# GnuCOBOL Sample Programs

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This manual documents GnuCOBOL 3.2, 5 September 2021 at 16:40 GMT. build.

# Table of Contents

# 1.  FileStat-Msgs

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

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

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

Here's the FileStat-Msgs.cpy copybook:

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

# 2. COBDUMP

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

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

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

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

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

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

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

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

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

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


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```

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

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

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

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

# 3. Colors

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

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

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



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

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

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

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

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

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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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   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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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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    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
```

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


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

# 5. GCic

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

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

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

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

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

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

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

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



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

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

```
==============================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL               Page: 1
```

====== ===============================================================================
```
    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           **

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

```
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.

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

```
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.


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

```
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).


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

```
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).

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```

```
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).
======  ==========================================================================================
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.
```

```
====================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                     Page: 10
```

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

   357          SCREEN SECTION.
   358       *>
   359       *> Here is the layout of the GCic screen.
   360       *>
   361       *> The sample screen below shows how the screen would look if the LINEDRAW
   362       *> configuration setting is set to a value of 2
   363       *>
   364       *> The following sample screen layout shows how the screen looks with line-drawing
   365       *> characters disabled.
   366       *>
   367       *>          1         2         3         4         5         6         7         8
   368       *>12345678901234567890123456789012345678901234567890123456789012345678901234567890
   369       *>================================================================================
   370    01 *> GCic (2017/12/24 08:52) - GNU COBOL V3.0 24DEC2017 Interactive Compilation
   371    02 *>+----------------------------------------------------------------------------+
   372    03 *>| Folder:   E:\GNU COBOL\Samples                                             |
   373    04 *>| Filename: GCic.cbl                                                         |
   374    05 *>+----------------------------------------------------------------------------+
   375    06 *> Set/Clr Switches Via F1-F9; Set Config Via F12; ENTER Key Compiles; ESC Quits
   376    07 *>+------------------------------------------------------------+------------+
   377    08 *>| F1  Assume WITH DEBUGGING MODE  F6  "FUNCTION" Is Optional  | Current    |
   378    09 *>| F2  Procedure+Statement Trace   F7  Enable All Warnings     | Config:    |
   379    10 *>| F3  Make A Library (DLL)        F8  Source Is Free-Format   | XXXXXXXXXX |
   380    11 *>| F4  Execute If Compilation OK   F9  No COMP/BINARY Truncation |          |
   381    12 *>| F5 >Produce Listing (Landscape)                            |            |
   382    13 *>+------------------------------------------------------------+------------+
   383    14 *> Extra "cobc" Switches, If Any ("-save-temps=xxx" Prevents Listings):
   384    15 *>+----------------------------------------------------------------------------+
   385    16 *>| _____ |
   386    17 *>| _____ |
   387    18 *>+----------------------------------------------------------------------------+
   388    19 *> Program Execution Arguments, If Any:
   389    20 *>+----------------------------------------------------------------------------+
   390    21 *>| _____ |
   391    22 *>| _____ |
   392    23 *>+----------------------------------------------------------------------------+
   393    24 *> GCic Copyright (C) 2009-2018, Gary L. Cutler, GPL
   394       *>================================================================================
   395       *>12345678901234567890123456789012345678901234567890123456789012345678901234567890
   396       *>          1         2         3         4         5         6         7         8
   397       *>
   398       *> If this program is run on Windows, it must run with codepage 437 activated to
   399       *> display the line-drawing characters.  With a native Windows build or a
   400       *> Windows/MinGW build, one could use the command 'chcp 437' to set that codepage
   401       *> for display within a Windows console window (that should be the default though).
   402       *> With a Windows/Cygwin build, set the environment variable CYGWIN to a value of
   403       *> 'codepage:oem' (this cannot be done from within the program though - you will
   404       *> have to use the 'Computer/Advanced System Settings/Environment Variables' (Vista
   405       *> or Windows 7) function to define the variable.  XP Users: use 'My Computer/
   406       *> Properties/Advanced/Environment Variables'.
   407       *>
   408       *> OSX users may use line drawing characters in this and any GNU COBOL program
```

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

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

```
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.

=====================================================================================
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@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  '.

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

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

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

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

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

```
   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             .
```

```
==========================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                Page: 18
```

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

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

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```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                               2017/12/24
                                         /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                        Page: 20
====== =========================================================================
   751         *>************************************************************
   752         *> Split 'WS-File-Name-TXT' into 'WS-Prog-Folder-TXT' and    **
   753         *> 'WS-Prog-File-Name-TXT'                                   **
   754         *>************************************************************
   755 GC0909      IF WS-OS-Cygwin-BOOL AND WS-File-Name-TXT (2:1) = ':'
   756 GC0712         MOVE '\' TO WS-OS-Dir-CHR
   757 GC0909      END-IF
   758 GC0712      MOVE LENGTH(WS-File-Name-TXT) TO WS-I-SUB
   759 GC0712      PERFORM UNTIL WS-I-SUB = 0
   760 GC0712      OR WS-FN-CHR (WS-I-SUB) = WS-OS-Dir-CHR
   761             SUBTRACT 1 FROM WS-I-SUB
   762          END-PERFORM
   763          IF WS-I-SUB = 0
   764             MOVE SPACES     TO WS-Prog-Folder-TXT
   765             MOVE WS-File-Name-TXT TO WS-Prog-File-Name-TXT
   766          ELSE
   767             MOVE '*' TO WS-FN-CHR (WS-I-SUB)
   768             UNSTRING WS-File-Name-TXT DELIMITED BY '*'
   769                INTO WS-Prog-Folder-TXT
   770                     WS-Prog-File-Name-TXT
   771 GC0712         MOVE WS-OS-Dir-CHR TO WS-FN-CHR (WS-I-SUB)
   772          END-IF
   773          IF WS-Prog-Folder-TXT = SPACES
   774             ACCEPT WS-Prog-Folder-TXT FROM ENVIRONMENT 'CD'
   775 GC0909      ELSE
   776 GC0909         CALL 'CBL_CHANGE_DIR'
   777 GC0909            USING TRIM(WS-Prog-Folder-TXT,TRAILING)
   778          END-IF
   779 GC0909      IF WS-OS-Cygwin-BOOL AND WS-File-Name-TXT (2:1) = ':'
   780 GC0712         MOVE '/' TO WS-OS-Dir-CHR
   781 GC0909      END-IF
   782         *>************************************************************
   783         *> Split 'WS-Prog-File-Name-TXT' into 'WS-Pgm-Nm-TXT' &      **
   784         *> 'WS-Prog-Extension-TXT'                                   **
   785         *>************************************************************
   786 GC0712      MOVE LENGTH(WS-Prog-File-Name-TXT) TO WS-I-SUB
   787 GC0712      PERFORM UNTIL WS-I-SUB = 0
   788 GC0712      OR WS-PFN-CHR (WS-I-SUB) = '.'
   789 GC0712         SUBTRACT 1 FROM WS-I-SUB
   790 GC0712      END-PERFORM
   791 GC0712      IF WS-I-SUB = 0
   792 GC0712         MOVE WS-Prog-File-Name-TXT TO WS-Pgm-Nm-TXT
   793 GC0712         MOVE SPACES         TO WS-Prog-Extension-TXT
   794 GC0712      ELSE
   795 GC0712         MOVE '*' TO WS-PFN-CHR (WS-I-SUB)
   796 GC0712         UNSTRING WS-Prog-File-Name-TXT DELIMITED BY '*'
   797 GC0712            INTO WS-Pgm-Nm-TXT
   798 GC0712                 WS-Prog-Extension-TXT
   799 GC0712         MOVE '.' TO WS-PFN-CHR (WS-I-SUB)
   800 GC0712      END-IF
   801         *>************************************************************
   802         *> Build initial Line 24 Message                            **
   803         *>************************************************************
========================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL              Page: 20
```

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

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

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

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

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

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

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

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

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


=============================================================================================
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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            .
```

