SUB
 2612               UNSTRING F-Expanded-Src-REC
 2613                   DELIMITED BY WS-Curr-CHR
 2614                   INTO WS-Token-Curr-TXT
 2615                   WITH POINTER WS-Src-SUB
 2616               IF F-Expanded-Src-REC(WS-Src-SUB : 1) = '.'
 2617                   MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2618                   ADD 1 TO WS-Src-SUB
 2619               END-IF
 2620               SET WS-TT-Token-Is-Lit-Alpha-BOOL TO TRUE
 2621               EXIT SECTION
 2622           END-IF
 2623           IF WS-Curr-Char-Is-X-BOOL AND WS-Next-Char-Is-Quote-BOOL
 2624               ADD 2 TO WS-Src-SUB
 2625               UNSTRING F-Expanded-Src-REC
 2626                   DELIMITED BY WS-Next-CHR
 2627                   INTO WS-Token-Curr-TXT
 2628                   WITH POINTER WS-Src-SUB
 2629               IF F-Expanded-Src-REC(WS-Src-SUB : 1) = '.'
 2630                   MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2631                   ADD 1 TO WS-Src-SUB
 2632               END-IF
 2633               SET WS-TT-Token-Is-Lit-Number-BOOL TO TRUE
 2634               EXIT SECTION
 2635           END-IF
 2636           IF WS-Curr-Char-Is-Z-BOOL AND WS-Next-Char-Is-Quote-BOOL
 2637               ADD 2 TO WS-Src-SUB
 2638               UNSTRING F-Expanded-Src-REC
 2639                   DELIMITED BY WS-Next-CHR
 2640                   INTO WS-Token-Curr-TXT
 2641                   WITH POINTER WS-Src-SUB
 2642               IF F-Expanded-Src-REC(WS-Src-SUB : 1) = '.'
 2643                   MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2644                   ADD 1 TO WS-Src-SUB
 2645               END-IF
 2646               SET WS-TT-Token-Is-Lit-Alpha-BOOL TO TRUE
 2647               EXIT SECTION
 2648           END-IF
 2649           IF WS-RS-Processing-PICTURE-CHR = 'Y'
 2650               UNSTRING F-Expanded-Src-REC
 2651                   DELIMITED BY '. ' OR ' '
 2652                   INTO WS-Token-Curr-TXT
 2653                   DELIMITER IN WS-Delim-TXT
 2654                   WITH POINTER WS-Src-SUB
 2655               IF WS-Delim-TXT = '. '
```

```
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====== =========================================================================================
 2656                       MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2657                       ADD 1 TO WS-Src-SUB
 2658                   END-IF
 2659                   IF UPPER-CASE(WS-Token-Curr-TXT) = 'IS'
 2660                       MOVE SPACE TO WS-Token-Type-CD
 2661                       EXIT SECTION
 2662                   ELSE
 2663                       MOVE 'N' TO WS-RS-Processing-PICTURE-CHR
 2664                       MOVE SPACE TO WS-Token-Type-CD
 2665                       EXIT SECTION
 2666                   END-IF
 2667               END-IF
 2668               UNSTRING F-Expanded-Src-REC
 2669                   DELIMITED BY '. ' OR ' ' OR '=' OR '(' OR ')' OR '*'
 2670                                   OR '/' OR '&' OR ';' OR ',' OR '<'
 2671                                   OR '>' OR ':'
 2672                   INTO WS-Token-Curr-TXT
 2673                   DELIMITER IN WS-Delim-TXT
 2674                   WITH POINTER WS-Src-SUB
 2675               IF WS-Delim-TXT = '. '
 2676                   MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2677               END-IF
 2678               IF WS-Delim-TXT NOT = '. ' AND ' '
 2679                   SUBTRACT 1 FROM WS-Src-SUB
 2680               END-IF
 2681         *>-- Classify Token
 2682               MOVE UPPER-CASE(WS-Token-Curr-TXT) TO WS-Token-Search-TXT
 2683               IF WS-Token-Search-TXT = 'EQUAL' OR 'EQUALS'
 2684                   MOVE 'EQUALS' TO WS-Token-Curr-TXT
 2685                   MOVE 'K'      TO WS-Token-Type-CD
 2686                   EXIT SECTION
 2687               END-IF
 2688               SEARCH ALL WS-Reserved-Word-TXT
 2689                   WHEN WS-RW-Word-TXT (WS-RW-IDX) = WS-Token-Search-TXT
 2690                       MOVE WS-RW-Type-CD (WS-RW-IDX) TO WS-Token-Type-CD
 2691 GC0710                IF WS-TT-Token-Is-Verb-BOOL
 2692 GC0710                    MOVE 'Y' TO WS-RS-Verb-Has-Been-Found-CHR
 2693 GC0710                END-IF
 2694                       EXIT SECTION
 2695               END-SEARCH
 2696         *>-- Not a reserved word, must be a user name
 2697               SET WS-TT-Token-Is-Identifier-BOOL TO TRUE
 2698               PERFORM 313-Check-For-Numeric-Token
 2699               IF WS-TT-Token-Is-Lit-Number-BOOL
 2700                   IF  (WS-RS-Last-Token-Ended-Sent-CHR = 'Y')
 2701                   AND (WS-Curr-Division-TXT = 'D')
 2702                       MOVE 'LEVEL #' TO WS-Token-Curr-TXT
 2703                       MOVE 'K'       TO WS-Token-Type-CD
 2704                       EXIT SECTION
 2705                   ELSE
 2706                       EXIT SECTION
 2707                   END-IF
 2708               END-IF
```

```
================================================================================================
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```

```
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====== =======================================================================
 2709            .
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
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Line    Statement                                                             Page: 63
======  ===============================================================================

  2711        311-Control-Record SECTION.
  2712            UNSTRING F-ES-2-256-TXT-256
  2713                DELIMITED BY '"'
  2714                INTO WS-Temp-10-Chars-TXT
  2715                    WS-Temp-256-Chars-TXT
  2716                    WS-Dummy-TXT
  2717            INSPECT WS-Temp-10-Chars-TXT REPLACING ALL '"' BY SPACE
  2718 GC0712     IF WS-Temp-10-Chars-TXT(1:4) = 'line'
  2719 GC0712        MOVE SPACES TO WS-Temp-10-Chars-TXT(1:4)
  2720 GC0712     END-IF
  2721            COMPUTE WS-I-SUB = NUMVAL(WS-Temp-10-Chars-TXT) - 1
  2722 GC1010     IF UPPER-CASE(TRIM(WS-Temp-256-Chars-TXT,Trailing)) =
  2723 GC1010        TRIM(WS-Main-Module-Name-TXT)
  2724               MOVE WS-I-SUB TO WS-Curr-Line-NUM
  2725               SET WS-RS-In-Main-Module-BOOL TO TRUE
  2726               IF WS-Saved-Section-TXT NOT = SPACES
  2727                   MOVE WS-Saved-Section-TXT TO WS-Curr-Section-TXT
  2728               END-IF
  2729            ELSE
  2730               SET WS-RS-In-Copybook-BOOL TO TRUE
  2731               IF WS-Saved-Section-TXT = SPACES
  2732                   MOVE WS-Curr-Section-TXT TO WS-Saved-Section-TXT
  2733               END-IF
  2734               MOVE LENGTH(TRIM(WS-Temp-256-Chars-TXT,Trailing))
  2735                 TO WS-I-SUB
  2736               MOVE 0 TO WS-J-SUB
  2737               PERFORM UNTIL WS-Temp-256-Chars-TXT(WS-I-SUB:1) = '/'
  2738                       OR WS-I-SUB = 0
  2739                   SUBTRACT 1 FROM WS-I-SUB
  2740                   ADD     1 TO   WS-J-SUB
  2741               END-PERFORM
  2742               UNSTRING WS-Temp-256-Chars-TXT((WS-I-SUB + 1):WS-J-SUB)
  2743                   DELIMITED BY '.'
  2744                   INTO WS-Filename-TXT
  2745                       WS-Dummy-TXT
  2746               MOVE '['      TO WS-CS-1-CHR
  2747               MOVE WS-Filename-TXT TO WS-CS-2-14-TXT
  2748               IF WS-CS-11-14-TXT NOT = SPACES
  2749                   MOVE '...' TO WS-CS-11-14-TXT
  2750               END-IF
  2751               MOVE ']'      TO WS-CS-15-CHR
  2752            END-IF
  2753            MOVE SPACES TO F-Expanded-Src-REC *> Force another READ
  2754            MOVE 256    TO WS-Src-SUB
  2755            .
```

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Line   Statement                                                          Page: 64
====== ============================================================================

  2757       312-Expanded-Src-Record SECTION.
  2758 GC0314     IF F-Expanded-Src-REC(1:1) = SPACE
  2759 GC0314         MOVE 2 TO WS-Src-SUB
  2760 GC0314     ELSE
  2761 GC0314         MOVE 1 TO WS-Src-SUB
  2762 GC0314     END-IF
  2763           IF WS-RS-In-Main-Module-BOOL
  2764               ADD 1 To WS-Curr-Line-NUM
  2765           END-IF
  2766           .
```

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```

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Line    Statement                                                            Page: 65
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 2768        313-Check-For-Numeric-Token SECTION.
 2769            MOVE WS-Token-Curr-TXT TO WS-Temp-32-Chars-1-TXT
 2770            INSPECT WS-Temp-32-Chars-1-TXT
 2771 GC0711        CONVERTING '0123456789' TO SPACES
 2772 GC0711    IF WS-Temp-32-Chars-1-TXT = SPACES                    *> Simple Unsigned Int
      eger
 2773                SET WS-TT-Token-Is-Lit-Number-BOOL TO TRUE
 2774                EXIT SECTION
 2775            END-IF
 2776 GC0711    MOVE SPACES TO WS-Temp-32-Chars-2-TXT
 2777 GC0711                  WS-Temp-32-Chars-3-TXT
 2778 GC0711                  WS-Dummy-TXT
 2779 GC0711    UNSTRING WS-Temp-32-Chars-1-TXT
 2780 GC0711        DELIMITED BY 'e' OR 'E'
 2781 GC0711        INTO WS-Temp-32-Chars-2-TXT
 2782 GC0711             WS-Temp-32-Chars-3-TXT
 2783 GC0711             WS-Dummy-TXT
 2784 GC0711    IF WS-Dummy-TXT NOT = SPACES                 *> More than one 'E' - Not Num
      eric
 2785 GC0711        EXIT SECTION
 2786 GC0711    END-IF
 2787 GC0711    IF WS-Temp-32-Chars-2-TXT(1:1) = '+' OR '-'
 2788 GC0711        MOVE SPACE TO WS-Temp-32-Chars-2-TXT(1:1)
 2789 GC0711    END-IF
 2790 GC0711    IF WS-Temp-32-Chars-3-TXT(1:1) = '+' OR '-'
 2791 GC0711        MOVE SPACE TO WS-Temp-32-Chars-3-TXT(1:1)
 2792 GC0711    END-IF
 2793            MOVE 0 TO WS-Tally-QTY
 2794 GC0711    INSPECT WS-Temp-32-Chars-2-TXT
 2795                TALLYING WS-Tally-QTY FOR ALL '.'
 2796            IF WS-Tally-QTY = 1
 2797 GC0711        INSPECT WS-Temp-32-Chars-2-TXT REPLACING ALL '.' BY SPACE
 2798            END-IF
 2799 GC0711    INSPECT WS-Temp-32-Chars-3-TXT
 2800 GC0711        TALLYING WS-Tally-QTY FOR ALL '.'
 2801 GC0711    IF WS-Tally-QTY = 1
 2802 GC0711        INSPECT WS-Temp-32-Chars-3-TXT REPLACING ALL '.' BY SPACE
 2803 GC0711    END-IF
 2804 GC0711    IF WS-Temp-32-Chars-2-TXT = SPACES AND WS-Temp-32-Chars-3-TXT = SPACES
 2805                SET WS-TT-Token-Is-Lit-Number-BOOL TO TRUE
 2806                EXIT SECTION
 2807            END-IF
 2808            .
```

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================================================================================================
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```

```
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Line   Statement                                                         Page: 66
====== ==============================================================================

 2810         320-IDENTIFICATION-DIVISION SECTION.
 2811 GC0712     IF WS-TT-Token-Is-Argtype-BOOL
 2812 GC0712         SET WS-TT-Token-Is-Reserved-Wd-BOOL TO TRUE
 2813 GC0712     END-IF
 2814 GC0710     MOVE 'N' TO WS-RS-Verb-Has-Been-Found-CHR
 2815            IF WS-TT-Token-Is-Keyword-BOOL
 2816            AND WS-Token-Curr-TXT = 'DIVISION'
 2817                MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
 2818                EXIT SECTION
 2819            END-IF
 2820 GC0712     IF WS-Token-Prev-TXT = 'PROGRAM-ID' OR 'FUNCTION-ID'
 2821                MOVE SPACES TO WS-Token-Prev-TXT
 2822                MOVE WS-Token-Curr-TXT TO WS-Curr-Prog-ID-TXT
 2823 GC0712         IF WS-CPI-16-CHR NOT = SPACES
 2824                    MOVE '...' TO WS-CPI-13-15-TXT
 2825                END-IF
 2826                EXIT SECTION
 2827            END-IF
 2828            .
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
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Line   Statement                                                             Page: 67
====== =================================================================================

 2830         330-ENVIRONMENT-DIVISION SECTION.
 2831 GC0712     IF WS-TT-Token-Is-Argtype-BOOL
 2832 GC0712         SET WS-TT-Token-Is-Reserved-Wd-BOOL TO TRUE
 2833 GC0712     END-IF
 2834             IF WS-TT-Token-Is-Keyword-BOOL
 2835             AND WS-Token-Curr-TXT = 'DIVISION'
 2836                 MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
 2837                 EXIT SECTION
 2838             END-IF
 2839             IF WS-TT-Token-Is-Keyword-BOOL
 2840             AND WS-Token-Curr-TXT = 'SECTION'
 2841                 MOVE WS-Token-Prev-TXT TO WS-Curr-Section-TXT
 2842                 EXIT SECTION
 2843             END-IF
 2844             IF WS-TT-Token-Is-Identifier-BOOL
 2845 GC0712         IF WS-Token-Prev-TXT = 'FUNCTION'
 2846 GC0712             PERFORM 360-Release-Def
 2847 GC0712         ELSE
 2848 GC0712             PERFORM 361-Release-Ref
 2849 GC0712         END-IF
 2850             END-IF
 2851 GC1213     IF WS-TT-Token-Is-Function-BOOL
 2852 GC1213         PERFORM 361-Release-Ref
 2853 GC1213     END-IF
 2854             .
```

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```
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====== =========================================================================

  2856        340-DATA-DIVISION SECTION.
  2857 GC0712     IF WS-TT-Token-Is-Argtype-BOOL
  2858 GC0712         SET WS-TT-Token-Is-Reserved-Wd-BOOL TO TRUE
  2859 GC0712     END-IF
  2860            IF WS-TT-Token-Is-Keyword-BOOL
  2861            AND WS-Token-Curr-TXT = 'DIVISION'
  2862                MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
  2863                EXIT SECTION
  2864            END-IF
  2865            IF WS-TT-Token-Is-Keyword-BOOL
  2866            AND WS-Token-Curr-TXT = 'SECTION'
  2867                MOVE WS-Token-Prev-TXT TO WS-Curr-Section-TXT
  2868                EXIT SECTION
  2869            END-IF
  2870            IF  (WS-Token-Curr-TXT = 'PIC' OR 'PICTURE')
  2871            AND (WS-TT-Token-Is-Keyword-BOOL)
  2872                MOVE 'Y' TO WS-RS-Processing-PICTURE-CHR
  2873                EXIT SECTION
  2874            END-IF
  2875 GC0710     IF WS-TT-Token-Is-Reserved-Wd-BOOL
  2876 GC0710     AND WS-Token-Prev-TXT = 'LEVEL #'
  2877 GC0710         MOVE SPACES TO WS-Token-Prev-TXT
  2878 GC0710         EXIT SECTION
  2879 GC0710     END-IF
  2880            IF WS-TT-Token-Is-Identifier-BOOL
  2881                EVALUATE WS-Token-Prev-TXT
  2882                WHEN 'FD'
  2883                    PERFORM 360-Release-Def
  2884                    MOVE SPACES TO WS-Token-Prev-TXT
  2885 GC1213         WHEN 'RD'
  2886 GC1213             PERFORM 360-Release-Def
  2887 GC1213             MOVE SPACES TO WS-Token-Prev-TXT
  2888                WHEN 'SD'
  2889                    PERFORM 360-Release-Def
  2890                    MOVE SPACES TO WS-Token-Prev-TXT
  2891                WHEN 'LEVEL #'
  2892                    PERFORM 360-Release-Def
  2893                    MOVE SPACES TO WS-Token-Prev-TXT
  2894                WHEN 'INDEXED'
  2895                    PERFORM 360-Release-Def
  2896                    MOVE SPACES TO WS-Token-Prev-TXT
  2897                WHEN 'USING'
  2898                    PERFORM 362-Release-Upd
  2899                    MOVE SPACES TO WS-Token-Prev-TXT
  2900                WHEN 'INTO'
  2901                    PERFORM 362-Release-Upd
  2902                    MOVE SPACES TO WS-Token-Prev-TXT
  2903                WHEN OTHER
  2904 GC1213             IF WS-Token-Curr-TXT NOT = 'SUM'
  2905 GC1213                 PERFORM 361-Release-Ref
  2906 GC1213             END-IF
  2907                END-EVALUATE
```

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====== =====================================================================================
  2908              EXIT SECTION
  2909         END-IF
  2910             .
```

