GnuCOBOL Sample Programs

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This manual documents GnuCOBOL 3.1 Dev-0, Dec2019 build.

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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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```

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
```
==

====== ===
   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)

==

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

```
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```

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

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

3. Colors

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

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

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

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

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

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

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

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

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

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

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:18
   271   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
   272   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
   273   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
   274   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
   275   *> #4
   276   05 LINE 05.
   277   10 COL 32  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   278   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   279   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   280   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   281   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   282   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   283   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   284   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   285   05 LINE + 1.
   286   10 COL 32  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   287   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   288   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   289   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   290   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   291   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   292   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   293   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   294   05 LINE + 1.
   295   10 COL 32  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   296   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   297   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   298   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   299   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   300   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   301   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   302   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   303   05 LINE + 1.
   304   10 COL 32  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   305   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   306   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   307   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   308   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   309   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   310   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   311   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   312   05 LINE + 1.
   313   10 COL 32  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   314   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   315   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   316   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   317   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   318   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   319   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   320   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   321   05 LINE + 1.
   322   10 COL 32 BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   323   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
   324   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:18
  325   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  326   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  327   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  328   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  329   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  330   05 LINE + 1.
  331   10 COL 32  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  332   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  333   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  334   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  335   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  336   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  337   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  338   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  339   05 LINE + 1.
  340   10 COL 32  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  341   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  342   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  343   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  344   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  345   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  346   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  347   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
  348   *> #5
  349   05 LINE 05.
  350   10 COL 42  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
  351   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
  352   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
  353   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
  354   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
  355   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
  356   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
  357   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
  358   05 LINE + 1.
  359   10 COL 42  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
  360   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
  361   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
  362   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
  363   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
  364   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
  365   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
  366   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
  367   05 LINE + 1.
  368   10 COL 42  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
  369   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
  370   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
  371   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
  372   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
  373   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
  374   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
  375   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
  376   05 LINE + 1.
  377   10 COL 42  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
  378   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
```

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```
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

====================================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                             Page: 1
```

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

==

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

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

5. GCic

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

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

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

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

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

- Creating a GnuCOBOL compilation unit that consists of multiple programs
- Using CDF conditional compilation facilities
- Using the "SCREEN SECTION" and associated "ACCEPT" and "DISPLAY" statements
- Using "DECLARATIVES" to trap file I/O errors
- Using "FILE-STATUS"
- Using the "REPLACING" clause on a CDF "COPY" statement
- Using the following statements:

    o "ACCEPT FROM COMMAND-LINE" statement

    o "ACCEPT FROM DATE/TIME" statement

    o "ACCEPT FROM ENVIRONMENT" statement

    o "EXIT PERFORM" statement

    o "EXIT SECTION" statement

    o "INSPECT" statement

    o "PERFORM FOREVER" statement

- o `"SEARCH ALL"` statement

- o `"SET ENVIRONMENT"` statement

- o `"SORT"` statement

- o `"STRING"` statement

- o `"UNSTRING"` statement

- Using the following built-in subroutines:

  - o `"C$JUSTIFY"` built-in system subroutine

  - o `"C$SLEEP"` built-in system subroutine

  - o `"CBL_CHANGE_DIR"` built-in system subroutine

  - o `"CBL_CHECK_FILE_EXIST"` built-in system subroutine

  - o `"CBL_DELETE_FILE"` built-in system subroutine

  - o `"SYSTEM"` built-in system subroutine

- Using the following intrinsic functions:

  - o `"CONCATENATE"` intrinsic function

  - o `"LENGTH"` intrinsic function

  - o `"LOWER-CASE"` intrinsic function

  - o `"NUMVAL"` intrinsic function

  - o `"TRIM"` intrinsic function

  - o `"UPPER-CASE"` intrinsic function

- Using the `"COB-CRT-STATUS,Special Registers"` special register

- Programmatically producing a report destined for either portrait or landscape printing

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

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

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

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

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

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

==

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

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

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                        Page: 5
```

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

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

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                        Page: 7
```

```
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).
```

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================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                        Page: 9
```

```
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.
```

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

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

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================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 11
```

```
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.
```

```
===================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                          Page: 12
```

```
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     '.
```

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

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

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

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

====== ==

```
   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
```

```
================================================================================================
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        *>***************************************************************
```