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

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

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

```
 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            .
```

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

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

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

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

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



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

```
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.
```

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

```
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 ' '.
```

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

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

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

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

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

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                                          /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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                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                           Page: 38
====== ========================================================================================
 1527           05 VALUE 'Windows'              PIC X(14).
 1528           05 VALUE 'Windows/Cygwin'       PIC X(14).
 1529           05 VALUE 'UNIX/Linux'           PIC X(14).
 1530           05 VALUE 'OSX'                  PIC X(14).
 1531           05 VALUE 'Windows/MinGW'        PIC X(14).
 1532       01  WS-OS-Types-TXT REDEFINES WS-OS-Type-FILLER-TXT.
 1533           05 WS-OS-Type-TXT               PIC X(14)
 1534                                      OCCURS 5 TIMES .
 1535
 1536 GC0712 01  WS-Page-NUM                    USAGE BINARY-LONG.
 1537
 1538 GC0712 01  WS-Page-No-TXT.
 1539 GC0712     05 WS-PN-Literal-TXT           PIC X(6).
 1540 GC0712     05 WS-PN-Page-NUM              PIC Z(3)9.
 1541
 1542 GC1213 01  WS-Program-Path-TXT           PIC X(135).
 1543
 1544       01  WS-Reserved-Words-TXT.
 1545           05 VALUE '                     ' PIC X(33).
 1546 GC1213     05 VALUE 'FABS                 ' PIC X(33).
 1547           05 VALUE 'VACCEPT              ' PIC X(33).
 1548           05 VALUE ' ACCESS              ' PIC X(33).
 1549 GC1213     05 VALUE 'FACOS                ' PIC X(33).
 1550           05 VALUE ' ACTIVE-CLASS        ' PIC X(33).      UNIMPLEMENTED
 1551           05 VALUE 'VADD                 ' PIC X(33).
 1552           05 VALUE ' ADDRESS             ' PIC X(33).
 1553           05 VALUE ' ADVANCING           ' PIC X(33).
 1554           05 VALUE 'KAFTER               ' PIC X(33).
 1555           05 VALUE ' ALIGNED             ' PIC X(33).      UNIMPLEMENTED
 1556           05 VALUE ' ALL                 ' PIC X(33).
 1557           05 VALUE 'VALLOCATE            ' PIC X(33).
 1558           05 VALUE ' ALPHABET            ' PIC X(33).
 1559           05 VALUE ' ALPHABETIC          ' PIC X(33).
 1560           05 VALUE ' ALPHABETIC-LOWER    ' PIC X(33).
 1561           05 VALUE ' ALPHABETIC-UPPER    ' PIC X(33).
 1562           05 VALUE ' ALPHANUMERIC        ' PIC X(33).
 1563           05 VALUE ' ALPHANUMERIC-EDITED ' PIC X(33).
 1564           05 VALUE ' ALSO                ' PIC X(33).
 1565           05 VALUE 'VALTER               ' PIC X(33).
 1566           05 VALUE ' ALTERNATE           ' PIC X(33).
 1567           05 VALUE ' AND                 ' PIC X(33).
 1568 GC1213     05 VALUE 'FANNUITY             ' PIC X(33).
 1569           05 VALUE ' ANY                 ' PIC X(33).
 1570           05 VALUE ' ANYCASE             ' PIC X(33).      UNIMPLEMENTED
 1571           05 VALUE ' ARE                 ' PIC X(33).
 1572           05 VALUE ' AREA                ' PIC X(33).
 1573           05 VALUE ' AREAS               ' PIC X(33).
 1574           05 VALUE ' ARGUMENT-NUMBER     ' PIC X(33).
 1575           05 VALUE ' ARGUMENT-VALUE      ' PIC X(33).
 1576           05 VALUE ' ARITHMETIC          ' PIC X(33).      UNIMPLEMENTED
 1577           05 VALUE ' AS                  ' PIC X(33).
 1578           05 VALUE ' ASCENDING           ' PIC X(33).
 1579           05 VALUE ' ASCII               ' PIC X(33).
====================================================================================================
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GNUCOBOL 3.0 24DEC2017  Source Listing                                        2017/12/24
                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 39
====== ========================================================================================
  1580 GC1213      05 VALUE 'FASIN                        ' PIC X(33).
  1581             05 VALUE ' ASSIGN                      ' PIC X(33).
  1582             05 VALUE ' AT                          ' PIC X(33).
  1583 GC1213      05 VALUE 'FATAN                        ' PIC X(33).
  1584 GC0711      05 VALUE ' ATTRIBUTE                   ' PIC X(33).
  1585             05 VALUE ' AUTHOR                      ' PIC X(33).    OBSOLETE
  1586             05 VALUE ' AUTO                        ' PIC X(33).
  1587             05 VALUE ' AUTO-SKIP                   ' PIC X(33).
  1588             05 VALUE ' AUTOMATIC                   ' PIC X(33).
  1589             05 VALUE ' AUTOTERMINATE               ' PIC X(33).
  1590             05 VALUE ' AWAY-FROM-ZERO              ' PIC X(33).
  1591             05 VALUE ' B-AND                       ' PIC X(33).    UNIMPLEMENTED
  1592             05 VALUE ' B-NOT                       ' PIC X(33).    UNIMPLEMENTED
  1593             05 VALUE ' B-OR                        ' PIC X(33).    UNIMPLEMENTED
  1594             05 VALUE ' B-XOR                       ' PIC X(33).    UNIMPLEMENTED
  1595             05 VALUE ' BACKGROUND-COLOR            ' PIC X(33).
  1596             05 VALUE ' BACKGROUND-COLOUR           ' PIC X(33).
  1597             05 VALUE ' BASED                       ' PIC X(33).
  1598             05 VALUE ' BEEP                        ' PIC X(33).
  1599             05 VALUE ' BEFORE                      ' PIC X(33).
  1600             05 VALUE ' BELL                        ' PIC X(33).
  1601             05 VALUE ' BINARY                      ' PIC X(33).
  1602             05 VALUE ' BINARY-C-LONG               ' PIC X(33).
  1603             05 VALUE ' BINARY-CHAR                 ' PIC X(33).
  1604             05 VALUE ' BINARY-DOUBLE               ' PIC X(33).
  1605             05 VALUE ' BINARY-INT                  ' PIC X(33).
  1606             05 VALUE ' BINARY-LONG                 ' PIC X(33).
  1607             05 VALUE ' BINARY-LONG-LONG            ' PIC X(33).
  1608             05 VALUE ' BINARY-SHORT                ' PIC X(33).
  1609             05 VALUE ' BIT                         ' PIC X(33).    UNIMPLEMENTED
  1610             05 VALUE ' BLANK                       ' PIC X(33).
  1611             05 VALUE ' BLINK                       ' PIC X(33).
  1612             05 VALUE ' BLOCK                       ' PIC X(33).
  1613             05 VALUE ' BOOLEAN                     ' PIC X(33).    UNIMPLEMENTED
  1614 GC1213      05 VALUE 'FBOOLEAN-OF-INTEGER          ' PIC X(33).    UNIMPLEMENTED
  1615             05 VALUE ' BOTTOM                      ' PIC X(33).
  1616             05 VALUE 'YBY                          ' PIC X(33).
  1617 GC1213      05 VALUE 'FBYTE-LENGTH                 ' PIC X(33).
  1618             05 VALUE 'MC01                         ' PIC X(33).
  1619             05 VALUE 'MC02                         ' PIC X(33).
  1620             05 VALUE 'MC03                         ' PIC X(33).
  1621             05 VALUE 'MC04                         ' PIC X(33).
  1622             05 VALUE 'MC05                         ' PIC X(33).
  1623             05 VALUE 'MC06                         ' PIC X(33).
  1624             05 VALUE 'MC07                         ' PIC X(33).
  1625             05 VALUE 'MC08                         ' PIC X(33).
  1626             05 VALUE 'MC09                         ' PIC X(33).
  1627             05 VALUE 'MC10                         ' PIC X(33).
  1628             05 VALUE 'MC11                         ' PIC X(33).
  1629             05 VALUE 'MC12                         ' PIC X(33).
  1630             05 VALUE 'VCALL                        ' PIC X(33).
  1631             05 VALUE 'MCALL-CONVENTION             ' PIC X(33).
  1632             05 VALUE 'VCANCEL                      ' PIC X(33).
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GNUCOBOL 3.0 24DEC2017  Source Listing                                        2017/12/24
                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                                 Page: 40
====== =================================================================================
 1633           05 VALUE ' CAPACITY                        ' PIC X(33).    UNIMPLEMENTED
 1634           05 VALUE ' CD                              ' PIC X(33).    OBSOLETE
 1635           05 VALUE ' CENTER                          ' PIC X(33).    UNIMPLEMENTED
 1636           05 VALUE ' CF                              ' PIC X(33).
 1637           05 VALUE ' CH                              ' PIC X(33).
 1638           05 VALUE ' CHAIN                           ' PIC X(33).    UNIMPLEMENTED
 1639           05 VALUE ' CHAINING                        ' PIC X(33).
 1640 GC1213    05 VALUE 'FCHAR                            ' PIC X(33).
 1641 GC1213    05 VALUE 'FCHAR-NATIONAL                   ' PIC X(33).    UNIMPLEMENTED
 1642           05 VALUE ' CHARACTER                       ' PIC X(33).
 1643           05 VALUE ' CHARACTERS                      ' PIC X(33).
 1644           05 VALUE ' CLASS                           ' PIC X(33).
 1645           05 VALUE ' CLASS-ID                        ' PIC X(33).    UNIMPLEMENTED
 1646 GC0711    05 VALUE ' CLASSIFICATION                  ' PIC X(33).
 1647           05 VALUE 'VCLOSE                           ' PIC X(33).
 1648 GC1213    05 VALUE 'FCOB-CRT-STATUS                  ' PIC X(33).
 1649           05 VALUE ' CODE                            ' PIC X(33).
 1650           05 VALUE ' CODE-SET                        ' PIC X(33).
 1651           05 VALUE ' COL                             ' PIC X(33).
 1652           05 VALUE ' COLLATING                       ' PIC X(33).
 1653           05 VALUE ' COLS                            ' PIC X(33).
 1654           05 VALUE ' COLUMN                          ' PIC X(33).
 1655           05 VALUE ' COLUMNS                         ' PIC X(33).
 1656 GC1213    05 VALUE 'FCOMBINED-DATETIME               ' PIC X(33).
 1657           05 VALUE ' COMMA                           ' PIC X(33).
 1658           05 VALUE ' COMMAND-LINE                    ' PIC X(33).
 1659           05 VALUE 'VCOMMIT                          ' PIC X(33).
 1660           05 VALUE ' COMMON                          ' PIC X(33).
 1661           05 VALUE ' COMMUNICATION                   ' PIC X(33).    OBSOLETE
 1662           05 VALUE ' COMP                            ' PIC X(33).
 1663           05 VALUE ' COMP-1                          ' PIC X(33).
 1664           05 VALUE ' COMP-2                          ' PIC X(33).
 1665           05 VALUE ' COMP-3                          ' PIC X(33).
 1666           05 VALUE ' COMP-4                          ' PIC X(33).
 1667           05 VALUE ' COMP-5                          ' PIC X(33).
 1668           05 VALUE ' COMP-6                          ' PIC X(33).
 1669           05 VALUE ' COMP-X                          ' PIC X(33).
 1670           05 VALUE ' COMPUTATIONAL                   ' PIC X(33).
 1671           05 VALUE ' COMPUTATIONAL-1                 ' PIC X(33).
 1672           05 VALUE ' COMPUTATIONAL-2                 ' PIC X(33).
 1673           05 VALUE ' COMPUTATIONAL-3                 ' PIC X(33).
 1674           05 VALUE ' COMPUTATIONAL-4                 ' PIC X(33).
 1675           05 VALUE ' COMPUTATIONAL-5                 ' PIC X(33).
 1676           05 VALUE ' COMPUTATIONAL-X                 ' PIC X(33).
 1677           05 VALUE 'VCOMPUTE                         ' PIC X(33).
 1678 GC1213    05 VALUE 'FCONCATENATE                     ' PIC X(33).
 1679 GC0712    05 VALUE ' CONDITION                       ' PIC X(33).
 1680           05 VALUE 'KCONFIGURATION                   ' PIC X(33).
 1681           05 VALUE 'MCONSOLE                         ' PIC X(33).
 1682           05 VALUE ' CONSTANT                        ' PIC X(33).
 1683           05 VALUE ' CONTAINS                        ' PIC X(33).
 1684 GC0712    05 VALUE 'ACONTENT                         ' PIC X(33).
 1685           05 VALUE 'VCONTINUE                        ' PIC X(33).