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```
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======  =============================================================================

  2912         350-PROCEDURE-DIVISION SECTION.
  2913             IF WS-Curr-Section-TXT NOT = 'PROCEDURE'
  2914                 MOVE 'PROCEDURE' TO WS-Curr-Section-TXT
  2915             END-IF
  2916 GC0710     IF WS-Token-Curr-Uc-TXT = 'PROGRAM'
  2917 GC0710     AND WS-Token-Prev-TXT = 'END'
  2918 GC0710         MOVE '?' TO WS-Curr-Division-TXT
  2919 GC0710         EXIT SECTION
  2920 GC0710     END-IF
  2921             IF WS-TT-Token-Is-Keyword-BOOL
  2922             AND WS-Token-Curr-TXT = 'DIVISION'
  2923                 MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
  2924                 EXIT SECTION
  2925             END-IF
  2926 GC0313     IF WS-TT-Token-Is-Identifier-BOOL
  2927 GC0313     AND WS-Token-Prev-TXT = SPACES
  2928 GC0313     AND WS-Curr-Verb-TXT = SPACES
  2929 GC0313*> ----- Definition of a Paragraph or Section
  2930 GC0313         PERFORM 360-Release-Def
  2931 GC0313         MOVE SPACES TO WS-Token-Prev-TXT
  2932 GC0313         EXIT SECTION
  2933 GC0313     END-IF
  2934             IF NOT WS-TT-Token-Is-Identifier-BOOL
  2935                 EXIT SECTION
  2936             END-IF
  2937             EVALUATE WS-Curr-Verb-TXT
  2938             WHEN 'ACCEPT'
  2939                 PERFORM 351-ACCEPT
  2940             WHEN 'ADD'
  2941                 PERFORM 351-ADD
  2942             WHEN 'ALLOCATE'
  2943                 PERFORM 351-ALLOCATE
  2944             WHEN 'CALL'
  2945                 PERFORM 351-CALL
  2946             WHEN 'COMPUTE'
  2947                 PERFORM 351-COMPUTE
  2948             WHEN 'DIVIDE'
  2949                 PERFORM 351-DIVIDE
  2950             WHEN 'FREE'
  2951                 PERFORM 351-FREE
  2952 GC1213     WHEN 'GENERATE'
  2953 GC1213         PERFORM 351-GENERATE
  2954             WHEN 'INITIALIZE'
  2955                 PERFORM 351-INITIALIZE
  2956 GC1213     WHEN 'INITIATE'
  2957 GC1213         PERFORM 351-GENERATE
  2958             WHEN 'INSPECT'
  2959                 PERFORM 351-INSPECT
  2960             WHEN 'MOVE'
  2961                 PERFORM 351-MOVE
  2962             WHEN 'MULTIPLY'
  2963                 PERFORM 351-MULTIPLY
```

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================================================================================================
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```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                             Page: 71
====== =========================================================================================
 2964           WHEN 'PERFORM'
 2965               PERFORM 351-PERFORM
 2966           WHEN 'SET'
 2967               PERFORM 351-SET
 2968           WHEN 'STRING'
 2969               PERFORM 351-STRING
 2970           WHEN 'SUBTRACT'
 2971               PERFORM 351-SUBTRACT
 2972 GC1213    WHEN 'TERMINATE'
 2973 GC1213        PERFORM 351-GENERATE
 2974           WHEN 'TRANSFORM'
 2975               PERFORM 351-TRANSFORM
 2976           WHEN 'UNSTRING'
 2977               PERFORM 351-UNSTRING
 2978           WHEN OTHER
 2979               PERFORM 361-Release-Ref
 2980           END-EVALUATE
 2981           .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                            Page: 72
====== =================================================================================

 2983        351-ACCEPT SECTION.
 2984            EVALUATE WS-Token-Prev-TXT
 2985            WHEN 'ACCEPT'
 2986                PERFORM 362-Release-Upd
 2987                MOVE SPACES TO WS-Token-Prev-TXT
 2988            WHEN OTHER
 2989                PERFORM 361-Release-Ref
 2990            END-EVALUATE
 2991                .
 2992
 2993        351-ADD SECTION.
 2994            EVALUATE WS-Token-Prev-TXT
 2995            WHEN 'GIVING'
 2996                PERFORM 362-Release-Upd
 2997            WHEN 'TO'
 2998                PERFORM 362-Release-Upd
 2999            WHEN OTHER
 3000                PERFORM 361-Release-Ref
 3001            END-EVALUATE
 3002                .
 3003
 3004        351-ALLOCATE SECTION.
 3005            EVALUATE WS-Token-Prev-TXT
 3006            WHEN 'ALLOCATE'
 3007                PERFORM 362-Release-Upd
 3008                MOVE SPACES TO WS-Token-Prev-TXT
 3009            WHEN 'RETURNING'
 3010                PERFORM 362-Release-Upd
 3011            WHEN OTHER
 3012                PERFORM 361-Release-Ref
 3013            END-EVALUATE
 3014                .
 3015
 3016        351-CALL SECTION.
 3017            EVALUATE WS-Token-Prev-TXT
 3018            WHEN 'RETURNING'
 3019                PERFORM 362-Release-Upd
 3020            WHEN 'GIVING'
 3021                PERFORM 362-Release-Upd
 3022            WHEN OTHER
 3023 GC1213         PERFORM 365-Release-Arg
 3024            END-EVALUATE
 3025                .
 3026
 3027        351-COMPUTE SECTION.
 3028            EVALUATE WS-Token-Prev-TXT
 3029            WHEN 'COMPUTE'
 3030                PERFORM 362-Release-Upd
 3031            WHEN OTHER
 3032                PERFORM 361-Release-Ref
 3033            END-EVALUATE
 3034                .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                          Page: 73
====== =========================================================================
 3035
 3036        351-DIVIDE SECTION.
 3037            EVALUATE WS-Token-Prev-TXT
 3038            WHEN 'INTO'
 3039                PERFORM 363-Set-Upd
 3040                MOVE F-Sort-Work-REC TO WS-Held-Reference-TXT
 3041            WHEN 'GIVING'
 3042                IF WS-Held-Reference-TXT NOT = SPACES
 3043                    MOVE WS-Held-Reference-TXT To F-Sort-Work-REC
 3044                    MOVE SPACES        To WS-Held-Reference-TXT
 3045                                          F-SW-Ref-Flag-CHR
 3046                    RELEASE F-Sort-Work-REC
 3047                END-IF
 3048                PERFORM 362-Release-Upd
 3049            WHEN 'REMAINDER'
 3050                PERFORM 362-Release-Upd
 3051            WHEN OTHER
 3052                PERFORM 361-Release-Ref
 3053            END-EVALUATE
 3054            .
 3055
 3056        351-FREE SECTION.
 3057            PERFORM 362-Release-Upd
 3058            .
 3059
 3060 GC1213 351-GENERATE SECTION.
 3061 GC1213     PERFORM 362-Release-Upd
 3062 GC1213     .
 3063
 3064        351-INITIALIZE SECTION.
 3065            EVALUATE WS-Token-Prev-TXT
 3066            WHEN 'INITIALIZE'
 3067                PERFORM 362-Release-Upd
 3068            WHEN 'REPLACING'
 3069                PERFORM 361-Release-Ref
 3070            END-EVALUATE
 3071            .
 3072
 3073 GC1213 351-INITIATE SECTION.
 3074 GC1213     PERFORM 362-Release-Upd
 3075 GC1213     .
 3076
 3077        351-INSPECT SECTION.
 3078            EVALUATE WS-Token-Prev-TXT
 3079            WHEN 'INSPECT'
 3080                PERFORM 364-Set-Ref
 3081                MOVE SPACES TO WS-Held-Reference-TXT
 3082                MOVE SPACES TO WS-Token-Prev-TXT
 3083            WHEN 'TALLYING'
 3084                PERFORM 362-Release-Upd
 3085                MOVE SPACES TO WS-Token-Prev-TXT
 3086            WHEN 'REPLACING'
 3087                IF WS-Held-Reference-TXT NOT = SPACES
```

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```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                               Page: 74
====== =====================================================================================
 3088                    MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
 3089                    MOVE SPACES        TO WS-Held-Reference-TXT
 3090                    MOVE '*'           TO F-SW-Ref-Flag-CHR
 3091                    RELEASE F-Sort-Work-REC
 3092                 END-IF
 3093                 MOVE SPACES TO WS-Token-Prev-TXT
 3094              WHEN 'CONVERTING'
 3095                 IF WS-Held-Reference-TXT NOT = SPACES
 3096                    MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
 3097                    MOVE SPACES        TO WS-Held-Reference-TXT
 3098                    MOVE '*'           TO F-SW-Ref-Flag-CHR
 3099                    RELEASE F-Sort-Work-REC
 3100                 END-IF
 3101                 MOVE SPACES TO WS-Token-Prev-TXT
 3102              WHEN OTHER
 3103                 PERFORM 361-Release-Ref
 3104              END-EVALUATE
 3105              .
 3106
 3107        351-MOVE SECTION.
 3108            EVALUATE WS-Token-Prev-TXT
 3109            WHEN 'TO'
 3110                PERFORM 362-Release-Upd
 3111            WHEN OTHER
 3112                PERFORM 361-Release-Ref
 3113            END-EVALUATE
 3114            .
 3115
 3116        351-MULTIPLY SECTION.
 3117            EVALUATE WS-Token-Prev-TXT
 3118            WHEN 'BY'
 3119                PERFORM 363-Set-Upd
 3120                MOVE F-Sort-Work-REC TO WS-Held-Reference-TXT
 3121            WHEN 'GIVING'
 3122                MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
 3123                MOVE SPACES        TO WS-Held-Reference-TXT
 3124                                      F-SW-Ref-Flag-CHR
 3125                RELEASE F-Sort-Work-REC
 3126                PERFORM 362-Release-Upd
 3127            WHEN OTHER
 3128                PERFORM 361-Release-Ref
 3129            END-EVALUATE
 3130            .
 3131
 3132        351-PERFORM SECTION.
 3133            EVALUATE WS-Token-Prev-TXT
 3134            WHEN 'VARYING'
 3135                PERFORM 362-Release-Upd
 3136                MOVE SPACES TO WS-Token-Prev-TXT
 3137            WHEN 'AFTER'
 3138                PERFORM 362-Release-Upd
 3139                MOVE SPACES TO WS-Token-Prev-TXT
 3140            WHEN OTHER
```

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```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                              Page: 75
====== ==============================================================================
 3141                 PERFORM 361-Release-Ref
 3142             END-EVALUATE
 3143                 .
 3144
 3145         351-SET SECTION.
 3146             EVALUATE WS-Token-Prev-TXT
 3147             WHEN 'SET'
 3148                 PERFORM 362-Release-Upd
 3149             WHEN OTHER
 3150                 PERFORM 361-Release-Ref
 3151             END-EVALUATE
 3152                 .
 3153
 3154         351-STRING SECTION.
 3155             EVALUATE WS-Token-Prev-TXT
 3156             WHEN 'INTO'
 3157                 PERFORM 362-Release-Upd
 3158             WHEN 'POINTER'
 3159                 PERFORM 362-Release-Upd
 3160             WHEN OTHER
 3161                 PERFORM 361-Release-Ref
 3162             END-EVALUATE
 3163                 .
 3164
 3165         351-SUBTRACT SECTION.
 3166             EVALUATE WS-Token-Prev-TXT
 3167             WHEN 'GIVING'
 3168                 PERFORM 362-Release-Upd
 3169             WHEN 'FROM'
 3170                 PERFORM 362-Release-Upd
 3171             WHEN OTHER
 3172                 PERFORM 361-Release-Ref
 3173             END-EVALUATE
 3174                 .
 3175
 3176 GC1213 351-TERMINATE SECTION.
 3177 GC1213     PERFORM 362-Release-Upd
 3178 GC1213         .
 3179
 3180         351-TRANSFORM SECTION.
 3181             EVALUATE WS-Token-Prev-TXT
 3182             WHEN 'TRANSFORM'
 3183                 PERFORM 362-Release-Upd
 3184                 MOVE SPACES TO WS-Token-Prev-TXT
 3185             WHEN OTHER
 3186                 PERFORM 361-Release-Ref
 3187             END-EVALUATE
 3188                 .
 3189
 3190         351-UNSTRING SECTION.
 3191             EVALUATE WS-Token-Prev-TXT
 3192             WHEN 'INTO'
 3193                 PERFORM 362-Release-Upd
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                            Page: 76
====== ================================================================================
 3194           WHEN 'DELIMITER'
 3195               PERFORM 362-Release-Upd
 3196           WHEN 'COUNT'
 3197               PERFORM 362-Release-Upd
 3198           WHEN 'POINTER'
 3199               PERFORM 362-Release-Upd
 3200           WHEN 'TALLYING'
 3201               PERFORM 362-Release-Upd
 3202           WHEN OTHER
 3203               PERFORM 361-Release-Ref
 3204           END-EVALUATE
 3205           .
 3206
 3207       360-Release-Def SECTION.
 3208           MOVE SPACES               TO F-Sort-Work-REC
 3209           MOVE WS-Curr-Prog-ID-TXT  TO F-SW-Prog-ID-TXT
 3210           MOVE WS-Token-Curr-Uc-TXT TO F-SW-Token-Uc-TXT
 3211           MOVE WS-Token-Curr-TXT    TO F-SW-Token-TXT
 3212           MOVE WS-Curr-Section-TXT  TO F-SW-Section-TXT
 3213           MOVE WS-Curr-Line-NUM     TO F-SW-Def-Line-NUM
 3214           MOVE 0                    TO F-SW-Ref-Line-NUM
 3215           RELEASE F-Sort-Work-REC
 3216           .
 3217
 3218       361-Release-Ref SECTION.
 3219           PERFORM 364-Set-Ref
 3220           RELEASE F-Sort-Work-REC
 3221           .
 3222
 3223       362-Release-Upd SECTION.
 3224           PERFORM 363-Set-Upd
 3225           RELEASE F-Sort-Work-REC
 3226           .
 3227
 3228       363-Set-Upd SECTION.
 3229           MOVE SPACES               TO F-Sort-Work-REC
 3230           MOVE WS-Curr-Prog-ID-TXT  TO F-SW-Prog-ID-TXT
 3231           MOVE WS-Token-Curr-Uc-TXT TO F-SW-Token-Uc-TXT
 3232           MOVE WS-Token-Curr-TXT    TO F-SW-Token-TXT
 3233           MOVE WS-Curr-Section-TXT  TO F-SW-Section-TXT
 3234           MOVE WS-Curr-Line-NUM     TO F-SW-Ref-Line-NUM
 3235           MOVE '*'                  TO F-SW-Ref-Flag-CHR
 3236           .
 3237
 3238       364-Set-Ref SECTION.
 3239           MOVE SPACES               TO F-Sort-Work-REC
 3240           MOVE WS-Curr-Prog-ID-TXT  TO F-SW-Prog-ID-TXT
 3241           MOVE WS-Token-Curr-Uc-TXT TO F-SW-Token-Uc-TXT
 3242           MOVE WS-Token-Curr-TXT    TO F-SW-Token-TXT
 3243           MOVE WS-Curr-Section-TXT  TO F-SW-Section-TXT
 3244           MOVE WS-Curr-Line-NUM     TO F-SW-Ref-Line-NUM
 3245           .
 3246
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                          Page: 77
====== =========================================================================
 3247 GC1213 365-Release-Arg SECTION.
 3248 GC1213     PERFORM 366-Set-Arg
 3249 GC1213     RELEASE F-Sort-Work-REC
 3250 GC1213     .
 3251
 3252 GC1213 366-Set-Arg SECTION.
 3253 GC1213     MOVE SPACES               TO F-Sort-Work-REC
 3254 GC1213     MOVE WS-Curr-Prog-ID-TXT  TO F-SW-Prog-ID-TXT
 3255 GC1213     MOVE WS-Token-Curr-Uc-TXT TO F-SW-Token-Uc-TXT
 3256 GC1213     MOVE WS-Token-Curr-TXT    TO F-SW-Token-TXT
 3257 GC1213     MOVE WS-Curr-Section-TXT  TO F-SW-Section-TXT
 3258 GC1213     MOVE WS-Curr-Line-NUM     TO F-SW-Ref-Line-NUM
 3259 GC1213     MOVE 'C'                  TO F-SW-Ref-Flag-CHR
 3260 GC1213     .
 3261
```

