GnuCOBOL Sample Programs

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This manual documents GnuCOBOL 3.2, 24 August 2021 at 14:18 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           .
```

```
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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```
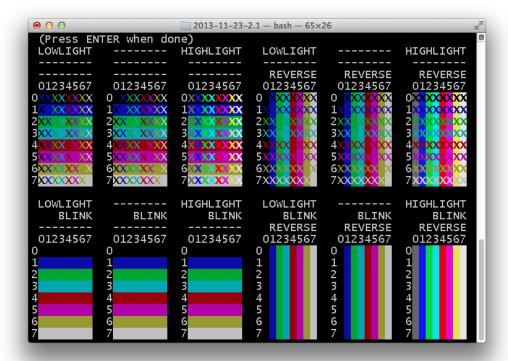
3. Colors

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 FOREGROUND-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'.
```

```
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'.
```

```
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'.
```

```
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'.
```

```
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
```

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       **
```

===
Page: 2

```
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.
```

```
====== ====================================================================================
       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       *>12345678901234567890123456789012345678901234567890123456789012345678901234567890
    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       *>12345678901234567890123456789012345678901234567890123456789012345678901234567890
    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: "'
```

```
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```

```
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
```

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===============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 19
```

```
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        *>***************************************************************
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                      Page: 20
```

```
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
```

```
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
```

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```

```
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
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 25
```

```
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           .
```

```
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     .
```

==

```
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            .
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                        Page: 29
```

```
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     .
```

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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: 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
```

```
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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GNUCOBOL 3.0 24DEC2017  Source Listing                                2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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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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 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).
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 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).
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 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).
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 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).
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 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
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 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
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 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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 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).
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 1923 GC1213    05 VALUE 'ILINE-COUNTER              ' PIC X(33).
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 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).
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 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).
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 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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 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).
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 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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 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).
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 2081            05 VALUE 'KREPORT                           ' PIC X(33).
 2082            05 VALUE ' REPORTING                        ' PIC X(33).
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 2090            05 VALUE 'VRETURN                           ' PIC X(33).
 2091            05 VALUE 'IRETURN-CODE                      ' PIC X(33).
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 2094            05 VALUE ' REVERSE-VIDEO                    ' PIC X(33).
 2095            05 VALUE ' REVERSED                         ' PIC X(33).
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 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).
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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).
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 2129            05 VALUE ' SIGNED                    ' PIC X(33).
 2130            05 VALUE ' SIGNED-INT                ' PIC X(33).
 2131            05 VALUE ' SIGNED-LONG               ' PIC X(33).
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 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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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /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
                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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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================================================================================================
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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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```
GNUCOBOL 3.0 24DEC2017  Source Listing                                 2017/12/24
                                        /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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========================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                            Page: 56
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 57
====== ===============================================================================
  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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===============================================================================================
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```
 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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======  ==============================================================================

  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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```

```
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Line    Statement                                                          Page: 60
======  ============================================================================
  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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```

```
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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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Line   Statement                                                       Page: 62
====== =======================================================================
 2709            .
```

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```

```
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                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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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```

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

 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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======  ================================================================================

 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          .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                        2017/12/24
                                               /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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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Line    Statement                                                             Page: 68
======  ==========================================================================================

  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          .
```

```
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```

```
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                .
```

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```

```
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
```

```
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
```

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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
```

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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            .
```

```
===============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 82
```

```
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               .
```

```
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
```

```
========================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                Page: 84
```

```
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          .
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                      Page: 85
```

```
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
```

```
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
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LISTING          F-Listing-135-REC               1435 FILE            3351*   3353*   3355*
                                                                      3356    3358*   3359
                                                                      3362*   3364*   3365
                                                                      3366*   3367*   3368
                                                                      3369    3370    3371
                                                                      3399    3411    3413*
                                                                      3414    3416*   3418*
                                                                      3420    3422    3423
                                                                      3567    3569    3571*
                                                                      3572    3574*   3576*
                                                                      3577    3578    3608*
                                                                      3610*   3612*   3613
                                                                      3615*   3616    3618*
                                                                      3620*   3621    3623*
                                                                      3624    3650*   3655*
                                                                      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
```

```
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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```

```
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: 100
==============  ==============================  ======  ==============  ========================
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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```

```
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: 101
===============  ==============================  ======  ===============  ========================
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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GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 101
```

```
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: 102
===============  ================================  ======  ==============  =========================
                                                                           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
===============  =============================  ======  ===============  ========================
                                                                         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
```

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

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:
    - `ACCEPT FROM ENVIRONMENT` statement
    - `INSPECT` statement
    - `STRING` statement
- Using the following built-in subroutines:
    - `C$PARAMSIZE` built-in system subroutine
    - `CBL_CLOSE_FILE` built-in system subroutine
    - `CBL_DELETE_FILE` built-in system subroutine
    - `CBL_EXIT_PROC` built-in system subroutine
    - `CBL_OPEN_FILE` built-in system subroutine
    - `CBL_READ_FILE` built-in system subroutine
    - `CBL_WRITE_FILE` built-in system subroutine
- Using the following intrinsic functions:
    - `RANDOM` intrinsic function
    - `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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```
GNU COBOL 2.1 23NOV2013 Source Listing                                        2014/03/27
                              C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
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

====== =========================================================================================
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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: 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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```

Line   Statement   Page: 13
====== ==
   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

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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: 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          .
```

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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: 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
                                                                        474*    500     518
STREAMIO         WS-Slash-CHR                    372 WORKING-STORAGE    470*    472*    475*
                                                                        501     519
STREAMIO         WS-Tally-NUM                    373 WORKING-STORAGE    595*    597*    598
                                                                        619*    621*    622
                                                                        625*    627*    629
                                                                        634*    636*    638
                                                                        639     640     643
                                                                        648     649*    652
```

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