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                                                    /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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Line    Statement                                                           Page: 42
======  ========================================================================
  1739          05 VALUE 'KDIVISION                       ' PIC X(33).
  1740          05 VALUE 'KDOWN                           ' PIC X(33).
  1741          05 VALUE ' DUPLICATES                     ' PIC X(33).
  1742          05 VALUE ' DYNAMIC                        ' PIC X(33).
  1743 GC1213   05 VALUE 'FE                              ' PIC X(33).
  1744          05 VALUE ' EBCDIC                         ' PIC X(33).
  1745 GC0712   05 VALUE ' EC                             ' PIC X(33).
  1746          05 VALUE ' EGI                            ' PIC X(33).     OBSOLETE
  1747          05 VALUE 'VELSE                           ' PIC X(33).
  1748          05 VALUE ' EMI                            ' PIC X(33).     OBSOLETE
  1749          05 VALUE ' EMPTY-CHECK                    ' PIC X(33).
  1750          05 VALUE 'VENABLE                         ' PIC X(33).     OBSOLETE
  1751 GC0710   05 VALUE 'KEND                            ' PIC X(33).
  1752          05 VALUE ' END-ACCEPT                     ' PIC X(33).
  1753          05 VALUE ' END-ADD                        ' PIC X(33).
  1754          05 VALUE ' END-CALL                       ' PIC X(33).
  1755          05 VALUE ' END-CHAIN                      ' PIC X(33).     UNIMPLEMENTED
  1756          05 VALUE ' END-COMPUTE                    ' PIC X(33).
  1757          05 VALUE ' END-DELETE                     ' PIC X(33).
  1758          05 VALUE ' END-DISPLAY                    ' PIC X(33).
  1759          05 VALUE ' END-DIVIDE                     ' PIC X(33).
  1760          05 VALUE ' END-EVALUATE                   ' PIC X(33).
  1761          05 VALUE ' END-IF                         ' PIC X(33).
  1762          05 VALUE ' END-MULTIPLY                   ' PIC X(33).
  1763          05 VALUE ' END-OF-PAGE                    ' PIC X(33).
  1764          05 VALUE ' END-PERFORM                    ' PIC X(33).
  1765          05 VALUE ' END-READ                       ' PIC X(33).
  1766          05 VALUE ' END-RECEIVE                    ' PIC X(33).     OBSOLETE
  1767          05 VALUE ' END-RETURN                     ' PIC X(33).
  1768          05 VALUE ' END-REWRITE                    ' PIC X(33).
  1769          05 VALUE ' END-SEARCH                     ' PIC X(33).
  1770          05 VALUE ' END-START                      ' PIC X(33).
  1771          05 VALUE ' END-STRING                     ' PIC X(33).
  1772          05 VALUE ' END-SUBTRACT                   ' PIC X(33).
  1773          05 VALUE ' END-UNSTRING                   ' PIC X(33).
  1774          05 VALUE ' END-WRITE                      ' PIC X(33).
  1775          05 VALUE 'VENTRY                          ' PIC X(33).
  1776          05 VALUE ' ENTRY-CONVENTION               ' PIC X(33).     UNIMPLEMENTED
  1777          05 VALUE 'KENVIRONMENT                    ' PIC X(33).
  1778          05 VALUE ' ENVIRONMENT-NAME               ' PIC X(33).
  1779          05 VALUE ' ENVIRONMENT-VALUE              ' PIC X(33).
  1780          05 VALUE ' EO                             ' PIC X(33).     UNIMPLEMENTED
  1781          05 VALUE ' EOL                            ' PIC X(33).
  1782          05 VALUE ' EOP                            ' PIC X(33).
  1783          05 VALUE ' EOS                            ' PIC X(33).
  1784          05 VALUE ' EQUAL                          ' PIC X(33).
  1785          05 VALUE 'KEQUALS                         ' PIC X(33).
  1786          05 VALUE ' ERASE                          ' PIC X(33).
  1787          05 VALUE ' ERROR                          ' PIC X(33).
  1788          05 VALUE ' ESCAPE                         ' PIC X(33).
  1789          05 VALUE ' ESI                            ' PIC X(33).     OBSOLETE
  1790          05 VALUE 'VEVALUATE                       ' PIC X(33).
  1791          05 VALUE ' EXCEPTION                      ' PIC X(33).
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  1792 GC1213      05 VALUE 'FEXCEPTION-FILE              ' PIC X(33).
  1793 GC1213      05 VALUE 'FEXCEPTION-FILE-N            ' PIC X(33).      UNIMPLEMENTED
  1794 GC1213      05 VALUE 'FEXCEPTION-LOCATION          ' PIC X(33).
  1795 GC1213      05 VALUE 'FEXCEPTION-LOCATION-N        ' PIC X(33).      UNIMPLEMENTED
  1796             05 VALUE ' EXCEPTION-OBJECT            ' PIC X(33).      UNIMPLEMENTED
  1797 GC1213      05 VALUE 'FEXCEPTION-STATEMENT         ' PIC X(33).
  1798 GC1213      05 VALUE 'FEXCEPTION-STATUS            ' PIC X(33).
  1799             05 VALUE ' EXCLUSIVE                   ' PIC X(33).
  1800             05 VALUE 'VEXIT                        ' PIC X(33).
  1801 GC1213      05 VALUE 'FEXP                         ' PIC X(33).
  1802 GC1213      05 VALUE 'FEXP10                       ' PIC X(33).
  1803             05 VALUE ' EXPANDS                     ' PIC X(33).      UNIMPLEMENTED
  1804             05 VALUE ' EXTEND                      ' PIC X(33).
  1805             05 VALUE ' EXTERNAL                    ' PIC X(33).
  1806 GC1213      05 VALUE 'FFACTORIAL                   ' PIC X(33).
  1807             05 VALUE ' FACTORY                     ' PIC X(33).      UNIMPLEMENTED
  1808             05 VALUE ' FALSE                       ' PIC X(33).
  1809             05 VALUE 'KFD                          ' PIC X(33).
  1810             05 VALUE 'KFILE                        ' PIC X(33).
  1811             05 VALUE ' FILE-CONTROL                ' PIC X(33).
  1812             05 VALUE ' FILE-ID                     ' PIC X(33).
  1813 GC1113      05 VALUE ' FILLER                      ' PIC X(33).
  1814             05 VALUE ' FINAL                       ' PIC X(33).
  1815             05 VALUE ' FIRST                       ' PIC X(33).
  1816 GC0712      05 VALUE ' FLOAT-BINARY-128            ' PIC X(33).      UNIMPLEMENTED
  1817 GC0712      05 VALUE ' FLOAT-BINARY-32             ' PIC X(33).      UNIMPLEMENTED
  1818 GC0712      05 VALUE ' FLOAT-BINARY-64             ' PIC X(33).      UNIMPLEMENTED
  1819             05 VALUE ' FLOAT-DECIMAL-16            ' PIC X(33).
  1820             05 VALUE ' FLOAT-DECIMAL-34            ' PIC X(33).
  1821             05 VALUE ' FLOAT-EXTENDED              ' PIC X(33).      UNIMPLEMENTED
  1822 GC0712      05 VALUE ' FLOAT-INFINITY              ' PIC X(33).      UNIMPLEMENTED
  1823             05 VALUE ' FLOAT-LONG                  ' PIC X(33).
  1824 GC0712      05 VALUE ' FLOAT-NOT-A-NUMBER          ' PIC X(33).      UNIMPLEMENTED
  1825             05 VALUE ' FLOAT-SHORT                 ' PIC X(33).
  1826             05 VALUE ' FOOTING                     ' PIC X(33).
  1827             05 VALUE ' FOR                         ' PIC X(33).
  1828             05 VALUE ' FOREGROUND-COLOR            ' PIC X(33).
  1829             05 VALUE ' FOREGROUND-COLOUR           ' PIC X(33).
  1830 GC0711      05 VALUE ' FOREVER                     ' PIC X(33).
  1831             05 VALUE ' FORMAT                      ' PIC X(33).      UNIMPLEMENTED
  1832 GC1213      05 VALUE 'FFORMATTED-CURRENT-DATE       ' PIC X(33).     UNIMPLEMENTED
  1833 GC1213      05 VALUE 'FFORMATTED-DATE              ' PIC X(33).      UNIMPLEMENTED
  1834 GC1213      05 VALUE 'FFORMATTED-DATETIME          ' PIC X(33).      UNIMPLEMENTED
  1835 GC1213      05 VALUE 'FFORMATTED-TIME              ' PIC X(33).      UNIMPLEMENTED
  1836             05 VALUE 'MFORMFEED                    ' PIC X(33).
  1837 GC1213      05 VALUE 'FFRACTION-PART               ' PIC X(33).
  1838             05 VALUE 'VFREE                        ' PIC X(33).
  1839             05 VALUE ' FROM                        ' PIC X(33).
  1840             05 VALUE ' FULL                        ' PIC X(33).
  1841             05 VALUE ' FUNCTION                    ' PIC X(33).
  1842 GC0712      05 VALUE 'KFUNCTION-ID                 ' PIC X(33).
  1843             05 VALUE ' FUNCTION-POINTER            ' PIC X(33).      UNIMPLEMENTED
  1844             05 VALUE 'VGENERATE                    ' PIC X(33).
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 1845          05 VALUE ' GET            ' PIC X(33).      UNIMPLEMENTED
 1846          05 VALUE 'KGIVING         ' PIC X(33).
 1847          05 VALUE ' GLOBAL         ' PIC X(33).
 1848          05 VALUE 'VGO             ' PIC X(33).
 1849          05 VALUE 'VGOBACK         ' PIC X(33).
 1850          05 VALUE ' GREATER        ' PIC X(33).
 1851          05 VALUE ' GROUP          ' PIC X(33).
 1852          05 VALUE ' GROUP-USAGE    ' PIC X(33).      UNIMPLEMENTED
 1853          05 VALUE ' HEADING        ' PIC X(33).
 1854          05 VALUE ' HIGH-VALUE     ' PIC X(33).
 1855          05 VALUE ' HIGH-VALUES    ' PIC X(33).
 1856 GC1213   05 VALUE 'FHIGHEST-ALGEBRAIC ' PIC X(33).
 1857          05 VALUE ' HIGHLIGHT      ' PIC X(33).
 1858          05 VALUE ' I-O            ' PIC X(33).
 1859          05 VALUE ' I-O-CONTROL    ' PIC X(33).
 1860          05 VALUE 'KID             ' PIC X(33).
 1861          05 VALUE 'KIDENTIFICATION ' PIC X(33).
 1862          05 VALUE 'VIF             ' PIC X(33).
 1863          05 VALUE ' IGNORE         ' PIC X(33).
 1864          05 VALUE ' IGNORING       ' PIC X(33).
 1865          05 VALUE ' IMPLEMENTS     ' PIC X(33).      UNIMPLEMENTED
 1866          05 VALUE ' IN             ' PIC X(33).
 1867          05 VALUE ' INDEX          ' PIC X(33).
 1868          05 VALUE 'KINDEXED        ' PIC X(33).
 1869          05 VALUE ' INDICATE       ' PIC X(33).
 1870          05 VALUE ' INDIRECT       ' PIC X(33).      UNIMPLEMENTED
 1871          05 VALUE ' INHERITS       ' PIC X(33).      UNIMPLEMENTED
 1872          05 VALUE ' INITIAL        ' PIC X(33).
 1873          05 VALUE 'VINITIALISE     ' PIC X(33).
 1874          05 VALUE ' INITIALISED    ' PIC X(33).
 1875          05 VALUE 'VINITIALIZE     ' PIC X(33).
 1876          05 VALUE ' INITIALIZED    ' PIC X(33).
 1877          05 VALUE 'VINITIATE       ' PIC X(33).
 1878          05 VALUE ' INPUT          ' PIC X(33).
 1879          05 VALUE 'KINPUT-OUTPUT   ' PIC X(33).
 1880          05 VALUE 'VINSPECT        ' PIC X(33).
 1881          05 VALUE ' INSTALLATION   ' PIC X(33).      OBSOLETE
 1882 GC1213   05 VALUE 'FINTEGER        ' PIC X(33).
 1883 GC1213   05 VALUE 'FINTEGER-OF-BOOLEAN ' PIC X(33).  UNIMPLEMENTED
 1884 GC1213   05 VALUE 'FINTEGER-OF-DATE ' PIC X(33).
 1885 GC1213   05 VALUE 'FINTEGER-OF-DAY ' PIC X(33).
 1886 GC1213   05 VALUE 'FINTEGER-OF-FORMATTED-DATE ' PIC X(33).  UNIMPLEMENTED
 1887 GC1213   05 VALUE 'FINTEGER-PART   ' PIC X(33).
 1888          05 VALUE ' INTERFACE      ' PIC X(33).      UNIMPLEMENTED
 1889          05 VALUE ' INTERFACE-ID   ' PIC X(33).      UNIMPLEMENTED
 1890          05 VALUE ' INTERMEDIATE   ' PIC X(33).      UNIMPLEMENTED
 1891          05 VALUE 'KINTO           ' PIC X(33).
 1892          05 VALUE ' INTRINSIC      ' PIC X(33).
 1893          05 VALUE ' INVALID        ' PIC X(33).
 1894          05 VALUE ' INVOKE         ' PIC X(33).      UNIMPLEMENTED
 1895          05 VALUE ' IS             ' PIC X(33).
 1896          05 VALUE ' JUST           ' PIC X(33).
 1897          05 VALUE ' JUSTIFIED      ' PIC X(33).
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 1898           05 VALUE ' KEPT                        ' PIC X(33).
 1899           05 VALUE ' KEY                         ' PIC X(33).
 1900           05 VALUE ' KEYBOARD                    ' PIC X(33).
 1901           05 VALUE ' LABEL                       ' PIC X(33).
 1902           05 VALUE ' LAST                        ' PIC X(33).
 1903           05 VALUE ' LC_ALL                      ' PIC X(33).     UNIMPLEMENTED
 1904           05 VALUE ' LC_COLLATE                  ' PIC X(33).     UNIMPLEMENTED
 1905           05 VALUE ' LC_CTYPE                    ' PIC X(33).     UNIMPLEMENTED
 1906           05 VALUE ' LC_MESSAGES                 ' PIC X(33).     UNIMPLEMENTED
 1907           05 VALUE ' LC_MONETARY                 ' PIC X(33).     UNIMPLEMENTED
 1908           05 VALUE ' LC_NUMERIC                  ' PIC X(33).     UNIMPLEMENTED
 1909           05 VALUE ' LC_TIME                     ' PIC X(33).     UNIMPLEMENTED
 1910           05 VALUE ' LEADING                     ' PIC X(33).
 1911           05 VALUE ' LEFT                        ' PIC X(33).
 1912           05 VALUE ' LEFT-JUSTIFY                ' PIC X(33).     UNIMPLEMENTED
 1913           05 VALUE ' LEFTLINE                    ' PIC X(33).
 1914 GC1213    05 VALUE 'FLENGTH                      ' PIC X(33).
 1915 GC1213    05 VALUE 'FLENGTH-AN                   ' PIC X(33).
 1916           05 VALUE ' LENGTH-CHECK                ' PIC X(33).
 1917           05 VALUE ' LESS                        ' PIC X(33).
 1918           05 VALUE ' LIMIT                       ' PIC X(33).
 1919           05 VALUE ' LIMITS                      ' PIC X(33).
 1920           05 VALUE ' LINAGE                      ' PIC X(33).
 1921           05 VALUE 'ILINAGE-COUNTER              ' PIC X(33).
 1922           05 VALUE ' LINE                        ' PIC X(33).
 1923 GC1213    05 VALUE 'ILINE-COUNTER                ' PIC X(33).
 1924           05 VALUE ' LINES                       ' PIC X(33).
 1925           05 VALUE 'KLINKAGE                     ' PIC X(33).
 1926           05 VALUE 'KLOCAL-STORAGE               ' PIC X(33).
 1927           05 VALUE ' LOCALE                      ' PIC X(33).
 1928 GC1213    05 VALUE 'FLOCALE-COMPARE              ' PIC X(33).
 1929 GC1213    05 VALUE 'FLOCALE-DATE                 ' PIC X(33).
 1930 GC1213    05 VALUE 'FLOCALE-TIME                 ' PIC X(33).
 1931 GC1213    05 VALUE 'FLOCALE-TIME-FROM-SECONDS    ' PIC X(33).
 1932           05 VALUE ' LOCK                        ' PIC X(33).
 1933 GC1213    05 VALUE 'FLOG                         ' PIC X(33).
 1934 GC1213    05 VALUE 'FLOG10                       ' PIC X(33).
 1935           05 VALUE ' LOW-VALUE                   ' PIC X(33).
 1936           05 VALUE ' LOW-VALUES                  ' PIC X(33).
 1937           05 VALUE ' LOWER                       ' PIC X(33).
 1938 GC1213    05 VALUE 'FLOWER-CASE                  ' PIC X(33).
 1939 GC1213    05 VALUE 'FLOWEST-ALGEBRAIC            ' PIC X(33).
 1940           05 VALUE ' LOWLIGHT                    ' PIC X(33).
 1941           05 VALUE ' MANUAL                      ' PIC X(33).
 1942 GC1213    05 VALUE 'FMAX                         ' PIC X(33).
 1943 GC1213    05 VALUE 'FMEAN                        ' PIC X(33).
 1944 GC1213    05 VALUE 'FMEDIAN                      ' PIC X(33).
 1945           05 VALUE ' MEMORY                      ' PIC X(33).
 1946           05 VALUE 'VMERGE                       ' PIC X(33).
 1947           05 VALUE ' MESSAGE                     ' PIC X(33).     OBSOLETE
 1948           05 VALUE ' METHOD                      ' PIC X(33).     UNIMPLEMENTED
 1949           05 VALUE ' METHOD-ID                   ' PIC X(33).     UNIMPLEMENTED
 1950 GC1213    05 VALUE 'FMIDRANGE                    ' PIC X(33).