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```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                           Page: 78
====== ============================================================================

 3263         400-Produce-Xref-Listing SECTION.
 3264            MOVE SPACES       TO WS-Xref-Detail-Line-TXT
 3265                                 WS-Group-Indicators-TXT
 3266            MOVE 0            TO WS-I-SUB
 3267                                 WS-Lines-Left-NUM
 3268 GC0710    MOVE 'N'          TO WS-RS-Duplicate-CHR
 3269            PERFORM FOREVER
 3270               RETURN F-Sort-Work-FILE AT END
 3271 GC1213         IF WS-Xref-Detail-Line-TXT NOT = SPACES
 3272 GC1213             PERFORM 410-Generate-Report-Line
 3273 GC1213         END-IF
 3274 GC1213         MOVE SPACES TO WS-Xref-Detail-Line-TXT
 3275 GC1213         PERFORM 410-Generate-Report-Line
 3276 GC1213             UNTIL WS-Lines-Left-NUM = 0
 3277 GC1213         MOVE 'Y' TO WS-Suppress-FF-CHR
 3278 GC1213         PERFORM 420-Generate-Xref-Footer
 3279               EXIT PERFORM
 3280            END-RETURN
 3281            IF F-SW-Prog-ID-TXT  NOT = WS-GI-Prog-ID-TXT
 3282            OR F-SW-Token-Uc-TXT NOT = WS-GI-Token-TXT
 3283 GC0710         MOVE 'N' TO WS-RS-Duplicate-CHR
 3284               IF WS-Xref-Detail-Line-TXT NOT = SPACES
 3285                   PERFORM 410-Generate-Report-Line
 3286               END-IF
 3287               IF F-SW-Prog-ID-TXT NOT = WS-GI-Prog-ID-TXT
 3288 GC1213             MOVE SPACES TO WS-Xref-Detail-Line-TXT
 3289 GC1213             PERFORM 410-Generate-Report-Line
 3290 GC1213                 UNTIL WS-Lines-Left-NUM = 0
 3291               END-IF
 3292               MOVE F-SW-Prog-ID-TXT  TO WS-GI-Prog-ID-TXT
 3293               MOVE F-SW-Token-Uc-TXT TO WS-GI-Token-TXT
 3294            END-IF
 3295 GC0710    IF F-SW-Token-Uc-TXT = WS-GI-Token-TXT
 3296 GC0710    AND F-SW-Def-Line-NUM NOT = SPACES
 3297 GC0710    AND WS-Xref-Detail-Line-TXT NOT = SPACES
 3298 GC0710        MOVE 'Y' TO WS-RS-Duplicate-CHR
 3299 GC0710        PERFORM 410-Generate-Report-Line
 3300 GC0710        MOVE 0 TO WS-I-SUB
 3301 GC0710        MOVE F-SW-Prog-ID-TXT TO WS-XDL-Prog-ID-TXT
 3302 GC0710        MOVE '  (Duplicate Definition)' TO WS-XDL-Token-TXT
 3303 GC0710        MOVE F-SW-Section-TXT TO WS-XDL-Section-TXT
 3304 GC0710        MOVE F-SW-Def-Line-NUM TO WS-XDL-Def-Line-NUM
 3305 GC0710        EXIT PERFORM CYCLE
 3306 GC0710    END-IF
 3307 GC0710    IF F-SW-Token-Uc-TXT = WS-GI-Token-TXT
 3308 GC0710    AND F-SW-Def-Line-NUM = SPACES
 3309 GC0710    AND WS-RS-Duplicate-CHR = 'Y'
 3310 GC0710        MOVE 'N' TO WS-RS-Duplicate-CHR
 3311 GC0710        PERFORM 410-Generate-Report-Line
 3312 GC0710        MOVE 0 TO WS-I-SUB
 3313 GC0710        MOVE F-SW-Prog-ID-TXT TO WS-XDL-Prog-ID-TXT
 3314 GC0710        MOVE '  (Duplicate References)' TO WS-XDL-Token-TXT
```

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```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                           /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 79
====== =================================================================================
  3315 GC0710        END-IF
  3316               IF WS-Xref-Detail-Line-TXT = SPACES
  3317                   MOVE F-SW-Prog-ID-TXT TO WS-XDL-Prog-ID-TXT
  3318                   MOVE F-SW-Token-TXT TO WS-XDL-Token-TXT
  3319                   MOVE F-SW-Section-TXT TO WS-XDL-Section-TXT
  3320                   IF F-SW-Def-Line-NUM NOT = SPACES
  3321                       MOVE F-SW-Def-Line-NUM TO WS-XDL-Def-Line-NUM
  3322                   END-IF
  3323               END-IF
  3324               IF F-SW-Reference-TXT > '000000'
  3325                   ADD 1 TO WS-I-SUB
  3326                   IF WS-I-SUB > WS-Xref-Lines-Per-Rec-NUM
  3327                       PERFORM 410-Generate-Report-Line
  3328                       MOVE 1 TO WS-I-SUB
  3329                   END-IF
  3330                   MOVE F-SW-Ref-Line-NUM
  3331                     TO WS-XDL-Ref-Line-NUM (WS-I-SUB)
  3332                   MOVE F-SW-Ref-Flag-CHR
  3333                     TO WS-XDL-Ref-Flag-CHR (WS-I-SUB)
  3334               END-IF
  3335           END-PERFORM
  3336           IF WS-Xref-Detail-Line-TXT NOT = SPACES
  3337               PERFORM 410-Generate-Report-Line
  3338           END-IF
  3339               .
```

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```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                    Page: 80
======  ============================================================================

  3341        410-Generate-Report-Line SECTION.
  3342            IF WS-Lines-Left-NUM < 1
  3343 GC1213       PERFORM 420-Generate-Xref-Footer
  3344 GC1213       ADD  1         TO WS-Page-NUM
  3345 GC1213       MOVE 'Page:'    TO WS-PN-Literal-TXT
  3346 GC1213       MOVE WS-Page-NUM TO WS-PN-Page-NUM
  3347 GC1213       CALL 'C$JUSTIFY' USING WS-PN-Page-NUM, 'Left'
  3348 GC1213       CALL 'C$JUSTIFY' USING WS-Page-No-TXT, 'Right'
  3349 GC1213       IF L-Listing-CD = 1 *> LANDSCAPE
  3350 GC1213          MOVE WS-Version-TXT
  3351 GC1213            TO F-Listing-135-REC
  3352 GC1213          MOVE 'Cross-Reference Listing'
  3353 GC1213            TO F-Listing-135-REC(25:23)
  3354 GC1213          MOVE WS-Formatted-DT
  3355 GC1213            TO F-Listing-135-REC(126:10)
  3356 GC1213          WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #1
  3357 GC1213          MOVE WS-Program-Path-TXT
  3358 GC1213            TO F-Listing-135-REC
  3359 GC1213          WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #2
  3360 GC1213          MOVE 'PROGRAM-ID    Identifier/Register/Function' &
  3361 GC1213              '   Defn  Where Defined  References'
  3362 GC1213            TO F-Listing-135-REC
  3363 GC1213          MOVE WS-Page-No-TXT
  3364 GC1213            TO F-Listing-135-REC(126:10)
  3365 GC1213          WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #3
  3366 GC1213          MOVE ALL '=' TO F-Listing-135-REC
  3367 GC1213          MOVE SPACE TO F-Listing-135-REC(16:1)
  3368 GC1213                       F-Listing-135-REC(49:1)
  3369 GC1213                       F-Listing-135-REC(56:1)
  3370 GC1213                       F-Listing-135-REC(72:1)
  3371 GC1213          WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #4
  3372 GC1213       ELSE              *> PORTRAIT
  3373 GC1213          MOVE WS-Version-TXT
  3374 GC1213            TO F-Listing-96-REC
  3375 GC1213          MOVE 'Cross-Reference Listing'
  3376 GC1213            TO F-Listing-96-REC(25:23)
  3377 GC1213          MOVE WS-Formatted-DT
  3378 GC1213            TO F-Listing-96-REC(87:10)
  3379 GC1213          WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #1
  3380 GC1213          MOVE WS-Program-Path-TXT(40:96)
  3381 GC1213            TO F-Listing-96-REC
  3382 GC1213          WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #2
  3383 GC1213          MOVE 'PROGRAM-ID    Identifier/Register/Function' &
  3384 GC1213              '   Defn  Where Defined  References'
  3385 GC1213            TO F-Listing-96-REC
  3386 GC1213          MOVE WS-Page-No-TXT
  3387 GC1213            TO F-Listing-96-REC(87:10)
  3388 GC1213          WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #3
  3389 GC1213          MOVE ALL '=' TO F-Listing-96-REC
  3390 GC1213          MOVE SPACE TO F-Listing-96-REC(16:1)
  3391 GC1213                       F-Listing-96-REC(49:1)
  3392 GC1213                       F-Listing-96-REC(56:1)
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                      2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 81
====== ===============================================================================
 3393 GC1213                        F-Listing-96-REC(72:1)
 3394 GC1213            WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #4
 3395 GC1213         END-IF
 3396 GC1213         COMPUTE WS-Lines-Left-NUM = WS-Lines-Per-Page-NUM - 4
 3397            END-IF
 3398 GC1213     IF L-Listing-CD = 1 *> LANDSCAPE
 3399 GC1213        WRITE F-Listing-135-REC FROM WS-Xref-Detail-Line-TXT
 3400 GC1213           BEFORE 1
 3401 GC1213     ELSE                *> PORTRAIT
 3402 GC1213        WRITE F-Listing-96-REC FROM WS-Xref-Detail-Line-TXT
 3403 GC1213           BEFORE 1
 3404 GC1213     END-IF
 3405            MOVE SPACES TO WS-Xref-Detail-Line-TXT
 3406            MOVE 0 TO WS-I-SUB
 3407            SUBTRACT 1 FROM WS-Lines-Left-NUM
 3408               .
 3409 GC1213 420-Generate-Xref-Footer SECTION.
 3410 GC1213     IF L-Listing-CD = 1 *> LANDSCAPE
 3411 GC1213        WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Footer Line #1
 3412 GC1213        MOVE ALL '='
 3413 GC1213          TO F-Listing-135-REC
 3414 GC1213        WRITE F-Listing-135-REC BEFORE 1 *> Footer Line #2
 3415 GC1213        MOVE WS-Copyright-TXT
 3416 GC1213          TO F-Listing-135-REC
 3417 GC1213        MOVE WS-Page-No-TXT
 3418 GC1213          TO F-Listing-135-REC(126:10)
 3419 GC1213        IF WS-Suppress-FF-CHR = 'Y'
 3420 GC1213           WRITE F-Listing-135-REC BEFORE 1 *> Footer Line #3
 3421 GC1213        ELSE
 3422 GC1213           WRITE F-Listing-135-REC BEFORE PAGE *> Footer Line #3
 3423 GC1213           WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Spaces After FF Charac
      ter
 3424 GC1213        END-IF
 3425 GC1213     ELSE                *> PORTRAIT
 3426 GC1213        WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Footer Line #1
 3427 GC1213        MOVE ALL '='
 3428 GC1213          TO F-Listing-96-REC
 3429 GC1213        WRITE F-Listing-96-REC BEFORE 1 *> Footer Line #2
 3430 GC1213        MOVE WS-Copyright-TXT
 3431 GC1213          TO F-Listing-96-REC
 3432 GC1213        MOVE WS-Page-No-TXT
 3433 GC1213          TO F-Listing-96-REC(87:10)
 3434 GC1213        IF WS-Suppress-FF-CHR = 'Y'
 3435 GC1213           WRITE F-Listing-96-REC BEFORE 1 *> Footer Line #3
 3436 GC1213        ELSE
 3437 GC1213           WRITE F-Listing-96-REC BEFORE PAGE *> Footer Line #3
 3438 GC1213           WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Spaces After FF Charact
      er
 3439 GC1213        END-IF
 3440 GC1213     END-IF
 3441 GC1213        .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                            Page: 82
====== =====================================================================================

  3443        500-Produce-Source-Listing SECTION.
  3444            OPEN INPUT F-Original-Src-FILE
  3445                       F-Expanded-Src-FILE
  3446            MOVE 0 TO WS-Src-Line-NUM
  3447            PERFORM FOREVER
  3448                READ F-Expanded-Src-FILE AT END
  3449 GC1213            MOVE SPACES TO WS-Src-Detail-Line-TXT
  3450 GC1213            PERFORM 530-Generate-Source-Line
  3451 GC1213                UNTIL WS-Lines-Left-NUM = 0
  3452                    EXIT PERFORM
  3453                END-READ
  3454 GC0712        IF F-ES-1-7-TXT NOT = '#DEFLIT'
  3455 GC0712            IF F-ES-1-CHR = '#'
  3456 GC0712                PERFORM 510-Control-Record
  3457 GC0712            ELSE
  3458 GC0712                PERFORM 520-Expanded-Src-Record
  3459 GC0712            END-IF
  3460 GC0712        END-IF
  3461            END-PERFORM
  3462            CLOSE F-Original-Src-FILE
  3463                  F-Expanded-Src-FILE
  3464            .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                   /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                       Page: 83
====== =========================================================================

  3466        510-Control-Record SECTION.
  3467            UNSTRING F-ES-2-256-TXT-256
  3468                DELIMITED BY '"'
  3469                INTO WS-Temp-10-Chars-TXT
  3470                     WS-Temp-256-Chars-TXT
  3471                     WS-Dummy-TXT
  3472 GC1010     IF UPPER-CASE(TRIM(WS-Temp-256-Chars-TXT,Trailing)) =
  3473 GC1010        TRIM(WS-Main-Module-Name-TXT) *> Main Pgm
  3474            SET WS-RS-In-Main-Module-BOOL TO TRUE
  3475            IF WS-Src-Line-NUM > 0
  3476                READ F-Expanded-Src-FILE END-READ
  3477            END-IF
  3478        ELSE *> COPY
  3479            SET WS-RS-In-Copybook-BOOL TO TRUE
  3480        END-IF
  3481            .
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                     Page: 83
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 84
====== =========================================================================================