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

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

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

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

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

```
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
```

```
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```

```
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
```

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

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

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

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

```
 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
```

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

===

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

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

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

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

```
===============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 31
```

```
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
```

```
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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                                             /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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                                        /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
Line    Statement                                                             Page: 43
====== ================================================================================
 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).
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 1813 GC1113     05 VALUE ' FILLER                      ' PIC X(33).
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 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).
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 1821           05 VALUE ' FLOAT-EXTENDED               ' PIC X(33).    UNIMPLEMENTED
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 1823           05 VALUE ' FLOAT-LONG                   ' PIC X(33).
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 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
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 1838           05 VALUE 'VFREE                         ' PIC X(33).
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 1909              05 VALUE ' LC_TIME                  ' PIC X(33).    UNIMPLEMENTED
 1910              05 VALUE ' LEADING                  ' PIC X(33).
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 1913              05 VALUE ' LEFTLINE                 ' PIC X(33).
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 1950 GC1213       05 VALUE 'FMIDRANGE                 ' PIC X(33).
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 1969             05 VALUE ' NATIONAL-EDITED            ' PIC X(33).
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 2050              05 VALUE ' PROTOTYPE               ' PIC X(33).      UNIMPLEMENTED
 2051              05 VALUE ' PURGE                   ' PIC X(33).      OBSOLETE
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 2053              05 VALUE ' QUOTE                   ' PIC X(33).
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 2056              05 VALUE ' RAISING                 ' PIC X(33).      UNIMPLEMENTED
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 2062            05 VALUE 'VRECEIVE                       ' PIC X(33).     OBSOLETE
 2063            05 VALUE ' RECORD                        ' PIC X(33).
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 2152 GC1213    05 VALUE 'FSTANDARD-DEVIATION          ' PIC X(33).
 2153           05 VALUE 'VSTART                       ' PIC X(33).
 2154           05 VALUE ' STATEMENT                   ' PIC X(33).     UNIMPLEMENTED
 2155           05 VALUE ' STATIC                      ' PIC X(33).
 2156           05 VALUE ' STATUS                      ' PIC X(33).
 2157           05 VALUE ' STDCALL                     ' PIC X(33).
 2158           05 VALUE 'MSTDERR                      ' PIC X(33).
 2159           05 VALUE 'MSTDIN                       ' PIC X(33).
 2160           05 VALUE 'MSTDOUT                      ' PIC X(33).
 2161           05 VALUE ' STEP                        ' PIC X(33).
 2162           05 VALUE 'VSTOP                        ' PIC X(33).
```

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==================================================================================================
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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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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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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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GNUCOBOL 3.0 24DEC2017  Source Listing                                 2017/12/24
                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 58
======  ========================================================================

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                      2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                               Page: 59
======  ==================================================================================

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

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                      2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                               Page: 61
====== =================================================================================
 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
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                2017/12/24
                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                        Page: 62
====== =========================================================================
 2709            .
```

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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: 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            .
```

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

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                       Page: 66
======  ==============================================================================

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

```
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             .
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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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GNUCOBOL 3.0 24DEC2017  Source Listing                             2017/12/24
                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                     Page: 69
====== ======================================================================================
 2908              EXIT SECTION
 2909          END-IF
 2910              .
```

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```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                           /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                                Page: 70
====== =========================================================================

  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
```

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

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

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

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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
```

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

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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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```

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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                .
```

```
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)
```

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=================================================================================================
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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: 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            .
```

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

```
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               .
```

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

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

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

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