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 1951 GC1213     05 VALUE 'FMIN                            ' PIC X(33).
 1952            05 VALUE ' MINUS                          ' PIC X(33).
 1953 GC1213     05 VALUE 'FMOD                            ' PIC X(33).
 1954            05 VALUE ' MODE                           ' PIC X(33).
 1955 GC1213     05 VALUE 'FMODULE-CALLER-ID               ' PIC X(33).
 1956 GC1213     05 VALUE 'FMODULE-DATE                    ' PIC X(33).
 1957 GC1213     05 VALUE 'FMODULE-FORMATTED-DATE          ' PIC X(33).
 1958 GC1213     05 VALUE 'FMODULE-ID                      ' PIC X(33).
 1959 GC1213     05 VALUE 'FMODULE-PATH                    ' PIC X(33).
 1960 GC1213     05 VALUE 'FMODULE-SOURCE                  ' PIC X(33).
 1961 GC1213     05 VALUE 'FMODULE-TIME                    ' PIC X(33).
 1962 GC1213     05 VALUE 'FMONETARY-DECIMAL-POINT         ' PIC X(33).
 1963 GC1213     05 VALUE 'FMONETARY-THOUSANDS-SEPARATOR   ' PIC X(33).
 1964            05 VALUE 'VMOVE                           ' PIC X(33).
 1965            05 VALUE ' MULTIPLE                       ' PIC X(33).
 1966            05 VALUE 'VMULTIPLY                       ' PIC X(33).
 1967 GC0711     05 VALUE ' NAME                           ' PIC X(33).
 1968            05 VALUE ' NATIONAL                       ' PIC X(33).
 1969            05 VALUE ' NATIONAL-EDITED                ' PIC X(33).
 1970 GC1213     05 VALUE 'FNATIONAL-OF                    ' PIC X(33).       UNIMPLEMENTED
 1971            05 VALUE ' NATIVE                         ' PIC X(33).
 1972            05 VALUE ' NEAREST-AWAY-FROM-ZERO         ' PIC X(33).
 1973            05 VALUE ' NEAREST-EVEN                   ' PIC X(33).
 1974            05 VALUE ' NEAREST-TOWARD-ZERO            ' PIC X(33).
 1975            05 VALUE ' NEGATIVE                       ' PIC X(33).
 1976            05 VALUE ' NESTED                         ' PIC X(33).       UNIMPLEMENTED
 1977            05 VALUE 'VNEXT                           ' PIC X(33).
 1978            05 VALUE ' NO                             ' PIC X(33).
 1979            05 VALUE ' NO-ECHO                        ' PIC X(33).
 1980            05 VALUE ' NONE                           ' PIC X(33).       UNIMPLEMENTED
 1981            05 VALUE ' NORMAL                         ' PIC X(33).
 1982            05 VALUE ' NOT                            ' PIC X(33).
 1983            05 VALUE ' NULL                           ' PIC X(33).
 1984            05 VALUE ' NULLS                          ' PIC X(33).
 1985            05 VALUE ' NUMBER                         ' PIC X(33).
 1986            05 VALUE 'INUMBER-OF-CALL-PARAMETERS      ' PIC X(33).
 1987            05 VALUE ' NUMBERS                        ' PIC X(33).
 1988            05 VALUE ' NUMERIC                        ' PIC X(33).
 1989 GC1213     05 VALUE 'FNUMERIC-DECIMAL-POINT          ' PIC X(33).
 1990            05 VALUE ' NUMERIC-EDITED                 ' PIC X(33).
 1991 GC1213     05 VALUE 'FNUMERIC-THOUSANDS-SEPARATOR    ' PIC X(33).
 1992 GC1213     05 VALUE 'FNUMVAL                         ' PIC X(33).
 1993 GC1213     05 VALUE 'FNUMVAL-C                       ' PIC X(33).
 1994 GC1213     05 VALUE 'FNUMVAL-F                       ' PIC X(33).
 1995            05 VALUE ' OBJECT                         ' PIC X(33).       UNIMPLEMENTED
 1996            05 VALUE ' OBJECT-COMPUTER                ' PIC X(33).
 1997            05 VALUE ' OBJECT-REFERENCE               ' PIC X(33).       UNIMPLEMENTED
 1998            05 VALUE ' OCCURS                         ' PIC X(33).
 1999            05 VALUE ' OF                             ' PIC X(33).
 2000            05 VALUE ' OFF                            ' PIC X(33).
 2001            05 VALUE ' OMITTED                        ' PIC X(33).
 2002            05 VALUE ' ON                             ' PIC X(33).
 2003            05 VALUE ' ONLY                           ' PIC X(33).