  3483         520-Expanded-Src-Record SECTION.
  3484             IF WS-RS-In-Main-Module-BOOL
  3485                 ADD 1 To WS-Curr-Line-NUM
  3486 GC0712          READ F-Original-Src-FILE AT END CONTINUE END-READ
  3487                 ADD 1 TO WS-Src-Line-NUM
  3488                 MOVE SPACES TO WS-Src-Detail-Line-TXT
  3489                 MOVE WS-Src-Line-NUM TO WS-SDL-Line-NUM
  3490 GC1213          MOVE F-Original-Src-REC TO WS-SDL-Statement-TXT
  3491 GC0712          MOVE LOWER-CASE(TRIM(F-OS-8-72-TXT,LEADING))
  3492 GC0712            TO WS-Temp-65-Chars-TXT
  3493 GC0712          INSPECT WS-Temp-65-Chars-TXT REPLACING ALL '.' BY SPACE
  3494 GC0712          EVALUATE TRUE
  3495 GC0712              WHEN F-OS-7-CHR = '/'
  3496 GC1213                  MOVE SPACES TO WS-Src-Detail-Line-TXT
  3497 GC1213                  PERFORM 530-Generate-Source-Line
  3498 GC1213                      UNTIL WS-Lines-Left-NUM = 0
  3499 GC0712              WHEN WS-Temp-65-Chars-TXT = "eject"
  3500 GC1213                  MOVE SPACES TO WS-Src-Detail-Line-TXT
  3501 GC1213                  PERFORM 530-Generate-Source-Line
  3502 GC1213                      UNTIL WS-Lines-Left-NUM = 0
  3503 GC0712                  EXIT SECTION
  3504 GC0712              WHEN WS-Temp-65-Chars-TXT = "skip1"
  3505 GC0712                  MOVE SPACES TO WS-Src-Detail-Line-TXT
  3506 GC0712                  PERFORM 530-Generate-Source-Line
  3507 GC0712                  EXIT SECTION
  3508 GC0712              WHEN WS-Temp-65-Chars-TXT = "skip2"
  3509 GC0712                  MOVE SPACES TO WS-Src-Detail-Line-TXT
  3510 GC0712                  PERFORM 530-Generate-Source-Line 2 TIMES
  3511 GC0712                  EXIT SECTION
  3512 GC0712              WHEN WS-Temp-65-Chars-TXT = "skip3"
  3513 GC0712                  MOVE SPACES TO WS-Src-Detail-Line-TXT
  3514 GC0712                  PERFORM 530-Generate-Source-Line 3 TIMES
  3515 GC0712                  EXIT SECTION
  3516 GC0712          END-EVALUATE
  3517                 PERFORM 530-Generate-Source-Line
  3518             ELSE
  3519                 IF F-Expanded-Src-REC NOT = SPACES
  3520                     MOVE SPACES TO WS-Src-Detail-Line-TXT
  3521 GC1213              MOVE F-Expanded-Src-REC
  3522                        TO WS-SDL-Statement-TXT
  3523 GC0712              MOVE LOWER-CASE(TRIM(F-OS-8-72-TXT,LEADING))
  3524 GC0712                 TO WS-Temp-65-Chars-TXT
  3525 GC0712              INSPECT WS-Temp-65-Chars-TXT
  3526 GC0712                  REPLACING ALL '.' BY SPACE
  3527 GC0712              EVALUATE TRUE
  3528 GC0712                  WHEN WS-Temp-65-Chars-TXT = "eject"
  3529 GC0712                      MOVE 0 TO WS-Lines-Left-NUM
  3530 GC0712                      EXIT SECTION
  3531 GC0712                  WHEN WS-Temp-65-Chars-TXT = "skip1"
  3532 GC0712                      MOVE SPACES TO WS-Src-Detail-Line-TXT
  3533 GC0712                      PERFORM 530-Generate-Source-Line
  3534 GC0712                      EXIT SECTION
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                        2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                                Page: 85
====== =================================================================================
  3535 GC0712                  WHEN WS-Temp-65-Chars-TXT = "skip2"
  3536 GC0712                      MOVE SPACES TO WS-Src-Detail-Line-TXT
  3537 GC0712                      PERFORM 530-Generate-Source-Line 2 TIMES
  3538 GC0712                      EXIT SECTION
  3539 GC0712                  WHEN WS-Temp-65-Chars-TXT = "skip3"
  3540 GC0712                      MOVE SPACES TO WS-Src-Detail-Line-TXT
  3541 GC0712                      PERFORM 530-Generate-Source-Line 3 TIMES
  3542 GC0712                      EXIT SECTION
  3543 GC0712              END-EVALUATE
  3544                      PERFORM 530-Generate-Source-Line
  3545                  END-IF
  3546              END-IF
  3547              .
```

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```
GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 86
======  ========================================================================================

  3549        530-Generate-Source-Line SECTION.
  3550 GC1213     MOVE 1 TO WS-Src-Lines-NUM
  3551 GC1213     IF L-Listing-CD = 1 *> LANDSCAPE
  3552 GC1213         IF WS-SDL-Statement-TXT(129:128) > SPACES
  3553 GC1213             ADD 1 TO WS-Src-Lines-NUM
  3554 GC1213         END-IF
  3555 GC1213     ELSE                  *> PORTRAIT
  3556 GC1213         IF WS-SDL-Statement-TXT(90:167) > SPACES
  3557 GC1213             ADD 1 TO WS-Src-Lines-NUM
  3558 GC1213             IF WS-SDL-Statement-TXT(179:78) > SPACES
  3559 GC1213                 ADD 1 TO WS-Src-Lines-NUM
  3560 GC1213             END-IF
  3561 GC1213         END-IF
  3562 GC1213     END-IF
  3563 GC1213     IF WS-Lines-Left-NUM < WS-Src-Lines-NUM
  3564 GC1213         IF WS-Page-Num > 0 *> Don't print footer before page 1
  3565 GC1213             IF L-Listing-CD = 1 *> LANDSCAPE
  3566 GC1213                 IF WS-Src-Lines-NUM = 2
  3567 GC1213                     WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Blank Line
  3568 GC1213                 END-IF
  3569 GC1213                 WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Footer Line #1
  3570 GC1213                 MOVE ALL '='
  3571 GC1213                   TO F-Listing-135-REC
  3572 GC1213                 WRITE F-Listing-135-REC BEFORE 1 *> Footer Line #2
  3573 GC1213                 MOVE WS-Copyright-TXT
  3574 GC1213                   TO F-Listing-135-REC
  3575 GC1213                 MOVE WS-Page-No-TXT
  3576 GC1213                   TO F-Listing-135-REC(126:10)
  3577 GC1213                 WRITE F-Listing-135-REC BEFORE PAGE *> Footer Line #3
  3578 GC1213                 WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Spaces After FF Ch
       aracter
  3579 GC1213             ELSE               *> PORTRAIT
  3580 GC1213                 EVALUATE WS-Src-Lines-NUM
  3581 GC1213                 WHEN 1 *> Need no extra blank lines
  3582 GC1213                     CONTINUE
  3583 GC1213                 WHEN 2 *> Need 1 extra blank line
  3584 GC1213                     WRITE F-Listing-96-REC FROM SPACES BEFORE 1
  3585 GC1213                 WHEN 3 *> Need 2 extra blank lines
  3586 GC1213                     WRITE F-Listing-96-REC FROM SPACES BEFORE 1
  3587 GC1213                     WRITE F-Listing-96-REC FROM SPACES BEFORE 1
  3588 GC1213                 END-EVALUATE
  3589 GC1213                 WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Footer Line #1
  3590 GC1213                 MOVE ALL '='
  3591 GC1213                   TO F-Listing-96-REC
  3592 GC1213                 WRITE F-Listing-96-REC BEFORE 1 *> Footer Line #2
  3593 GC1213                 MOVE WS-Copyright-TXT
  3594 GC1213                   TO F-Listing-96-REC
  3595 GC1213                 MOVE WS-Page-No-TXT
  3596 GC1213                   TO F-Listing-96-REC(87:10)
  3597 GC1213                 WRITE F-Listing-96-REC BEFORE PAGE *> Footer Line #3
  3598 GC1213                 WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Spaces After FF Cha
       racter
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                     2017/12/24
                                           /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 87
====== =====================================================================================
 3599 GC1213          END-IF
 3600 GC1213        END-IF
 3601 GC1213        ADD  1          TO WS-Page-NUM
 3602 GC1213        MOVE 'Page:'    TO WS-PN-Literal-TXT
 3603 GC1213        MOVE WS-Page-NUM TO WS-PN-Page-NUM
 3604 GC1213        CALL 'C$JUSTIFY' USING WS-PN-Page-NUM, 'Left'
 3605 GC1213        CALL 'C$JUSTIFY' USING WS-Page-No-TXT, 'Right'
 3606 GC1213        IF L-Listing-CD = 1 *> LANDSCAPE
 3607 GC1213            MOVE WS-Version-TXT
 3608 GC1213              TO F-Listing-135-REC
 3609 GC1213            MOVE 'Source Listing'
 3610 GC1213              TO F-Listing-135-REC(25:14)
 3611 GC1213            MOVE WS-Formatted-DT
 3612 GC1213              TO F-Listing-135-REC(126:10)
 3613 GC1213            WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #1
 3614 GC1213            MOVE WS-Program-Path-TXT
 3615 GC1213              TO F-Listing-135-REC
 3616 GC1213            WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #2
 3617 GC1213            MOVE 'Line   Statement'
 3618 GC1213              TO F-Listing-135-REC
 3619 GC1213            MOVE WS-Page-No-TXT
 3620 GC1213              TO F-Listing-135-REC(126:10)
 3621 GC1213            WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #3
 3622 GC1213            MOVE WS-Src-Dashes-TXT
 3623 GC1213              TO F-Listing-135-REC
 3624 GC1213            WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #4
 3625 GC1213        ELSE               *> PORTRAIT
 3626 GC1213            MOVE WS-Version-TXT
 3627 GC1213              TO F-Listing-96-REC
 3628 GC1213            MOVE 'Source Listing'
 3629 GC1213              TO F-Listing-96-REC(25:14)
 3630 GC1213            MOVE WS-Formatted-DT
 3631 GC1213              TO F-Listing-96-REC(87:10)
 3632 GC1213            WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #1
 3633 GC1213            MOVE WS-Program-Path-TXT(40:96)
 3634 GC1213              TO F-Listing-96-REC
 3635 GC1213            WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #2
 3636 GC1213            MOVE 'Line   Statement'
 3637 GC1213              TO F-Listing-96-REC
 3638 GC1213            MOVE WS-Page-No-TXT
 3639 GC1213              TO F-Listing-96-REC(87:10)
 3640 GC1213            WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #3
 3641 GC1213            MOVE WS-Src-Dashes-TXT
 3642 GC1213              TO F-Listing-96-REC
 3643 GC1213            WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #4
 3644 GC1213        END-IF
 3645 GC1213        COMPUTE WS-Lines-Left-NUM = WS-Lines-Per-Page-NUM - 4
 3646 GC1213      END-IF
 3647 GC1213      IF L-Listing-CD = 1 *> LANDSCAPE
 3648 GC1213          EVALUATE WS-Src-Lines-NUM
 3649 GC1213          WHEN 1
 3650 GC1213              MOVE WS-Src-Detail-Line-TXT TO F-Listing-135-REC
 3651 GC1213              WRITE F-Listing-96-REC BEFORE 1
```

```
===============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 87
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                     2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 88
====== ======================================================================================
  3652 GC1213            SUBTRACT 1 FROM WS-Lines-Left-NUM
  3653 GC1213          WHEN 2
  3654 GC1213            MOVE WS-SDL-Statement-TXT TO WS-Src-Hold-TXT
  3655 GC1213            MOVE WS-Src-Detail-Line-TXT TO F-Listing-135-REC
  3656 GC1213            WRITE F-Listing-135-REC BEFORE 1 *> Prints chars 1-128 of stmnt
  3657 GC1213            MOVE SPACES TO WS-Src-Detail-Line-TXT
  3658 GC1213            MOVE WS-Src-Hold-TXT(129:128) TO WS-SDL-Statement-TXT
  3659 GC1213            MOVE WS-Src-Detail-Line-TXT TO F-Listing-135-REC
  3660 GC1213            WRITE F-Listing-135-REC BEFORE 1 *> Prints chars 129-256 of stmnt
  3661 GC1213            SUBTRACT 2 FROM WS-Lines-Left-NUM
  3662 GC1213          END-EVALUATE
  3663 GC1213        ELSE                *> PORTRAIT
  3664 GC1213          EVALUATE WS-Src-Lines-NUM
  3665 GC1213          WHEN 1 *> Print only chars 1-89 of stmnt
  3666 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3667 GC1213                BEFORE 1
  3668 GC1213            SUBTRACT 1 FROM WS-Lines-Left-NUM
  3669 GC1213          WHEN 2 *> Print only chars 1-89 and 90-178 of text
  3670 GC1213            MOVE WS-SDL-Statement-TXT TO WS-Src-Hold-TXT
  3671 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3672 GC1213                BEFORE 1
  3673 GC1213            MOVE SPACES TO WS-Src-Detail-Line-TXT
  3674 GC1213            MOVE WS-Src-Hold-TXT(90:89) TO WS-SDL-Statement-TXT
  3675 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3676 GC1213                BEFORE 1
  3677 GC1213            SUBTRACT 2 FROM WS-Lines-Left-NUM
  3678 GC1213          WHEN 3 *> Print chars 1-89, 90-178 and 179-256 of stmnt
  3679 GC1213            MOVE WS-SDL-Statement-TXT TO WS-Src-Hold-TXT
  3680 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3681 GC1213                BEFORE 1
  3682 GC1213            MOVE SPACES TO WS-Src-Detail-Line-TXT
  3683 GC1213            MOVE WS-Src-Hold-TXT(90:89) TO WS-SDL-Statement-TXT
  3684 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3685 GC1213                BEFORE 1
  3686 GC1213            MOVE SPACES TO WS-Src-Detail-Line-TXT
  3687 GC1213            MOVE WS-Src-Hold-TXT(179:78) TO WS-SDL-Statement-TXT
  3688 GC1213            WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3689 GC1213                BEFORE 1
  3690 GC1213            SUBTRACT 3 FROM WS-Lines-Left-NUM
  3691 GC1213          END-EVALUATE
  3692 GC1213        END-IF
  3693            MOVE SPACES TO WS-Src-Detail-Line-TXT
  3694            .
  3695
  3696        END PROGRAM LISTING.
```

```
GNUCOBOL 3.0 24DEC2017   Cross-Reference Listing                           2017/12/24
                                             /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function   Defn   Where Defined   References      Page: 89
===============  ===============================  ======  ===============  ========================
CHECKSRC         000-Main                         1318 PROCEDURE
CHECKSRC         L-A1-CHR                         1308 LINKAGE          1320    1332    1335
                                                                       1342
CHECKSRC         L-A2-IDENT-DIVISION-BOOL         1313 LINKAGE          1364*
CHECKSRC         L-A2-LINKAGE-SECTION-BOOL        1312 LINKAGE          1358*
CHECKSRC         L-A2-Nothing-Special-BOOL        1314 LINKAGE          1319*
CHECKSRC         L-Argument-1-TXT                 1307 LINKAGE          1316
CHECKSRC         L-Argument-2-CHR                 1311 LINKAGE          1317
CHECKSRC         WS-Compressed-Src-TXT            1294 WORKING-STORAGE  1329*   1352    1356
                                                                       1362
CHECKSRC         WS-CS-CHR                        1295 WORKING-STORAGE  1336*   1342*   1351
                                                                       1355    1361
CHECKSRC         WS-I-SUB                         1303 WORKING-STORAGE  1330*   1331    1332
                                                                       1335    1342    1348*
                                                                       1349    1351    1352
                                                                       1355    1355    1356
                                                                       1361    1361    1362
CHECKSRC         WS-J-SUB                         1305 WORKING-STORAGE  1328*   1334*   1336
                                                                       1341*   1342
CHECKSRC         WS-RS-Found-SPACE-CHR            1299 WORKING-STORAGE
CHECKSRC         WS-RS-Not-Skipping-SPACE-BOOL    1301 WORKING-STORAGE  1327*   1333    1340*
CHECKSRC         WS-RS-Skipping-SPACE-BOOL        1300 WORKING-STORAGE  1337*
CHECKSRC         WS-Runtime-Switches-TXT          1298 WORKING-STORAGE
```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                      2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function   Defn  Where Defined   References      Page: 90
===============  ==============================  ====  ==============  ========================
GCic             000-File-Error                   657 PROCEDURE
GCic             000-Main                         678 PROCEDURE
GCic             100-Initialization               702 PROCEDURE            679
GCic             200-Let-User-Set-Switches        816 PROCEDURE            682
GCic             210-Run-Compiler                 907 PROCEDURE            683
GCic             220-Make-Listing                1043 PROCEDURE            687
GCic             230-Run-Program                 1074 PROCEDURE            691
GCic             240-Find-LINKAGE-SECTION        1176 PROCEDURE            750
GCic             250-Autoload-Listing            1215 PROCEDURE            693    1034    1068
GCic             900-Terminate                   1261 PROCEDURE            695     744     887
                                                                         1035    1169
GCic             COB-COLOR-BLACK                  181 [screenio     ]     442     447     537
                                                                          547     557     562
                                                                          572     579     594
                                                                          609     625     632
                                                                          639
GCic             COB-COLOR-BLUE                   181 [screenio     ]     525
GCic             COB-COLOR-CYAN                   181 [screenio     ]     538
GCic             COB-COLOR-GREEN                  181 [screenio     ]     448     563     610
                                                                          626
GCic             COB-COLOR-MAGENTA                181 [screenio     ]
GCic             COB-COLOR-RED                    181 [screenio     ]     531     595
GCic             COB-COLOR-WHITE                  181 [screenio     ]     443     526     532
                                                                          548     558     573
                                                                          580     633     640
GCic             COB-COLOR-YELLOW                 181 [screenio     ]
GCic             COB-SCR-BACK-TAB                 181 [screenio     ]
GCic             COB-SCR-BACKSPACE                181 [screenio     ]
GCic             COB-SCR-DELETE                   181 [screenio     ]
GCic             COB-SCR-ESC                      181 [screenio     ]     886
GCic             COB-SCR-F1                       181 [screenio     ]     833
GCic             COB-SCR-F10                      181 [screenio     ]
GCic             COB-SCR-F11                      181 [screenio     ]
GCic             COB-SCR-F12                      181 [screenio     ]     889
GCic             COB-SCR-F13                      181 [screenio     ]
GCic             COB-SCR-F14                      181 [screenio     ]
GCic             COB-SCR-F15                      181 [screenio     ]
GCic             COB-SCR-F16                      181 [screenio     ]
GCic             COB-SCR-F17                      181 [screenio     ]
GCic             COB-SCR-F18                      181 [screenio     ]
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                                                                       3656    3659*   3660
LISTING         F-Listing-96-REC                1434 FILE              3374*   3376*   3378*
                                                                       3379    3381*   3382
                                                                       3385*   3387*   3388
                                                                       3389*   3390*   3391
                                                                       3392    3393    3394
                                                                       3402    3426    3428*
                                                                       3429    3431*   3433*
                                                                       3435    3437    3438
```