```
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 stmt
  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.
```

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================================================================================================
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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: 89
===============  ==============================  ======  ===============  =========================
CHECKSRC         000-Main                         1318  PROCEDURE
CHECKSRC         L-A1-CHR                         1308  LINKAGE          1320   1332   1335
                                                                        1342
CHECKSRC         L-A2-IDENT-DIVISION-BOOL         1313  LINKAGE          1364*
CHECKSRC         L-A2-LINKAGE-SECTION-BOOL        1312  LINKAGE          1358*
CHECKSRC         L-A2-Nothing-Special-BOOL        1314  LINKAGE          1319*
CHECKSRC         L-Argument-1-TXT                 1307  LINKAGE          1316
CHECKSRC         L-Argument-2-CHR                 1311  LINKAGE          1317
CHECKSRC         WS-Compressed-Src-TXT            1294  WORKING-STORAGE  1329*  1352   1356
                                                                        1362
CHECKSRC         WS-CS-CHR                        1295  WORKING-STORAGE  1336*  1342*  1351
                                                                        1355   1361
CHECKSRC         WS-I-SUB                         1303  WORKING-STORAGE  1330*  1331   1332
                                                                        1335   1342   1348*
                                                                        1349   1351   1352
                                                                        1355   1355   1356
                                                                        1361   1361   1362
CHECKSRC         WS-J-SUB                         1305  WORKING-STORAGE  1328*  1334*  1336
                                                                        1341*  1342
CHECKSRC         WS-RS-Found-SPACE-CHR            1299  WORKING-STORAGE
CHECKSRC         WS-RS-Not-Skipping-SPACE-BOOL    1301  WORKING-STORAGE  1327*  1333   1340*
CHECKSRC         WS-RS-Skipping-SPACE-BOOL        1300  WORKING-STORAGE  1337*
CHECKSRC         WS-Runtime-Switches-TXT          1298  WORKING-STORAGE
```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                         2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID      Identifier/Register/Function   Defn   Where Defined   References        Page: 90
==============  ==============================  ====== ===============  ========================
GCic            000-File-Error                  657 PROCEDURE
GCic            000-Main                        678 PROCEDURE
GCic            100-Initialization              702 PROCEDURE              679
GCic            200-Let-User-Set-Switches       816 PROCEDURE              682
GCic            210-Run-Compiler                907 PROCEDURE              683
GCic            220-Make-Listing                1043 PROCEDURE             687
GCic            230-Run-Program                 1074 PROCEDURE             691
GCic            240-Find-LINKAGE-SECTION        1176 PROCEDURE             750
GCic            250-Autoload-Listing            1215 PROCEDURE             693     1034    1068
GCic            900-Terminate                   1261 PROCEDURE             695     744     887
                                                                          1035    1169
GCic            COB-COLOR-BLACK                 181 [screenio       ]      442     447     537
                                                                          547     557     562
                                                                          572     579     594
                                                                          609     625     632
                                                                          639
GCic            COB-COLOR-BLUE                  181 [screenio       ]      525
GCic            COB-COLOR-CYAN                  181 [screenio       ]      538
GCic            COB-COLOR-GREEN                 181 [screenio       ]      448     563     610
                                                                          626
GCic            COB-COLOR-MAGENTA              181 [screenio       ]
GCic            COB-COLOR-RED                   181 [screenio       ]      531     595
GCic            COB-COLOR-WHITE                 181 [screenio       ]      443     526     532
                                                                          548     558     573
                                                                          580     633     640
GCic            COB-COLOR-YELLOW               181 [screenio       ]
GCic            COB-SCR-BACK-TAB               181 [screenio       ]
GCic            COB-SCR-BACKSPACE              181 [screenio       ]
GCic            COB-SCR-DELETE                 181 [screenio       ]
GCic            COB-SCR-ESC                     181 [screenio       ]      886
GCic            COB-SCR-F1                      181 [screenio       ]      833
GCic            COB-SCR-F10                     181 [screenio       ]
GCic            COB-SCR-F11                     181 [screenio       ]
GCic            COB-SCR-F12                     181 [screenio       ]      889
GCic            COB-SCR-F13                     181 [screenio       ]
GCic            COB-SCR-F14                     181 [screenio       ]
GCic            COB-SCR-F15                     181 [screenio       ]
GCic            COB-SCR-F16                     181 [screenio       ]
GCic            COB-SCR-F17                     181 [screenio       ]
GCic            COB-SCR-F18                     181 [screenio       ]
GCic            COB-SCR-F19                     181 [screenio       ]
GCic            COB-SCR-F2                      181 [screenio       ]      839
GCic            COB-SCR-F20                     181 [screenio       ]
GCic            COB-SCR-F21                     181 [screenio       ]
GCic            COB-SCR-F22                     181 [screenio       ]
GCic            COB-SCR-F23                     181 [screenio       ]
GCic            COB-SCR-F24                     181 [screenio       ]
GCic            COB-SCR-F25                     181 [screenio       ]
GCic            COB-SCR-F26                     181 [screenio       ]
GCic            COB-SCR-F27                     181 [screenio       ]
GCic            COB-SCR-F28                     181 [screenio       ]
GCic            COB-SCR-F29                     181 [screenio       ]
GCic            COB-SCR-F3                      181 [screenio       ]      845
```