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 2004           05 VALUE 'VOPEN                        ' PIC X(33).
 2005           05 VALUE ' OPTIONAL                     ' PIC X(33).
 2006           05 VALUE ' OPTIONS                      ' PIC X(33).        UNIMPLEMENTED
 2007           05 VALUE ' OR                           ' PIC X(33).
 2008 GC1213    05 VALUE 'FORD                          ' PIC X(33).
 2009 GC1213    05 VALUE 'FORD-MAX                      ' PIC X(33).
 2010 GC1213    05 VALUE 'FORD-MIN                      ' PIC X(33).
 2011           05 VALUE ' ORDER                        ' PIC X(33).
 2012           05 VALUE ' ORGANISATION                 ' PIC X(33).
 2013           05 VALUE ' ORGANIZATION                 ' PIC X(33).
 2014           05 VALUE ' OTHER                        ' PIC X(33).
 2015           05 VALUE ' OUTPUT                       ' PIC X(33).
 2016           05 VALUE ' OVERFLOW                     ' PIC X(33).
 2017           05 VALUE ' OVERLINE                     ' PIC X(33).
 2018           05 VALUE ' OVERRIDE                     ' PIC X(33).
 2019           05 VALUE ' PACKED-DECIMAL               ' PIC X(33).
 2020           05 VALUE ' PADDING                      ' PIC X(33).
 2021           05 VALUE ' PAGE                         ' PIC X(33).
 2022 GC1213    05 VALUE 'IPAGE-COUNTER                 ' PIC X(33).
 2023           05 VALUE ' PARAGRAPH                    ' PIC X(33).
 2024           05 VALUE 'VPERFORM                      ' PIC X(33).
 2025           05 VALUE ' PF                           ' PIC X(33).
 2026           05 VALUE ' PH                           ' PIC X(33).
 2027 GC1213    05 VALUE 'FPI                           ' PIC X(33).
 2028           05 VALUE 'KPIC                          ' PIC X(33).
 2029           05 VALUE 'KPICTURE                      ' PIC X(33).
 2030           05 VALUE ' PLUS                         ' PIC X(33).
 2031           05 VALUE 'KPOINTER                      ' PIC X(33).
 2032           05 VALUE ' POSITION                     ' PIC X(33).
 2033           05 VALUE ' POSITIVE                     ' PIC X(33).
 2034           05 VALUE ' PREFIXED                     ' PIC X(33).        UNIMPLEMENTED
 2035           05 VALUE ' PRESENT                      ' PIC X(33).
 2036 GC1213    05 VALUE 'FPRESENT-VALUE                ' PIC X(33).
 2037           05 VALUE ' PREVIOUS                     ' PIC X(33).
 2038           05 VALUE 'MPRINTER                      ' PIC X(33).
 2039           05 VALUE ' PRINTING                     ' PIC X(33).
 2040           05 VALUE 'KPROCEDURE                    ' PIC X(33).
 2041           05 VALUE ' PROCEDURE-POINTER            ' PIC X(33).
 2042           05 VALUE ' PROCEDURES                   ' PIC X(33).
 2043           05 VALUE ' PROCEED                      ' PIC X(33).
 2044           05 VALUE ' PROGRAM                      ' PIC X(33).
 2045           05 VALUE 'KPROGRAM-ID                   ' PIC X(33).
 2046           05 VALUE ' PROGRAM-POINTER              ' PIC X(33).
 2047           05 VALUE ' PROHIBITED                   ' PIC X(33).
 2048           05 VALUE ' PROMPT                       ' PIC X(33).
 2049           05 VALUE ' PROPERTY                     ' PIC X(33).        UNIMPLEMENTED
 2050           05 VALUE ' PROTOTYPE                    ' PIC X(33).        UNIMPLEMENTED
 2051           05 VALUE ' PURGE                        ' PIC X(33).        OBSOLETE
 2052           05 VALUE ' QUEUE                        ' PIC X(33).        OBSOLETE
 2053           05 VALUE ' QUOTE                        ' PIC X(33).
 2054           05 VALUE ' QUOTES                       ' PIC X(33).
 2055           05 VALUE ' RAISE                        ' PIC X(33).        UNIMPLEMENTED
 2056           05 VALUE ' RAISING                      ' PIC X(33).        UNIMPLEMENTED