```
=============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                Page: 98
```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                       2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function    Defn   Where Defined   References      Page: 99
===============  ===============================  ======  ===============  ========================
                                                                         3584    3586    3587
                                                                         3589    3591*   3592
                                                                         3594*   3596*   3597
                                                                         3598    3627*   3629*
                                                                         3631*   3632    3634*
                                                                         3635    3637*   3639*
                                                                         3640    3642*   3643
                                                                         3651    3666    3671
                                                                         3675    3680    3684
                                                                         3688
LISTING          F-Listing-FILE                  1433 FILE              1418    2412    2420
LISTING          F-Listing-REC                   1436 FILE
LISTING          F-Original-Src-FILE             1438 FILE              1420    3444    3462
                                                                         3486
LISTING          F-Original-Src-REC              1439 FILE              3490
LISTING          F-OS-1-128-TXT                  1440 FILE
LISTING          F-OS-129-256-TXT                1445 FILE
LISTING          F-OS-7-CHR                      1442 FILE              3495
LISTING          F-OS-8-72-TXT                   1443 FILE              3491    3523
LISTING          F-Sort-Work-FILE                1447 FILE              1422    2414    3270
LISTING          F-Sort-Work-REC                 1448 FILE              2523*   2525    2560*
                                                                         2562    3040    3043*
                                                                         3046    3088*   3091
                                                                         3096*   3099    3120
                                                                         3122*   3125    3208*
                                                                         3215    3220    3225
                                                                         3229*   3239*   3249
                                                                         3253*
LISTING          F-SW-Def-Line-NUM               1453 FILE              3213*   3296    3304
                                                                         3308    3320    3321
LISTING          F-SW-Prog-ID-TXT                1449 FILE              2415    3209*   3230*
                                                                         3240*   3254*   3281
                                                                         3287    3292    3301
                                                                         3313    3317
LISTING          F-SW-Ref-Flag-CHR               1456 FILE              3045*   3090*   3098*
                                                                         3124*   3235*   3259*
                                                                         3332
LISTING          F-SW-Ref-Line-NUM               1455 FILE              2417    3214*   3234*
                                                                         3244*   3258*   3330
LISTING          F-SW-Reference-TXT              1454 FILE              3324
LISTING          F-SW-Section-TXT                1452 FILE              3212*   3233*   3243*
                                                                         3257*   3303    3319
LISTING          F-SW-Token-TXT                  1451 FILE              3211*   3232*   3242*
                                                                         3256*   3318
LISTING          F-SW-Token-Uc-TXT               1450 FILE              2416    3210*   3231*
                                                                         3241*   3255*   3282
                                                                         3293    3295    3307
LISTING          L-Listing-CD                    2402 LINKAGE           2409    2449    2486
                                                                         3349    3398    3410
                                                                         3551    3565    3606
                                                                         3647
LISTING          L-Listing-Fn-TXT                2392 LINKAGE           1418    2404
LISTING          L-LPP-NUM                       2398 LINKAGE           2407    2487
```

```
=================================================================================================
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```

```
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                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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==============  ==============================  ======  ==============  ========================
LISTING         L-LPP-Port-NUM                  2400 LINKAGE          2408    2489
LISTING         L-OS-Type-CD                    2396 LINKAGE          2406    2432
LISTING         L-Src-Fn-TXT                    2394 LINKAGE          1420    2405    2437
                                                                      2437*   2438    2439
                                                                      2443    2446    2459
                                                                      2461    2463    2468
LISTING         RETURN-CODE                          PROCEDURE        2479
LISTING         WS-CD-In-DATA-DIV-BOOL          1473 WORKING-STORAGE  2533
LISTING         WS-CD-In-ENV-DIV-BOOL           1472 WORKING-STORAGE  2531
LISTING         WS-CD-In-IDENT-DIV-BOOL         1471 WORKING-STORAGE  2529
LISTING         WS-CD-In-PROC-DIV-BOOL          1474 WORKING-STORAGE  2535
LISTING         WS-Copyright-TXT                1459 WORKING-STORAGE  2430*   2435*   3415
                                                                      3430    3573    3593
LISTING         WS-CPI-13-15-TXT                1480 WORKING-STORAGE  2824*
LISTING         WS-CPI-16-CHR                   1481 WORKING-STORAGE  2823
LISTING         WS-CS-1-CHR                     1484 WORKING-STORAGE  2746*
LISTING         WS-CS-11-14-TXT                 1487 WORKING-STORAGE  2748    2749*
LISTING         WS-CS-15-CHR                    1488 WORKING-STORAGE  2751*
LISTING         WS-CS-2-14-TXT                  1485 WORKING-STORAGE  2747*
LISTING         WS-Curr-Char-Is-Punct-BOOL      1462 WORKING-STORAGE  2591    2599    2604
LISTING         WS-Curr-Char-Is-Quote-BOOL      1466 WORKING-STORAGE  2610
LISTING         WS-Curr-Char-Is-X-BOOL          1467 WORKING-STORAGE  2623
LISTING         WS-Curr-Char-Is-Z-BOOL          1468 WORKING-STORAGE  2636
LISTING         WS-Curr-CHR                     1461 WORKING-STORAGE  2581*   2584    2586
                                                                      2592    2600    2606
                                                                      2613
LISTING         WS-Curr-Division-TXT            1470 WORKING-STORAGE  2506*   2542    2593
                                                                      2601    2701    2817*
                                                                      2836*   2862*   2918*
                                                                      2923*
LISTING         WS-Curr-Line-NUM                1476 WORKING-STORAGE  2505*   2565*   2724*
                                                                      2764*   3213    3234
                                                                      3244    3258    3485*
LISTING         WS-Curr-Prog-ID-TXT             1478 WORKING-STORAGE  2495*   2822*   3209
                                                                      3230    3240    3254
LISTING         WS-Curr-Section-TXT             1483 WORKING-STORAGE  2727*   2732    2841*
                                                                      2867*   2913    2914*
                                                                      3212    3233    3243
                                                                      3257
LISTING         WS-Curr-Verb-TXT                1490 WORKING-STORAGE  2496*   2520*   2544*
                                                                      2928    2937
LISTING         WS-Delim-TXT                    1492 WORKING-STORAGE  2653*   2655    2673*
                                                                      2675    2678
LISTING         WS-Dummy-TXT                    1494 WORKING-STORAGE  2471*   2716*   2745*
                                                                      2778*   2783*   2784
                                                                      3471*
LISTING         WS-Expanded-Src-Fn-TXT          1496 WORKING-STORAGE  1416    2476*   2477C
LISTING         WS-Filename-TXT                 1498 WORKING-STORAGE  2470*   2473    2744*
                                                                      2747
LISTING         WS-Flags-TXT                    1500 WORKING-STORAGE
LISTING         WS-Formatted-DT                 1503 WORKING-STORAGE  2494*   3354    3377
                                                                      3611    3630
LISTING         WS-GI-Prog-ID-TXT               1506 WORKING-STORAGE  3281    3287    3292*
```

```
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                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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LISTING         WS-GI-Token-TXT                 1507 WORKING-STORAGE   3282     3293*    3295
                                                                       3307
LISTING         WS-Group-Indicators-TXT         1505 WORKING-STORAGE   3265*
LISTING         WS-Held-Reference-TXT           1509 WORKING-STORAGE   2497*    2522     2523
                                                                       2524*    2559     2560
                                                                       2561*    3040*    3042
                                                                       3043     3044*    3081*
                                                                       3087     3088     3089*
                                                                       3095     3096     3097*
                                                                       3120*    3122     3123*
LISTING         WS-I-SUB                        1511 WORKING-STORAGE   2438*    2439     2440
                                                                       2442     2445*    2446
                                                                       2461*    2463     2464
                                                                       2465     2468     2721*
                                                                       2724     2735*    2737
                                                                       2738     2739     2742
                                                                       3266*    3300*    3312*
                                                                       3325*    3326     3328*
                                                                       3331     3333     3406*
LISTING         WS-J-SUB                        1513 WORKING-STORAGE   2462*    2466*    2468
                                                                       2736*    2740*    2742
LISTING         WS-Lines-Left-NUM               1515 WORKING-STORAGE   3267*    3276     3290
                                                                       3342     3396*    3407
                                                                       3451     3498     3502
                                                                       3529*    3563     3645*
                                                                       3652     3661     3668
                                                                       3677     3690
LISTING         WS-Lines-Per-Page-Env-TXT       1519 WORKING-STORAGE   2451*    2455*    2482
                                                                       2483
LISTING         WS-Lines-Per-Page-NUM           1517 WORKING-STORAGE   2484*    2487*    2489*
                                                                       2492     3396     3645
LISTING         WS-Main-Module-Name-TXT         1521 WORKING-STORAGE   2443*    2447*    2723
                                                                       3473
LISTING         WS-Next-Char-Is-Quote-BOOL      1524 WORKING-STORAGE   2623     2636
LISTING         WS-Next-CHR                     1523 WORKING-STORAGE   2583*    2626     2639
LISTING         WS-OS-Type-FILLER-TXT           1526 WORKING-STORAGE   1532
LISTING         WS-OS-Type-TXT                  1533 WORKING-STORAGE   2432
LISTING         WS-OS-Types-TXT                 1532 WORKING-STORAGE
LISTING         WS-Page-No-TXT                  1538 WORKING-STORAGE   3348C    3363     3386
                                                                       3417     3432     3575
                                                                       3595     3605C    3619
                                                                       3638
LISTING         WS-Page-NUM                     1536 WORKING-STORAGE   2428*    3344*    3346
                                                                       3564     3601*    3603
LISTING         WS-PN-Literal-TXT               1539 WORKING-STORAGE   3345*    3602*
LISTING         WS-PN-Page-NUM                  1540 WORKING-STORAGE   3346*    3347C    3603*
                                                                       3604C
LISTING         WS-Program-Path-TXT             1542 WORKING-STORAGE   2459*    2460C    3357
                                                                       3380     3614     3633
LISTING         WS-Reserved-Word-Table-TXT      2299 WORKING-STORAGE
LISTING         WS-Reserved-Word-TXT            2300 WORKING-STORAGE   2688
LISTING         WS-Reserved-Words-TXT           1544 WORKING-STORAGE   2299
LISTING         WS-RS-Duplicate-CHR             2308 WORKING-STORAGE   3268*    3283*    3298*
```

```
================================================================================================
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```

```
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                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function   Defn   Where Defined   References      Page: 102
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                                                                         3309     3310*
LISTING          WS-RS-In-Copybook-BOOL          2311 WORKING-STORAGE   2730*    3479*
LISTING          WS-RS-In-Main-Module-BOOL       2310 WORKING-STORAGE   2725*    2763     3474*
                                                                         3484
LISTING          WS-RS-In-Which-Pgm-CHR          2309 WORKING-STORAGE
LISTING          WS-RS-Last-Token-Ended-Sent-CHR 2312 WORKING-STORAGE   2554*    2700
LISTING          WS-RS-Processing-PICTURE-CHR    2313 WORKING-STORAGE   2649     2663*    2872*
LISTING          WS-RS-Token-Ended-Sentence-CHR  2314 WORKING-STORAGE   2541     2553     2555*
                                                                         2588*    2617*    2630*
                                                                         2643*    2656*    2676*
LISTING          WS-RS-Verb-Has-Been-Found-CHR   2315 WORKING-STORAGE   2507*    2692*    2814*
LISTING          WS-Runtime-Switches             2307 WORKING-STORAGE
LISTING          WS-RW-IDX                       2303 WORKING-STORAGE   2689     2690
LISTING          WS-RW-Type-CD                   2304 WORKING-STORAGE   2690
LISTING          WS-RW-Word-TXT                  2305 WORKING-STORAGE   2302     2689
LISTING          WS-Saved-Section-TXT            2317 WORKING-STORAGE   2726     2727     2731
                                                                         2732*
LISTING          WS-SDL-Line-NUM                 2324 WORKING-STORAGE   3489*
LISTING          WS-SDL-Statement-TXT            2326 WORKING-STORAGE   3490*    3522*    3552
                                                                         3556     3558     3654
                                                                         3658*    3670     3674*
                                                                         3679     3683*    3687*
LISTING          WS-Src-Dashes-TXT               2319 WORKING-STORAGE   3622     3641
LISTING          WS-Src-Detail-Line-TXT          2323 WORKING-STORAGE   3449*    3488*    3496*
                                                                         3500*    3505*    3509*
                                                                         3513*    3520*    3532*
                                                                         3536*    3540*    3650
                                                                         3655     3657*    3659
                                                                         3666     3671     3673*
                                                                         3675     3680     3682*
                                                                         3684     3686*    3688
                                                                         3693*
LISTING          WS-Src-Hold-TXT                 2328 WORKING-STORAGE   3654*    3658     3670*
                                                                         3674     3679*    3683
                                                                         3687
LISTING          WS-Src-Line-NUM                 2330 WORKING-STORAGE   3446*    3475     3487*
                                                                         3489
LISTING          WS-Src-Lines-NUM                2332 WORKING-STORAGE   3550*    3553*    3557*
                                                                         3559*    3563     3566
                                                                         3580     3648     3664
LISTING          WS-Src-SUB                      2334 WORKING-STORAGE   2503*    2556     2557
                                                                         2576*    2580     2582
                                                                         2585*    2594*    2605*
                                                                         2611*    2615*    2616
                                                                         2618*    2624*    2628*
                                                                         2629     2631*    2637*
                                                                         2641*    2642     2644*
                                                                         2654*    2657*    2674*
                                                                         2679     2754*    2759*
                                                                         2761*
LISTING          WS-Suppress-FF-CHR              1501 WORKING-STORAGE   2429*    3277*    3419
                                                                         3434
LISTING          WS-Tally-QTY                    2336 WORKING-STORAGE   2793*    2795*    2796
```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                       2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function   Defn  Where Defined   References      Page: 103
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                                                               2800*   2801
LISTING         WS-Temp-10-Chars-TXT           2338 WORKING-STORAGE 2714*   2718    2719*
                                                               2721    3469*
LISTING         WS-Temp-256-Chars-TXT          2348 WORKING-STORAGE 2478C   2715*   2722
                                                               2734    2737    2742
                                                               3470*   3472
LISTING         WS-Temp-32-Chars-1-TXT         2340 WORKING-STORAGE 2769*   2772    2779
LISTING         WS-Temp-32-Chars-2-TXT         2342 WORKING-STORAGE 2776*   2781*   2787
                                                               2788*   2804
LISTING         WS-Temp-32-Chars-3-TXT         2344 WORKING-STORAGE 2777*   2782*   2790
                                                               2791*   2804
LISTING         WS-Temp-65-Chars-TXT           2346 WORKING-STORAGE 3492*   3499    3504
                                                               3508    3512    3524*
                                                               3528    3531    3535
                                                               3539
LISTING         WS-Today-DT                    2350 WORKING-STORAGE 2493*   2494
LISTING         WS-Token-Curr-TXT              2352 WORKING-STORAGE 2513    2517*   2586*
                                                               2595*   2606*   2614*
                                                               2627*   2640*   2652*
                                                               2659    2672*   2682
                                                               2684*   2702*   2769
                                                               2816    2822    2835
                                                               2840    2861    2866
                                                               2870    2904    2922
                                                               3211    3232    3242
                                                               3256
LISTING         WS-Token-Curr-Uc-TXT           2354 WORKING-STORAGE 2514*   2517    2520
                                                               2539    2916    3210
                                                               3231    3241    3255
LISTING         WS-Token-Prev-TXT              2356 WORKING-STORAGE 2521*   2539*   2543*
                                                               2602*   2817    2820
                                                               2821*   2836    2841
                                                               2845    2862    2867
                                                               2876    2877*   2881
                                                               2884*   2887*   2890*
                                                               2893*   2896*   2899*
                                                               2902*   2917    2923
                                                               2927    2931*   2984
                                                               2987*   2994    3005
                                                               3008*   3017    3028
                                                               3037    3065    3078
                                                               3082*   3085*   3093*
                                                               3101*   3108    3117
                                                               3133    3136*   3139*
                                                               3146    3155    3166
                                                               3181    3184*   3191
LISTING         WS-Token-Search-TXT            2358 WORKING-STORAGE 2682*   2683    2689
LISTING         WS-Token-Type-CD               2360 WORKING-STORAGE 2587*   2596*   2607*
                                                               2660*   2664*   2685*
                                                               2690*   2703*
LISTING         WS-TT-Token-Is-Argtype-BOOL    2361 WORKING-STORAGE 2811    2831    2857
LISTING         WS-TT-Token-Is-EOF-BOOL        2362 WORKING-STORAGE 2510    2564*
LISTING         WS-TT-Token-Is-Function-BOOL   2363 WORKING-STORAGE 2851
```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                          2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function  Defn  Where Defined   References     Page: 104
==============  =============================  ====  ==============  ========================
LISTING         WS-TT-Token-Is-Identifier-BOOL  2364 WORKING-STORAGE  2697*    2844    2880
                                                                      2926    2934
LISTING         WS-TT-Token-Is-Keyword-BOOL     2365 WORKING-STORAGE  2515    2538    2815
                                                                      2834    2839    2860
                                                                      2865    2871    2921
LISTING         WS-TT-Token-Is-Lit-Alpha-BOOL   2366 WORKING-STORAGE  2620*   2646*
LISTING         WS-TT-Token-Is-Lit-Number-BOOL  2367 WORKING-STORAGE  2633*   2699    2773*
                                                                      2805*
LISTING         WS-TT-Token-Is-Reserved-Wd-BOOL 2369 WORKING-STORAGE  2516    2812*   2832*
                                                                      2858*   2875
LISTING         WS-TT-Token-Is-Verb-BOOL        2368 WORKING-STORAGE  2519    2691
LISTING         WS-Usernames-QTY                2371 WORKING-STORAGE  2504*
LISTING         WS-Version-TXT                  2373 WORKING-STORAGE  2436*   3350    3373
                                                                      3607    3626
LISTING         WS-XDL-Def-Line-NUM             2380 WORKING-STORAGE  3304*   3321*
LISTING         WS-XDL-Prog-ID-TXT              2376 WORKING-STORAGE  3301*   3313*   3317*
LISTING         WS-XDL-Ref-Flag-CHR             2386 WORKING-STORAGE  3333*
LISTING         WS-XDL-Ref-Line-NUM             2385 WORKING-STORAGE  3331*
LISTING         WS-XDL-Reference-TXT            2384 WORKING-STORAGE
LISTING         WS-XDL-Section-TXT              2382 WORKING-STORAGE  3303*   3319*
LISTING         WS-XDL-Token-TXT                2378 WORKING-STORAGE  3302*   3314*   3318*
LISTING         WS-Xref-Detail-Line-TXT         2375 WORKING-STORAGE  3264*   3271    3274*
                                                                      3284    3288*   3297
                                                                      3316    3336    3399
                                                                      3402    3405*
LISTING         WS-Xref-Lines-Per-Rec-NUM       2389 WORKING-STORAGE  2450*   2454*   3326
```