```
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: 91
==============  ===============================  ======  ==============  ========================
GCic            COB-SCR-F30                       181 [screenio      ]
GCic            COB-SCR-F31                       181 [screenio      ]
GCic            COB-SCR-F32                       181 [screenio      ]
GCic            COB-SCR-F33                       181 [screenio      ]
GCic            COB-SCR-F34                       181 [screenio      ]
GCic            COB-SCR-F35                       181 [screenio      ]
GCic            COB-SCR-F36                       181 [screenio      ]
GCic            COB-SCR-F37                       181 [screenio      ]
GCic            COB-SCR-F38                       181 [screenio      ]
GCic            COB-SCR-F39                       181 [screenio      ]
GCic            COB-SCR-F4                        181 [screenio      ]     851
GCic            COB-SCR-F40                       181 [screenio      ]
GCic            COB-SCR-F41                       181 [screenio      ]
GCic            COB-SCR-F42                       181 [screenio      ]
GCic            COB-SCR-F43                       181 [screenio      ]
GCic            COB-SCR-F44                       181 [screenio      ]
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                                                                      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
```

```
==================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 99
```

```
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*
```

```
================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL              Page: 100
```

```
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*
```

```
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
```

6. STREAMIO

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

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

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

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

- Coding a GnuCOBOL subroutine

- Using the `"REPLACING"` clause on a CDF `"COPY"` statement

- Using hexadecimal alphanumeric literals

- Using the following statements:

    o `"ACCEPT FROM ENVIRONMENT"` statement

    o `"INSPECT"` statement

    o `"STRING"` statement

- Using the following built-in subroutines:

    o `"C$PARAMSIZE"` built-in system subroutine

    o `"CBL_CLOSE_FILE"` built-in system subroutine

    o `"CBL_DELETE_FILE"` built-in system subroutine

    o `"CBL_EXIT_PROC"` built-in system subroutine

    o `"CBL_OPEN_FILE"` built-in system subroutine

    o `"CBL_READ_FILE"` built-in system subroutine

    o `"CBL_WRITE_FILE"` built-in system subroutine

- Using the following intrinsic functions:

    o `"RANDOM"` intrinsic function

    o `"TRIM"` intrinsic function

First, here is the STREAMIOcb.cpy copybook:

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

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

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

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

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

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```

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

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```

Chapter 6 - STREAMIO   18 May 2020

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

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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```

====== ===
   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

==

```
GNU COBOL 2.1 23NOV2013 Source Listing                                      2014/03/27
                                    C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
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
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STREAMIO        WS-256-Byte-TXT                 375 WORKING-STORAGE    510*    512*    522
STREAMIO        WS-8-Digit-NUM                  374 WORKING-STORAGE    496*    503     515*
                                                                        521
STREAMIO        WS-Access-Mode-CD               367 WORKING-STORAGE    528*    530*    532*
                                                                        538C
STREAMIO        WS-Arg-Length-NUM               368 WORKING-STORAGE    408*    413*    421C
                                                                        425     564*    567C
                                                                        571     575*    576
                                                                        579C    583     587*
                                                                        588     591C    596
                                                                        599     600     602
                                                                        604*    609C    635
                                                                        641*    642     646*
                                                                        647     652     655
STREAMIO        WS-Buffer-TXT                   369 WORKING-STORAGE    606*    611C
STREAMIO        WS-Delim-Buffer-TXT             370 WORKING-STORAGE    409*    414*    423C
STREAMIO        WS-Env-Temp-TXT                 371 WORKING-STORAGE    467*    469     471
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STREAMIO        WS-Slash-CHR                    372 WORKING-STORAGE    470*    472*    475*
                                                                        501     519
STREAMIO        WS-Tally-NUM                    373 WORKING-STORAGE    595*    597*    598
                                                                        619*    621*    622
                                                                        625*    627*    629
                                                                        634*    636*    638
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                                                                        648     649*    652
```

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