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 2057 GC1213      05 VALUE 'FRANDOM                     ' PIC X(33).
 2058 GC1213      05 VALUE 'FRANGE                      ' PIC X(33).
 2059 GC1213      05 VALUE 'KRD                         ' PIC X(33).
 2060            05 VALUE 'VREAD                       ' PIC X(33).
 2061            05 VALUE 'VREADY                      ' PIC X(33).
 2062            05 VALUE 'VRECEIVE                    ' PIC X(33).      OBSOLETE
 2063            05 VALUE ' RECORD                     ' PIC X(33).
 2064            05 VALUE ' RECORDING                  ' PIC X(33).
 2065            05 VALUE ' RECORDS                    ' PIC X(33).
 2066            05 VALUE ' RECURSIVE                  ' PIC X(33).
 2067            05 VALUE 'KREDEFINES                  ' PIC X(33).
 2068            05 VALUE ' REEL                       ' PIC X(33).
 2069 GC0712      05 VALUE 'AREFERENCE                  ' PIC X(33).
 2070            05 VALUE ' REFERENCES                 ' PIC X(33).
 2071            05 VALUE ' RELATION                   ' PIC X(33).      UNIMPLEMENTED
 2072            05 VALUE ' RELATIVE                   ' PIC X(33).
 2073            05 VALUE 'VRELEASE                    ' PIC X(33).
 2074 GC1213      05 VALUE 'FREM                        ' PIC X(33).
 2075            05 VALUE ' REMAINDER                  ' PIC X(33).
 2076            05 VALUE ' REMARKS                    ' PIC X(33).      OBSOLETE
 2077            05 VALUE ' REMOVAL                    ' PIC X(33).
 2078            05 VALUE 'KRENAMES                    ' PIC X(33).
 2079            05 VALUE ' REPLACE                    ' PIC X(33).
 2080            05 VALUE 'KREPLACING                  ' PIC X(33).
 2081            05 VALUE 'KREPORT                     ' PIC X(33).
 2082            05 VALUE ' REPORTING                  ' PIC X(33).
 2083            05 VALUE ' REPORTS                    ' PIC X(33).
 2084            05 VALUE ' REPOSITORY                 ' PIC X(33).
 2085            05 VALUE ' REQUIRED                   ' PIC X(33).
 2086            05 VALUE ' RESERVE                    ' PIC X(33).
 2087            05 VALUE 'VRESET                      ' PIC X(33).
 2088            05 VALUE ' RESUME                     ' PIC X(33).      UNIMPLEMENTED
 2089            05 VALUE ' RETRY                      ' PIC X(33).      UNIMPLEMENTED
 2090            05 VALUE 'VRETURN                     ' PIC X(33).
 2091            05 VALUE 'IRETURN-CODE                ' PIC X(33).
 2092            05 VALUE 'KRETURNING                  ' PIC X(33).
 2093 GC1213      05 VALUE 'FREVERSE                    ' PIC X(33).
 2094            05 VALUE ' REVERSE-VIDEO              ' PIC X(33).
 2095            05 VALUE ' REVERSED                   ' PIC X(33).
 2096            05 VALUE ' REWIND                     ' PIC X(33).
 2097            05 VALUE 'VREWRITE                    ' PIC X(33).
 2098            05 VALUE ' RF                         ' PIC X(33).
 2099            05 VALUE ' RH                         ' PIC X(33).
 2100            05 VALUE ' RIGHT                      ' PIC X(33).
 2101            05 VALUE ' RIGHT-JUSTIFY              ' PIC X(33).      UNIMPLEMENTED
 2102            05 VALUE 'VROLLBACK                   ' PIC X(33).
 2103            05 VALUE ' ROUNDED                    ' PIC X(33).
 2104            05 VALUE ' ROUNDING                   ' PIC X(33).      UNIMPLEMENTED
 2105            05 VALUE ' RUN                        ' PIC X(33).
 2106            05 VALUE ' SAME                       ' PIC X(33).
 2107            05 VALUE 'KSCREEN                     ' PIC X(33).
 2108            05 VALUE ' SCROLL                     ' PIC X(33).
 2109            05 VALUE 'KSD                         ' PIC X(33).