6. STREAMIO

STREAMIO is a utility I created to assist with handling stream I/O functions. I've used it to construct a number of useful little command-line utilities.

Usage of this subroutine is completely documented in the program comments. The program COPY's a copybook named STREAMIOcb, the format of which is described in the program comments.

Both STREAMIO.cbl and STREAMIOcb.cpy are included in the "samples" directory of any pre-built distributions of GnuCOBOL that I have created.

In addition to general GnuCOBOL concepts, this program provides a useful demonstration of the following:

- Coding a GnuCOBOL subroutine
- Using the `REPLACING` clause on a CDF `COPY` statement
- Using hexadecimal alphanumeric literals
- Using the following statements:
    - o `ACCEPT FROM ENVIRONMENT` statement
    - o `INSPECT` statement
    - o `STRING` statement
- Using the following built-in subroutines:
    - o `C$PARAMSIZE` built-in system subroutine
    - o `CBL_CLOSE_FILE` built-in system subroutine
    - o `CBL_DELETE_FILE` built-in system subroutine
    - o `CBL_EXIT_PROC` built-in system subroutine
    - o `CBL_OPEN_FILE` built-in system subroutine
    - o `CBL_READ_FILE` built-in system subroutine
    - o `CBL_WRITE_FILE` built-in system subroutine
- Using the following intrinsic functions:
    - o `RANDOM` intrinsic function
    - o `TRIM` intrinsic function

First, here is the STREAMIOcb.cpy copybook:

```
          05 SCB-Handle-NUM                      PIC X(4) COMP-X.
          05 SCB-Mode-CD                         PIC X(1).
             88 SCB-MODE-Input-BOOL              VALUE 'I', 'i'.
             88 SCB-MODE-Output-BOOL             VALUE 'O', 'o'.
             88 SCB-MODE-Both-BOOL               VALUE 'B', 'b'.
          05 SCB-Function-CD                     PIC X(2).
             88 SCB-Func-CLOSE-BOOL              VALUE 'C ', 'c '.
             88 SCB-Func-DELETE-BOOL             VALUE 'D ', 'd '.
             88 SCB-Func-OPEN-BOOL               VALUE 'O ', 'o '.
             88 SCB-Func-READ-BOOL               VALUE 'R ', 'r '.
             88 SCB-Func-READ-Delim-BOOL         VALUE 'RD', 'rd',
                                                       'rD', 'Rd'.
             88 SCB-Func-WRITE-BOOL              VALUE 'W ', 'w '.
             88 SCB-Func-WRITE-Delim-BOOL        VALUE 'WD', 'wd',
                                                       'wD', 'Wd'.
          05 SCB-Delimiter-Mode-CD               PIC X(1).
             88 SCB-DELIM-Unix-BOOL              VALUE 'U', 'u'.
             88 SCB-DELIM-Windows-BOOL           VALUE 'W', 'w'.
          05 SCB-Offset-NUM                      PIC X(8) COMP-X.
          05 SCB-Error-Routine-PTR               USAGE PROGRAM-POINTER.
          05 SCB-Error-Routine-NUM REDEFINES SCB-Error-Routine-PTR
                                                 USAGE BINARY-LONG.
          05 SCB-Return-CD                       USAGE BINARY-LONG.
          05 SCB-Filename-TXT                    PIC X(256).
```

The program source and cross-reference listing, produced using the GnuCOBOL Interactive
Compiler front-end (GCic.cbl, one of the sample programs included here), begins on the
next page.

```
GNU COBOL 2.1 23NOV2013 Source Listing                                     2014/03/27
                              C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                            Page: 1
====== =============================================================================
    1          >>SOURCE FORMAT IS FIXED
    2           IDENTIFICATION DIVISION.
    3           PROGRAM-ID. STREAMIO.
    4          *>****************************************************************
    5          *> Author: Gary L. Cutler                                    **
    6          *>                                                           **
    7          *> This routine centralizes all bytestream file I/O  functions **
    8          *> into one routine.  The manner in which this routine is    **
    9          *> CALLed is as follows:                                     **
   10          *>                                                           **
   11          *>          CALL "STREAMIO" USING control-block [ , arg2 ]   **
   12          *>                                                           **
   13          *> where 'control-block' is defined by the "STREAMIOcb.cpy"  **
   14          *> copybook and 'arg2' will vary, depending upon the function **
   15          *> specified in the control block.                           **
   16          *>                                                           **
   17          *> The STREAMIO routine has an advantage over the various    **
   18          *> "CBL_xxxxxx_FILE" routines in that:                        **
   19          *>                                                           **
   20          *> 1. It automates the establishment and on-going adjustment of **
   21          *>    the file-offset value in such a way as to simplify the  **
   22          *>    sequential processing of a bytestream file (you may still **
   23          *>    specify a file-offset manually on each read or write, if **
   24          *>    you wish)                                              **
   25          *>                                                           **
   26          *> 2. It auto-detects the size of the I/O buffer you supply to **
   27          *>    STREAMIO, using that as the byte-count of all read and  **
   28          *>    write operations.                                       **
   29          *>                                                           **
   30          *> 3. Not only does it support the raw input and output of data **
   31          *>    that the CBL_READ_FILE and CBL_WRITE_FILE routines do,  **
   32          *>    but on input it is also capable of delivering just a    **
   33          *>    single newline-delimited or carriage-return/newline de- **
   34          *>    limited record to the caller.                           **
   35          *>                                                           **
   36          *> 4. On output, STREAMIO can optionally append either a new- **
   37          *>    line or carriage-return/newline sequence (your choice) to **
   38          *>    the end of every record it writes.                      **
   39          *>                                                           **
   40          *> 5. STREAMIO can automatically generate filenames for output **
   41          *>    files if you wish, simplifying the process of creating  **
   42          *>    scratch or work files.                                  **
   43          *>                                                           **
   44          *> 6. The STREAMIO routine also allows you to (optionally) re- **
   45          *>    gister a general error-handling routine to be given con- **
   46          *>    trol should a fatal error be detected with STREAMIO.    **
   47          *>                                                           **
   48          *>    This routine can be "turned on" and "turned off" at will. **
   49          *>                                                           **

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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                        2014/03/27
                                   C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                                 Page: 2
====== ====================================================================================
   50        *> The control block format is as follows.  This structure must **
   51        *> be defined under an 01-level data item of your creation and   **
   52        *> should be INITIALIZEd before any items within it are used.     **
   53        *>                                                                **
   54        *> 05 SCB-Handle-NUM                  PIC X(4) COMP-X.            **
   55        *> 05 SCB-Mode-CD                     PIC X(1).                  **
   56        *>    88 SCB-Mode-Input-BOOL          VALUE 'I', 'i'.            **
   57        *>    88 SCB-Mode-Output-BOOL         VALUE 'O', 'o'.            **
   58        *>    88 SCB-Mode-Both-BOOL           VALUE 'B', 'b'.            **
   59        *> 05 SCB-Function-CD                 PIC X(2).                  **
   60        *>    88 SCB-Func-CLOSE-BOOL          VALUE 'C ', 'c '.          **
   61        *>    88 SCB-Func-DELETE-BOOL         VALUE 'D ', 'd '.          **
   62        *>    88 SCB-Func-OPEN-BOOL           VALUE 'O ', 'o '.          **
   63        *>    88 SCB-Func-READ-BOOL           VALUE 'R ', 'r '.          **
   64        *>    88 SCB-Func-READ-Delim-BOOL     VALUE 'RD', 'rd',          **
   65        *>                                          'rD', 'Rd'.          **
   66        *>    88 SCB-Func-WRITE-BOOL          VALUE 'W ', 'w '.          **
   67        *>    88 SCB-Func-WRITE-Delim-BOOL    VALUE 'WD', 'wd',          **
   68        *>                                          'wD', 'Wd'.          **
   69        *> 05 SCB-Delimiter-Mode-CD           PIC X(1).                  **
   70        *>    88 SCB-Delim-Unix-BOOL          VALUE 'U', 'u'.            **
   71        *>    88 SCB-Delim-Windows-BOOL       VALUE 'W', 'w'.            **
   72        *> 05 SCB-Offset-NUM                  PIC X(8) COMP-X.           **
   73        *> 05 SCB-Error-Routine-PTR           USAGE PROGRAM-POINTER.     **
   74        *> 05 SCB-Error-Routine-NUM REDEFINES SCB-Error-Routine-PTR      **
   75        *>                                    USAGE BINARY-LONG.         **
   76        *> 05 SCB-Return-CD                   USAGE BINARY-LONG.         **
   77        *> 05 SCB-Filename-TXT                PIC X(256).                **
   78        *>                                                                **
   79        *> Such a structure is defined for your use using the copybook  **
   80        *> "STREAMIOcb.cpy" (you may also define your own, provided it   **
   81        *> conforms to the above layout).                               **
   82        *>----------------------------------------------------------------**
   83        *> SCB-Handle-NUM                                               **
   84        *>----------------------------------------------------------------**
   85        *>                                                                **
   86        *> Serves as a file handle to the file once it has been opened  **
   87        *> (via the "SCB-Func-OPEN-BOOL" function).                     **
   88        *>                                                                **
   89        *>----------------------------------------------------------------**
   90        *> SCB-Mode-CD                                                  **
   91        *>----------------------------------------------------------------**
   92        *>                                                                **
   93        *> Prior to calling "STREAMIO" for the first time for a file,   **
   94        *> the appropriate subordinate level-88 must be set to TRUE to  **
   95        *> select an I/O mode.  You may also simply move one of the     **
   96        *> string values listed on the level-88 items to "SCB-Mode-CD". **
   97        *>                                                                **
   98        *>----------------------------------------------------------------**

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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                        2014/03/27
                                  C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                               Page: 3
====== ==================================================================================
    99       *> SCB-Function-CD                                          **
   100       *>---------------------------------------------------------**
   101       *>                                                          **
   102       *> The appropriate subordinate level-88 must be set to TRUE to  **
   103       *> select a function you'd like to execute against a file.  You **
   104       *> may also simply move one of the string values listed on the  **
   105       *> level-88 items to "SCB-Function-CD".                     **
   106       *>                                                          **
   107       *> Available functions are as follows:                     **
   108       *>                                                          **
   109       *> SCB-Func-OPEN-BOOL                                       **
   110       *>                                                          **
   111       *>     This must be the function specified the first time you  **
   112       *>     call STREAMIO for any given file.  It opens the file & **
   113       *>     makes it available for use according to the          **
   114       *>     "SCB-Mode-CD" specification.                         **
   115       *>                                                          **
   116       *>     The filename being opened must be specified in the   **
   117       *>     "SCB-Filename-TXT" field.                            **
   118       *>                                                          **
   119       *>     The SCB-Offset-NUM field will be initialized to ZERO. **
   120       *>                                                          **
   121       *>     If "arg2" is specified in conjunction with this funct- **
   122       *>     ion, it will be ignored.                             **
   123       *>                                                          **
   124       *> SCB-Func-CLOSE-BOOL                                      **
   125       *>                                                          **
   126       *>     This function should be the one specified the LAST time **
   127       *>     you call STREAMIO against a specific file.  After this **
   128       *>     function has been executed, you'll have to re-open the **
   129       *>     file if you wish to use it with STREAMIO again.      **
   130       *>                                                          **
   131       *>     The SCB-Handle-NUM item will be reset to ZERO.       **
   132       *>                                                          **
   133       *>     If "arg2" is specified in conjunction with this funct- **
   134       *>     ion, it will be ignored.                             **
   135       *>                                                          **
   136       *> SCB-Func-DELETE-BOOL                                     **
   137       *>                                                          **
   138       *>     This function will delete the file specified in the  **
   139       *>     control block (see SCB-Filename-TXT).                **
   140       *>                                                          **
   141       *>     This function should not be performed against a file **
   142       *>     that is open.                                        **
   143       *>                                                          **
   144       *>     If "arg2" is specified in conjunction with this funct- **
   145       *>     ion, it will be ignored.                             **
   146       *>                                                          **
   147       *> SCB-Func-READ-BOOL                                       **

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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                        2014/03/27
                                    C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                                  Page: 4
====== =====================================================================================
  148       *>                                                          **
  149       *>        This function invokes a standard CBL_READ_FILE against  **
  150       *>        the file specified in the control block (see       **
  151       *>        SCB-Filename-TXT).                                  **
  152       *>                                                          **
  153       *>        The buffer into which you wish to read data must be  **
  154       *>        supplied as "arg2".  The size of that buffer, in bytes, **
  155       *>        will define the "byte-count" value supplied to the  **
  156       *>        CBL_READ_FILE subroutine.  The buffer data item will be **
  157       *>        set to SPACES before the read takes place.          **
  158       *>                                                          **
  159       *>        If the file-offset value (SCB-Offset-NUM) is greater  **
  160       *>        than the size of the file, a "no more data" return code **
  161       *>        (01) will be passed back in SCB-Return-CD and the   **
  162       *>        buffer will have been set to SPACES.                **
  163       *>                                                          **
  164       *>        At the conclusion of a successful SCB-Func-READ-BOOL,  **
  165       *>        the value of SCB-Offset-NUM will have been automati-  **
  166       *>        cally incremented by the byte-count size of "arg2".  **
  167       *>                                                          **
  168       *> SCB-Func-WRITE-BOOL                                       **
  169       *>                                                          **
  170       *>        This function invokes a standard CBL_WRITE_FILE against **
  171       *>        the file specified in the control block (see       **
  172       *>        SCB-Filename-TXT).                                  **
  173       *>                                                          **
  174       *>        The buffer from which data will be written to the file  **
  175       *>        must be supplied as "arg2".  The size of that buffer,  **
  176       *>        in bytes, will define the "byte-count" value supplied  **
  177       *>        CBL_WRITE_FILE subroutine.  The buffer data will be  **
  178       *>        written to the file-offset position defined by the  **
  179       *>        SCB-Offset-NUM value.  You may specify "arg2" either  **
  180       *>        as an actual alphanumeric data item or as an alpha-  **
  181       *>        numeric literal.                                    **
  182       *>                                                          **
  183       *>        If the file-offset value (SCB-Offset-NUM) is greater  **
  184       *>        than the size of the file, a "no more data" return code **
  185       *>        will be passed back in SCB-Return-CD and the buffer  **
  186       *>        will have been set to SPACES.                       **
  187       *>                                                          **
  188       *>        At the conclusion of a successful SCB-Func-WRITE-BOOL  **
  189       *>        operation, the value of SCB-Offset-NUM will have been  **
  190       *>        automatically incremented by the byte-count size of  **
  191       *>        "arg2".                                            **
  192       *>                                                          **
  193       *> SCB-Func-READ-Delim-BOOL                                  **
  194       *>                                                          **
  195       *>        SCB-Func-READ-Delim-BOOL bahaves like the SCB-FUNC-  **
  196       *>        READ function, with the following behavioral dif-  **

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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                      2014/03/27
                              C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                             Page: 5
======  ===============================================================================
   197     *>      ferences:                                           **
   198     *>                                                          **
   199     *>      1. When data is read from the file, only that data read **
   200     *>         up to BUT NOT INCLUDING an end-of-line delimiter  **
   201     *>         sequence (either a LF or CRLF) will be retained in **
   202     *>         the buffer - the remainder of the buffer from the **
   203     *>         end-of-line sequence onward will be reset to SPACES. **
   204     *>         The file-offset value (SCB-Offset-NUM) will be in- **
   205     *>         cremented ONLY by the amount of data transferred up **
   206     *>         to AND INCLUDING the end-of-line sequence.        **
   207     *>                                                          **
   208     *>      2. When data is read from the file and an end-of-line **
   209     *>         delimiter sequence (either a LF or a CRLF) cannot be **
   210     *>         found within the buffer, the assumption is made that **
   211     *>         the record is too long to fit within the buffer.  In **
   212     *>         these instances, an SCB-Return-CD value of 02 will **
   213     *>         be returned and the SCB-Offset-NUM value will be  **
   214     *>         incremented past the next end-of-line sequence in **
   215     *>         the file (this will involve at least one additional **
   216     *>         call to CBL_READ_FILE to locate that eol sequence, **
   217     *>         but any additional such reads will be done internal- **
   218     *>         ly to STREAMIO and will be entirely transparent to **
   219     *>         the caller of STREAMIO.                          **
   220     *>                                                          **
   221     *>      DO NOT USE the Streamio-READ-Delim function if the   **
   222     *>      possibility exists that linefeed (X"0A") or carriage- **
   223     *>      return (X"0D") characters could exist as actual data **
   224     *>      characters in the file.                             **
   225     *>                                                          **
   226     *> SCB-Func-WRITE-Delim-BOOL                                 **
   227     *>                                                          **
   228     *>      SCB-Func-WRITE-Delim-BOOL acts like the Streamio-    **
   229     *>      FUNC-WRITE function, with the following difference:  **
   230     *>                                                          **
   231     *>      After the specified data is written to the file, an **
   232     *>      end-of-line sequence will also be written to the file. **
   233     *>      The file-offset value (SCB-Value) will be incremented **
   234     *>      by the byte-count size of the data PLUS the size of the **
   235     *>      end-of-line sequence.  One of two possible end-of-line **
   236     *>      sequences must be specified using the value of SCB-  **
   237     *>      Delimter-Mode.                                       **
   238     *>                                                          **
   239     *>--------------------------------------------------------------**
   240     *> SCB-Delimiter-Mode-CD                                     **
   241     *>--------------------------------------------------------------**
   242     *>                                                          **
   243     *> This data item is needed only when issuing the Streamio- **
   244     *> FUNC-WRITE-Delim function.  In those circumstances, this **
   245     *> item defines what end-of-line delimiter sequence is to be **

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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                             C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                           Page: 6
====== ================================================================================
   246        *> written:                                        **
   247        *>                                                  **
   248        *> If SCB-Delim-Unix-BOOL is true, a linefeed character will   **
   249        *> be written.                                      **
   250        *>                                                  **
   251        *> If SCB-Delim-Windows-BOOL is true, a carriage-return and    **
   252        *> linefeed sequence will be written.               **
   253        *>                                                  **
   254        *>-----------------------------------------------------------**
   255        *> SCB-Offset-NUM                                   **
   256        *>-----------------------------------------------------------**
   257        *>                                                  **
   258        *> This data item specifies the next relative byte number with- **
   259        *> in the file where the next read or write will start.   **
   260        *>                                                  **
   261        *> SCB-Offset-NUM is automatically set to 0 (the first byte)   **
   262        *> when the file is opened, and is automatically incremented as **
   263        *> the file is read or written via STREAMIO.         **
   264        *>                                                  **
   265        *> You may also manually set this value as desired before any  **
   266        *> call to STREAMIO.                                 **
   267        *>                                                  **
   268        *>-----------------------------------------------------------**
   269        *> SCB-Error-Routine-PTR                            **
   270        *>-----------------------------------------------------------**
   271        *>                                                  **
   272        *> To specify a general error-handling routine for handling    **
   273        *> STREAMIO failures, Create the routine and define an entry-   **
   274        *> name for it via the ENTRY statement.  Then use the following **
   275        *> to set that routine up as the error handler:      **
   276        *>                                                  **
   277        *>    SET SCB-Error-Routine-PTR TO ENTRY "entry-name"   **
   278        *>                                                  **
   279        *> To "turn off" the error-routine:                 **
   280        *>                                                  **
   281        *>    SET SCB-Error-Routine-PTR TO NULL              **
   282        *>                                                  **
   283        *> If a fatal error occurs (any error not marked with a ">" in  **
   284        *> the SCB-Return-CD discussion), the error routine you spe-    **
   285        *> cified (if any) will be set up as an exit routine via the    **
   286        *> CBL_EXIT_PROC subroutine; the STREAMIO routine will then is- **
   287        *> sue a STOP RUN to intentionally trigger your error routine.  **
   288        *> You will not be able to recover your program once your error **
   289        *> routine triggers.  If you wish to be able to recover from    **
   290        *> fatal STREAMIO errors, you should NOT use the SCB-Error-     **
   291        *> Routine feature but instead you should explicitly test the   **
   292        *> SCB-Return-CD value after every call to STREAMIO.  **
   293        *>                                                  **
   294        *> A default error routine is defined by the "STREAMIOError.cpy"**

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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                              C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                            Page: 7
====== ===============================================================================
  295        *> copybook.                                          **
  296        *>                                                     **
  297        *>-------------------------------------------------------**
  298        *> SCB-Return-CD                                        **
  299        *>-------------------------------------------------------**
  300        *>                                                     **
  301        *> The following are the possible SCB-Return-CD values.  The  **
  302        *> ones marked with a ">" will NOT trigger an error-routine, if **
  303        *> one is currently registered via SCB-Error-Routine-PTR.  **
  304        *>                                                     **
  305        *>   12 I/O error writing to file                       **
  306        *>   11 File does not exist                             **
  307        *>   10 File already OPEN or already CLOSEd             **
  308        *> > 02 READ-Delim was truncated                       **
  309        *> > 01 No more data is available from the current      **
  310        *>      SCB-Offset-NUM                                  **
  311        *> > 00 OK - the operation was successful               **
  312        *>   -1 Invalid SCB-Function-CD                         **
  313        *>   -2 Invalid SCB-Mode-CD                             **
  314        *>   -3 CBL_xxxxx_FILE routine rejected operation       **
  315        *>   -4 Invalid delimiter mode specified (Not U/W)      **
  316        *>                                                     **
  317        *>-------------------------------------------------------**
  318        *> SCB-Filename-TXT                                     **
  319        *>-------------------------------------------------------**
  320        *>                                                     **
  321        *> This is the name of the file you wish to access.     **
  322        *>                                                     **
  323        *> If you are planning on reading the file, the file MUST exist **
  324        *> at the time the SCB-Func-OPEN-BOOL is executed.      **
  325        *>                                                     **
  326        *> If you are planning on writing to the file, the file need  **
  327        *> exist when the SCB-Func-OPEN-BOOL is issued.         **
  328        *>                                                     **
  329        *> In general, the contents of SCB-Filename-TXT should re-  **
  330        *> flect the complete path to the file as well as the name of  **
  331        *> the file itself, unless the file is contained in whatever  **
  332        *> directory is current at the time the SCB-Func-OPEN-BOOL is  **
  333        *> executed.                                            **
  334        *>                                                     **
  335        *> The following special values may be used for         **
  336        *> SCB-Filename-TXT:                                    **
  337        *>                                                     **
  338        *> SPACES If the filename is SPACES, a filename will be created **
  339        *>        automatically for you in whatever directory is de-  **
  340        *>        fined by the TEMP environment variable.  If there IS  **
  341        *>        no TEMP variable defined, the "/tmp" folder will be  **
  342        *>        assumed.  The filename will be STREAMIO-nnnnnnnn.dat  **
  343        *>        where "nnnnnnnn" is a random number.          **

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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                      2014/03/27
                                     C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                                  Page: 8
====== ======================================================================================
   344      *>                                                           **
   345      *> .       If you specify only a dot (period) as the filename,  **
   346      *>         the behavior will be the same as with a value of     **
   347      *>         SPACES except there will be no ".dat" at the end of   **
   348      *>         the generated filename.                              **
   349      *>                                                           **
   350      *> .ext   If you specify a filename extension prefixed with a   **
   351      *>         dot (period), the behavior will be the same as if a   **
   352      *>         value of SPACES were specified, except that the given **
   353      *>         extension will be used instead of ".dat".  Note that  **
   354      *>         if you are using a Unix/Cygwin implementation of      **
   355      *>         OpenCOBOL and you'd like to specify a hidden file in  **
   356      *>         the current directory as the SCB-Filename-TXT, you    **
   357      *>         MUST code the filename as "./.xxxxx" to avoid having  **
   358      *>         it treated as this special name.                     **
   359      *>                                                           **
   360      *>****************************************************************
   361       ENVIRONMENT DIVISION.
   362       CONFIGURATION SECTION.
   363       REPOSITORY.
   364           FUNCTION ALL INTRINSIC.
   365       DATA DIVISION.
   366       WORKING-STORAGE SECTION.
   367       01  WS-Access-Mode-CD                 PIC X(1) COMP-X.
   368       01  WS-Arg-Length-NUM                 PIC X(4) COMP-X.
   369       01  WS-Buffer-TXT                     PIC X(256).
   370       01  WS-Delim-Buffer-TXT               PIC X(2).
   371       01  WS-Env-Temp-TXT                   PIC X(256).
   372       01  WS-Slash-CHR                      PIC X(1).
   373       01  WS-Tally-NUM                      USAGE BINARY-LONG.
   374       01  WS-8-Digit-NUM                    PIC 9(8).
   375       01  WS-256-Byte-TXT                   PIC X(256).
   376       LINKAGE SECTION.
   377       01  L-StreamIO-Control-Block-TXT.
   378           COPY STREAMIOcb
   379               REPLACING LEADING ==SCB-== BY ==L-SCB-==.
        05 L-SCB-Handle-NUM PIC X(4) COMP-X.
        05 L-SCB-Mode-CD PIC X(1).
        88 L-SCB-MODE-Input-BOOL VALUE 'I' 'i'.
        88 L-SCB-MODE-Output-BOOL VALUE 'O' 'o'.
        88 L-SCB-MODE-Both-BOOL VALUE 'B' 'b'.
        05 L-SCB-Function-CD PIC X(2).
        88 L-SCB-Func-CLOSE-BOOL VALUE 'C ' 'c '.
        88 L-SCB-Func-DELETE-BOOL VALUE 'D ' 'd '.
        88 L-SCB-Func-OPEN-BOOL VALUE 'O ' 'o '.
        88 L-SCB-Func-READ-BOOL VALUE 'R ' 'r '.
        88 L-SCB-Func-READ-Delim-BOOL VALUE 'RD' 'rd'
        'rD' 'Rd'.
        88 L-SCB-Func-WRITE-BOOL VALUE 'W ' 'w '.


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```

Line   Statement   Page: 9
====== ==
       88 L-SCB-Func-WRITE-Delim-BOOL VALUE 'WD' 'wd'
       'wD' 'Wd'.
       05 L-SCB-Delimiter-Mode-CD PIC X(1).
       88 L-SCB-DELIM-Unix-BOOL VALUE 'U' 'u'.
       88 L-SCB-DELIM-Windows-BOOL VALUE 'W' 'w'.
       05 L-SCB-Offset-NUM PIC X(8) COMP-X.
       05 L-SCB-Error-Routine-PTR USAGE PROGRAM-POINTER.
       05 L-SCB-Error-Routine-NUM REDEFINES L-SCB-Error-Routine-PTR
       USAGE BINARY-LONG.
       05 L-SCB-Return-CD USAGE BINARY-LONG.
       05 L-SCB-Filename-TXT PIC X(256).
   380   01 L-Arg2-TXT   PIC X ANY LENGTH.
   381   PROCEDURE DIVISION USING L-StreamIO-Control-Block-TXT,
   382   L-Arg2-TXT.
   383   000-Main SECTION.
   384   MOVE 00 TO L-SCB-Return-CD
   385   EVALUATE TRUE
   386   WHEN L-SCB-Func-CLOSE-BOOL
   387   PERFORM 030-Validate-Handle-NonZero
   388   PERFORM 200-CLOSE
   389   WHEN L-SCB-Func-DELETE-BOOL
   390   CALL "CBL_DELETE_FILE" USING L-SCB-Filename-TXT
   391   WHEN L-SCB-Func-OPEN-BOOL
   392   PERFORM 020-Validate-Handle-Zero
   393   PERFORM 100-OPEN
   394   WHEN L-SCB-Func-READ-BOOL
   395   PERFORM 030-Validate-Handle-NonZero
   396   PERFORM 400-READ
   397   WHEN L-SCB-Func-READ-Delim-BOOL
   398   PERFORM 030-Validate-Handle-NonZero
   399   PERFORM 500-READ-Delim
   400   WHEN L-SCB-Func-WRITE-BOOL
   401   PERFORM 030-Validate-Handle-NonZero
   402   PERFORM 300-WRITE
   403   WHEN L-SCB-Func-WRITE-Delim-BOOL
   404   EVALUATE TRUE
   405   WHEN L-SCB-Delim-Unix-BOOL
   406   PERFORM 030-Validate-Handle-NonZero
   407   PERFORM 300-WRITE
   408   MOVE 1 TO WS-Arg-Length-NUM
   409   MOVE X"0A" TO WS-Delim-Buffer-TXT
   410   WHEN L-SCB-Delim-Windows-BOOL
   411   PERFORM 030-Validate-Handle-NonZero
   412   PERFORM 300-WRITE
   413   MOVE 2 TO WS-Arg-Length-NUM
   414   MOVE X"0D0A" TO WS-Delim-Buffer-TXT
   415   WHEN OTHER
   416   MOVE -4 TO L-SCB-Return-CD
   417   PERFORM 099-ERROR-Return

====== ==

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                              C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line   Statement                                                              Page: 10
====== =================================================================================
   418                   END-EVALUATE
   419                   CALL "CBL_WRITE_FILE" USING L-SCB-Handle-NUM
   420                                               L-SCB-Offset-NUM
   421                                               WS-Arg-Length-NUM
   422                                               0
   423                                               WS-Delim-Buffer-TXT
   424                   PERFORM 040-Check-WRITE-SCB-Return-CD
   425                   ADD WS-Arg-Length-NUM TO L-SCB-Offset-NUM
   426                 WHEN OTHER
   427                   MOVE -1 TO L-SCB-Return-CD
   428                   PERFORM 099-ERROR-Return
   429               END-EVALUATE
   430               GOBACK
   431               .
   432       020-Validate-Handle-Zero SECTION.
   433           IF L-SCB-Handle-NUM NOT = ZERO
   434               MOVE 10 TO L-SCB-Return-CD
   435               PERFORM 099-ERROR-Return
   436           END-IF
   437           .
   438       030-Validate-Handle-NonZero SECTION.
   439           IF L-SCB-Handle-NUM = ZERO
   440               MOVE 10 TO L-SCB-Return-CD
   441               PERFORM 099-ERROR-Return
   442           END-IF
   443           .
   444       040-Check-WRITE-SCB-Return-CD SECTION.
   445           IF RETURN-CODE < 0
   446               MOVE -3 TO L-SCB-Return-CD
   447               PERFORM 099-ERROR-Return
   448           END-IF
   449           IF RETURN-CODE = 30
   450               MOVE 12 TO L-SCB-Return-CD
   451               PERFORM 099-ERROR-Return
   452           END-IF
   453           MOVE 00 TO L-SCB-Return-CD
   454           .
   455       050-Check-READ-SCB-Return-CD SECTION.
   456           IF RETURN-CODE < 0
   457               MOVE -3 TO L-SCB-Return-CD
   458               PERFORM 099-ERROR-Return
   459           END-IF
   460           IF RETURN-CODE = 10
   461               MOVE 01 TO L-SCB-Return-CD
   462               GOBACK
   463           END-IF
   464           MOVE 00 TO L-SCB-Return-CD
   465           .
   466       060-Identify-TEMP SECTION.

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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                                  C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                                Page: 11
======  ============================================================================
   467             ACCEPT WS-Env-Temp-TXT FROM ENVIRONMENT "TEMP"
   468             EVALUATE TRUE
   469                 WHEN WS-Env-Temp-TXT (1:1) = "/"
   470                     MOVE "/"    TO WS-Slash-CHR
   471                 WHEN WS-Env-Temp-TXT (2:1) = ":"
   472                     MOVE "\"    TO WS-Slash-CHR
   473                 WHEN OTHER
   474                     MOVE "/tmp" TO WS-Env-Temp-TXT
   475                     MOVE "/"    TO WS-Slash-CHR
   476             END-EVALUATE
   477             .
   478         099-ERROR-Return SECTION.
   479             IF L-SCB-Error-Routine-NUM NOT = 0
   480                 CALL "CBL_EXIT_PROC" USING 0, L-SCB-Error-Routine-PTR
   481                 STOP RUN
   482             END-IF
   483             GOBACK
   484             .
   485         100-OPEN SECTION.
   486             IF  (L-SCB-Mode-Input-BOOL OR L-SCB-Mode-Both-BOOL)
   487             AND (L-SCB-Filename-TXT = SPACES OR LOW-VALUES)
   488                 MOVE 11 TO L-SCB-Return-CD
   489                 PERFORM 099-ERROR-Return
   490             END-IF
   491             EVALUATE TRUE
   492                 WHEN L-SCB-Filename-TXT = SPACES OR LOW-VALUES
   493                     PERFORM 060-Identify-TEMP
   494                     MOVE SPACES TO L-SCB-Filename-TXT
   495                     COMPUTE
   496                         WS-8-Digit-NUM =
   497                         RANDOM(SECONDS-PAST-MIDNIGHT) * 100000000
   498                     END-COMPUTE
   499                     STRING
   500                         TRIM(WS-Env-Temp-TXT,TRAILING)
   501                         WS-Slash-CHR
   502                         "STREAMIO-"
   503                         WS-8-Digit-NUM
   504                         ".dat"
   505                         DELIMITED BY SIZE
   506                         INTO L-SCB-Filename-TXT
   507                 WHEN L-SCB-Filename-TXT(1:1) = "."
   508                     PERFORM 060-Identify-TEMP
   509                     IF L-SCB-Filename-TXT(2:1) = SPACE
   510                         MOVE SPACES TO WS-256-Byte-TXT
   511                     ELSE
   512                         MOVE L-SCB-Filename-TXT TO WS-256-Byte-TXT
   513                     END-IF
   514                     MOVE SPACES TO L-SCB-Filename-TXT
   515                     COMPUTE WS-8-Digit-NUM =

======  ============================================================================
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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                      2014/03/27
                                 C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                              Page: 12
====== =================================================================================
   516                    RANDOM(SECONDS-PAST-MIDNIGHT) * 100000000
   517                STRING
   518                    TRIM(WS-Env-Temp-TXT,TRAILING)
   519                    WS-Slash-CHR
   520                    "STREAMIO-"
   521                    WS-8-Digit-NUM
   522                    TRIM(WS-256-Byte-TXT,TRAILING)
   523                    DELIMITED BY SIZE
   524                    INTO L-SCB-Filename-TXT
   525            END-EVALUATE
   526            EVALUATE TRUE
   527                WHEN L-SCB-Mode-Input-BOOL
   528                    MOVE 1 TO WS-Access-Mode-CD
   529                WHEN L-SCB-Mode-Output-BOOL
   530                    MOVE 2 TO WS-Access-Mode-CD
   531                WHEN L-SCB-Mode-Both-BOOL
   532                    MOVE 3 TO WS-Access-Mode-CD
   533                WHEN OTHER
   534                    MOVE -2 TO L-SCB-Return-CD
   535                    PERFORM 099-ERROR-Return
   536            END-EVALUATE
   537            CALL "CBL_OPEN_FILE" USING TRIM(L-SCB-Filename-TXT,TRAILING)
   538                                       WS-Access-Mode-CD
   539                                       0
   540                                       0
   541                                       L-SCB-Handle-NUM
   542            IF RETURN-CODE = 35
   543                MOVE 11 TO L-SCB-Return-CD
   544                PERFORM 099-ERROR-Return
   545            END-IF
   546            IF RETURN-CODE < 0
   547                MOVE -2 TO L-SCB-Return-CD
   548                PERFORM 099-ERROR-Return
   549            END-IF
   550            MOVE 00 TO L-SCB-Return-CD
   551            MOVE 0 TO L-SCB-Offset-NUM
   552            .
   553        200-CLOSE SECTION.
   554            CALL "CBL_CLOSE_FILE" USING L-SCB-Handle-NUM
   555            IF RETURN-CODE < 0
   556                MOVE -2 TO L-SCB-Return-CD
   557                PERFORM 099-ERROR-Return
   558            END-IF
   559            MOVE 00 TO L-SCB-Return-CD
   560            MOVE 0 TO L-SCB-Handle-NUM
   561            .
   562        300-WRITE SECTION.
   563            CALL "C$PARAMSIZE" USING 2
   564            MOVE RETURN-CODE TO WS-Arg-Length-NUM


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```