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 2110           05 VALUE 'VSEARCH                     ' PIC X(33).
 2111           05 VALUE ' SECONDS                    ' PIC X(33).        UNIMPLEMENTED
 2112 GC1213    05 VALUE 'FSECONDS-FROM-FORMATTED-TIME ' PIC X(33).
 2113 GC1213    05 VALUE 'FSECONDS-PAST-MIDNIGHT      ' PIC X(33).
 2114           05 VALUE 'KSECTION                    ' PIC X(33).
 2115           05 VALUE ' SECURE                     ' PIC X(33).
 2116           05 VALUE ' SECURITY                   ' PIC X(33).        OBSOLETE
 2117           05 VALUE ' SEGMENT                    ' PIC X(33).        OBSOLETE
 2118           05 VALUE ' SEGMENT-LIMIT              ' PIC X(33).
 2119           05 VALUE ' SELECT                     ' PIC X(33).
 2120           05 VALUE ' SELF                       ' PIC X(33).        UNIMPLEMENTED
 2121           05 VALUE 'VSEND                       ' PIC X(33).        OBSOLETE
 2122           05 VALUE ' SENTENCE                   ' PIC X(33).
 2123           05 VALUE ' SEPARATE                   ' PIC X(33).
 2124           05 VALUE ' SEQUENCE                   ' PIC X(33).
 2125           05 VALUE ' SEQUENTIAL                 ' PIC X(33).
 2126           05 VALUE 'VSET                        ' PIC X(33).
 2127           05 VALUE ' SHARING                    ' PIC X(33).
 2128 GC1213    05 VALUE 'FSIGN                       ' PIC X(33).
 2129           05 VALUE ' SIGNED                     ' PIC X(33).
 2130           05 VALUE ' SIGNED-INT                 ' PIC X(33).
 2131           05 VALUE ' SIGNED-LONG                ' PIC X(33).
 2132           05 VALUE ' SIGNED-SHORT               ' PIC X(33).
 2133 GC1213    05 VALUE 'FSIN                        ' PIC X(33).
 2134           05 VALUE ' SIZE                       ' PIC X(33).
 2135           05 VALUE 'VSORT                       ' PIC X(33).
 2136           05 VALUE ' SORT-MERGE                 ' PIC X(33).
 2137           05 VALUE 'ISORT-RETURN                ' PIC X(33).
 2138           05 VALUE ' SOURCE                     ' PIC X(33).
 2139           05 VALUE ' SOURCE-COMPUTER            ' PIC X(33).
 2140           05 VALUE ' SOURCES                    ' PIC X(33).        UNIMPLEMENTED
 2141           05 VALUE ' SPACE                      ' PIC X(33).
 2142           05 VALUE ' SPACE-FILL                 ' PIC X(33).        UNIMPLEMENTED
 2143           05 VALUE ' SPACES                     ' PIC X(33).
 2144           05 VALUE ' SPECIAL-NAMES              ' PIC X(33).
 2145 GC1213    05 VALUE 'FSQRT                       ' PIC X(33).
 2146           05 VALUE ' STANDARD                   ' PIC X(33).
 2147           05 VALUE ' STANDARD-1                 ' PIC X(33).
 2148           05 VALUE ' STANDARD-2                 ' PIC X(33).
 2149           05 VALUE ' STANDARD-BINARY            ' PIC X(33).        UNIMPLEMENTED
 2150 GC1213    05 VALUE 'FSTANDARD-COMPARE           ' PIC X(33).        UNIMPLEMENTED
 2151           05 VALUE ' STANDARD-DECIMAL           ' PIC X(33).        UNIMPLEMENTED
 2152 GC1213    05 VALUE 'FSTANDARD-DEVIATION         ' PIC X(33).
 2153           05 VALUE 'VSTART                      ' PIC X(33).
 2154           05 VALUE ' STATEMENT                  ' PIC X(33).        UNIMPLEMENTED
 2155           05 VALUE ' STATIC                     ' PIC X(33).
 2156           05 VALUE ' STATUS                     ' PIC X(33).
 2157           05 VALUE ' STDCALL                    ' PIC X(33).
 2158           05 VALUE 'MSTDERR                     ' PIC X(33).
 2159           05 VALUE 'MSTDIN                      ' PIC X(33).
 2160           05 VALUE 'MSTDOUT                     ' PIC X(33).
 2161           05 VALUE ' STEP                       ' PIC X(33).
 2162           05 VALUE 'VSTOP                       ' PIC X(33).