```
====== =========================================================================================
   565            CALL "CBL_WRITE_FILE" USING L-SCB-Handle-NUM
   566                                        L-SCB-Offset-NUM
   567                                        WS-Arg-Length-NUM
   568                                        0
   569                                        L-Arg2-TXT
   570            PERFORM 040-Check-WRITE-SCB-Return-CD
   571            ADD WS-Arg-Length-NUM TO L-SCB-Offset-NUM
   572            .
   573        400-READ SECTION.
   574            CALL "C$PARAMSIZE" USING 2
   575            MOVE RETURN-CODE TO WS-Arg-Length-NUM
   576            MOVE SPACES TO L-Arg2-TXT(1:WS-Arg-Length-NUM)
   577            CALL "CBL_READ_FILE" USING L-SCB-Handle-NUM
   578                                       L-SCB-Offset-NUM
   579                                       WS-Arg-Length-NUM
   580                                       0
   581                                       L-Arg2-TXT
   582            PERFORM 050-Check-READ-SCB-Return-CD
   583            ADD WS-Arg-Length-NUM TO L-SCB-Offset-NUM
   584            .
   585        500-READ-Delim SECTION.
   586            CALL "C$PARAMSIZE" USING 2
   587            MOVE RETURN-CODE TO WS-Arg-Length-NUM
   588            MOVE SPACES TO L-Arg2-TXT(1:WS-Arg-Length-NUM)
   589            CALL "CBL_READ_FILE" USING L-SCB-Handle-NUM
   590                                       L-SCB-Offset-NUM
   591                                       WS-Arg-Length-NUM
   592                                       0
   593                                       L-Arg2-TXT
   594            PERFORM 050-Check-READ-SCB-Return-CD
   595            MOVE 0 TO WS-Tally-NUM
   596            INSPECT L-Arg2-TXT(1:WS-Arg-Length-NUM)
   597                TALLYING WS-Tally-NUM FOR ALL X"0A"
   598            IF WS-Tally-NUM = 0 *> No LF found - return truncated data and position past n
       ext LF (if any)
   599                IF L-Arg2-TXT(WS-Arg-Length-NUM:1) = X"0D"
   600                    MOVE SPACE TO L-Arg2-TXT(WS-Arg-Length-NUM:1)
   601                END-IF
   602                ADD WS-Arg-Length-NUM TO L-SCB-Offset-NUM
   603                MOVE 02 TO L-SCB-Return-CD
   604                MOVE 256 TO WS-Arg-Length-NUM
   605                PERFORM UNTIL 0 = 1
   606                    MOVE SPACES TO WS-Buffer-TXT
   607                    CALL "CBL_READ_FILE" USING L-SCB-Handle-NUM
   608                                               L-SCB-Offset-NUM
   609                                               WS-Arg-Length-NUM
   610                                               0
   611                                               WS-Buffer-TXT
   612                    IF RETURN-CODE < 0
```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                               C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line    Statement                                                          Page: 14
====== ================================================================================
   613                      MOVE -3 TO L-SCB-Return-CD
   614                      PERFORM 099-ERROR-Return
   615                  END-IF
   616                  IF RETURN-CODE = 10
   617                      GOBACK
   618                  END-IF
   619                  MOVE 0 TO WS-Tally-NUM
   620                  INSPECT WS-Buffer-TXT
   621                      TALLYING WS-Tally-NUM FOR ALL X"0A"
   622                  IF WS-Tally-NUM = 0
   623                      ADD 256 TO L-SCB-Offset-NUM
   624                  ELSE
   625                      MOVE 0 TO WS-Tally-NUM
   626                      INSPECT WS-Buffer-TXT
   627                          TALLYING WS-Tally-NUM
   628                          FOR CHARACTERS BEFORE INITIAL X"0A"
   629                      ADD WS-Tally-NUM, 1 TO L-SCB-Offset-NUM
   630                      GOBACK
   631                  END-IF
   632              END-PERFORM
   633          ELSE           *> There is (at least) one LF in the buffer
   634              MOVE 0 TO WS-Tally-NUM
   635              INSPECT L-Arg2-TXT(1:WS-Arg-Length-NUM)
   636                  TALLYING WS-Tally-NUM
   637                  FOR CHARACTERS BEFORE INITIAL X"0A"
   638              ADD WS-Tally-NUM, 1 TO L-SCB-Offset-NUM
   639              IF WS-Tally-NUM > 1
   640                  IF L-Arg2-TXT(WS-Tally-NUM:1) = X"0D"
   641                      COMPUTE WS-Arg-Length-NUM =
   642                               WS-Arg-Length-NUM
   643                              - WS-Tally-NUM
   644                              + 1
   645                  ELSE
   646                      COMPUTE WS-Arg-Length-NUM =
   647                               WS-Arg-Length-NUM
   648                              - WS-Tally-NUM
   649                      ADD 1 TO WS-Tally-NUM
   650                  END-IF
   651                  MOVE SPACES
   652                    TO L-Arg2-TXT(WS-Tally-NUM:WS-Arg-Length-NUM)
   653              ELSE
   654                  MOVE SPACES
   655                    TO L-Arg2-TXT(1:WS-Arg-Length-NUM)
   656              END-IF
   657          END-IF
   658          .
```

```
GNU COBOL 2.1 23NOV2013 Cross-Reference Listing                           2014/03/27
                             C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
PROGRAM-ID      Identifier/Register/Function    Defn   Where Defined    References      Page: 15
==============  ==============================  ======  ==============  ========================
STREAMIO        000-Main                        383 PROCEDURE
STREAMIO        020-Validate-Handle-Zero        432 PROCEDURE            392
STREAMIO        030-Validate-Handle-NonZero     438 PROCEDURE            387      395      398
                                                                         401      406      411
STREAMIO        040-Check-WRITE-SCB-Return-CD    444 PROCEDURE            424      570
STREAMIO        050-Check-READ-SCB-Return-CD     455 PROCEDURE            582      594
STREAMIO        060-Identify-TEMP                466 PROCEDURE            493      508
STREAMIO        099-ERROR-Return                 478 PROCEDURE            417      428      435
                                                                         441      447      451
                                                                         458      489      535
                                                                         544      548      557
                                                                         614
STREAMIO        100-OPEN                         485 PROCEDURE            393
STREAMIO        200-CLOSE                        553 PROCEDURE            388
STREAMIO        300-WRITE                        562 PROCEDURE            402      407      412
STREAMIO        400-READ                         573 PROCEDURE            396
STREAMIO        500-READ-Delim                   585 PROCEDURE            399
STREAMIO        L-Arg2-TXT                       380 LINKAGE              382      569C     576*
                                                                         581C     588*     593C
                                                                         599      600*     640
                                                                         652*     655*
STREAMIO        L-SCB-DELIM-Unix-BOOL            379 [STREAMIOcb   ]      405
STREAMIO        L-SCB-DELIM-Windows-BOOL         379 [STREAMIOcb   ]      410
STREAMIO        L-SCB-Delimiter-Mode-CD          379 [STREAMIOcb   ]
STREAMIO        L-SCB-Error-Routine-NUM          379 [STREAMIOcb   ]      479
STREAMIO        L-SCB-Error-Routine-PTR          379 [STREAMIOcb   ]      379      480C
STREAMIO        L-SCB-Filename-TXT               379 [STREAMIOcb   ]      390C     487      492
                                                                         494*     506*     507
                                                                         509      512      514*
                                                                         524*     537C
STREAMIO        L-SCB-Func-CLOSE-BOOL            379 [STREAMIOcb   ]      386
STREAMIO        L-SCB-Func-DELETE-BOOL           379 [STREAMIOcb   ]      389
STREAMIO        L-SCB-Func-OPEN-BOOL             379 [STREAMIOcb   ]      391
STREAMIO        L-SCB-Func-READ-BOOL             379 [STREAMIOcb   ]      394
STREAMIO        L-SCB-Func-READ-Delim-BOOL       379 [STREAMIOcb   ]      397
STREAMIO        L-SCB-Func-WRITE-BOOL            379 [STREAMIOcb   ]      400
STREAMIO        L-SCB-Func-WRITE-Delim-BOOL      379 [STREAMIOcb   ]      403
STREAMIO        L-SCB-Function-CD                379 [STREAMIOcb   ]
STREAMIO        L-SCB-Handle-NUM                 379 [STREAMIOcb   ]      419C     433      439
                                                                         541C     554C     560*
                                                                         565C     577C     589C
                                                                         607C
STREAMIO        L-SCB-MODE-Both-BOOL             379 [STREAMIOcb   ]      486      531
STREAMIO        L-SCB-Mode-CD                    379 [STREAMIOcb   ]
STREAMIO        L-SCB-MODE-Input-BOOL            379 [STREAMIOcb   ]      486      527
STREAMIO        L-SCB-MODE-Output-BOOL           379 [STREAMIOcb   ]      529
STREAMIO        L-SCB-Offset-NUM                 379 [STREAMIOcb   ]      420C     425*     551*
                                                                         566C     571*     578C
                                                                         583*     590C     602*


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```
GNU COBOL 2.1 23NOV2013 Cross-Reference Listing                        2014/03/27
                            C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
PROGRAM-ID       Identifier/Register/Function    Defn   Where Defined   References      Page: 16
===============  ==============================  ======  ===============  ========================
                                                                         608C    623*    629*
                                                                         638*
STREAMIO         L-SCB-Return-CD                 379 [STREAMIOcb   ]      384*    416*    427*
                                                                         434*    440*    446*
                                                                         450*    453*    457*
                                                                         461*    464*    488*
                                                                         534*    543*    547*
                                                                         550*    556*    559*
                                                                         603*    613*
STREAMIO         L-StreamIO-Control-Block-TXT    377 LINKAGE             381
STREAMIO         RETURN-CODE                         PROCEDURE           445     449     456
                                                                         460     542     546
                                                                         555     564     575
                                                                         587     612     616
STREAMIO         WS-256-Byte-TXT                 375 WORKING-STORAGE     510*    512*    522
STREAMIO         WS-8-Digit-NUM                  374 WORKING-STORAGE     496*    503     515*
                                                                         521
STREAMIO         WS-Access-Mode-CD               367 WORKING-STORAGE     528*    530*    532*
                                                                         538C
STREAMIO         WS-Arg-Length-NUM               368 WORKING-STORAGE     408*    413*    421C
                                                                         425     564*    567C
                                                                         571     575*    576
                                                                         579C    583     587*
                                                                         588     591C    596
                                                                         599     600     602
                                                                         604*    609C    635
                                                                         641*    642     646*
                                                                         647     652     655
STREAMIO         WS-Buffer-TXT                   369 WORKING-STORAGE     606*    611C
STREAMIO         WS-Delim-Buffer-TXT             370 WORKING-STORAGE     409*    414*    423C
STREAMIO         WS-Env-Temp-TXT                 371 WORKING-STORAGE     467*    469     471
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STREAMIO         WS-Slash-CHR                    372 WORKING-STORAGE     470*    472*    475*
                                                                         501     519
STREAMIO         WS-Tally-NUM                    373 WORKING-STORAGE     595*    597*    598
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                                                                         625*    627*    629
                                                                         634*    636*    638
                                                                         639     640     643
                                                                         648     649*    652
```

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