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                                          /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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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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                                               /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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```
  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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                                        /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              .
```

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

```
   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             .
```

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

```
 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
```

====== =======================================================================================
```
  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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                                               /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
====================================================================================================
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```

```
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                                               /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                               Page: 62
====== ================================================================================
  2709              .
```

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

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

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

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

```
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              .
```

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

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

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

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

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

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

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```

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

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


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```

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

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

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

```
  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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```

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

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

====== ==============================================================================================
```
  3194          WHEN 'DELIMITER'
  3195              PERFORM 362-Release-Upd
  3196          WHEN 'COUNT'
  3197              PERFORM 362-Release-Upd
  3198          WHEN 'POINTER'
  3199              PERFORM 362-Release-Upd
  3200          WHEN 'TALLYING'
  3201              PERFORM 362-Release-Upd
  3202          WHEN OTHER
  3203              PERFORM 361-Release-Ref
  3204          END-EVALUATE
  3205          .
  3206
  3207      360-Release-Def SECTION.
  3208          MOVE SPACES              TO F-Sort-Work-REC
  3209          MOVE WS-Curr-Prog-ID-TXT    TO F-SW-Prog-ID-TXT
  3210          MOVE WS-Token-Curr-Uc-TXT   TO F-SW-Token-Uc-TXT
  3211          MOVE WS-Token-Curr-TXT      TO F-SW-Token-TXT
  3212          MOVE WS-Curr-Section-TXT    TO F-SW-Section-TXT
  3213          MOVE WS-Curr-Line-NUM       TO F-SW-Def-Line-NUM
  3214          MOVE 0                   TO F-SW-Ref-Line-NUM
  3215          RELEASE F-Sort-Work-REC
  3216          .
  3217
  3218      361-Release-Ref SECTION.
  3219          PERFORM 364-Set-Ref
  3220          RELEASE F-Sort-Work-REC
  3221          .
  3222
  3223      362-Release-Upd SECTION.
  3224          PERFORM 363-Set-Upd
  3225          RELEASE F-Sort-Work-REC
  3226          .
  3227
  3228      363-Set-Upd SECTION.
  3229          MOVE SPACES              TO F-Sort-Work-REC
  3230          MOVE WS-Curr-Prog-ID-TXT    TO F-SW-Prog-ID-TXT
  3231          MOVE WS-Token-Curr-Uc-TXT   TO F-SW-Token-Uc-TXT
  3232          MOVE WS-Token-Curr-TXT      TO F-SW-Token-TXT
  3233          MOVE WS-Curr-Section-TXT    TO F-SW-Section-TXT
  3234          MOVE WS-Curr-Line-NUM       TO F-SW-Ref-Line-NUM
  3235          MOVE '*'                 TO F-SW-Ref-Flag-CHR
  3236          .
  3237
  3238      364-Set-Ref SECTION.
  3239          MOVE SPACES              TO F-Sort-Work-REC
  3240          MOVE WS-Curr-Prog-ID-TXT    TO F-SW-Prog-ID-TXT
  3241          MOVE WS-Token-Curr-Uc-TXT   TO F-SW-Token-Uc-TXT
  3242          MOVE WS-Token-Curr-TXT      TO F-SW-Token-TXT
  3243          MOVE WS-Curr-Section-TXT    TO F-SW-Section-TXT
  3244          MOVE WS-Curr-Line-NUM       TO F-SW-Ref-Line-NUM
  3245          .
  3246
```
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GNUCOBOL 3.0 24DEC2017  Source Listing                                      2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                           Page: 77
====== ====================================================================================
 3247 GC1213 365-Release-Arg SECTION.
 3248 GC1213     PERFORM 366-Set-Arg
 3249 GC1213     RELEASE F-Sort-Work-REC
 3250 GC1213     .
 3251
 3252 GC1213 366-Set-Arg SECTION.
 3253 GC1213     MOVE SPACES               TO F-Sort-Work-REC
 3254 GC1213     MOVE WS-Curr-Prog-ID-TXT  TO F-SW-Prog-ID-TXT
 3255 GC1213     MOVE WS-Token-Curr-Uc-TXT TO F-SW-Token-Uc-TXT
 3256 GC1213     MOVE WS-Token-Curr-TXT    TO F-SW-Token-TXT
 3257 GC1213     MOVE WS-Curr-Section-TXT  TO F-SW-Section-TXT
 3258 GC1213     MOVE WS-Curr-Line-NUM     TO F-SW-Ref-Line-NUM
 3259 GC1213     MOVE 'C'                  TO F-SW-Ref-Flag-CHR
 3260 GC1213     .
 3261
```

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

```
 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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```

```
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         .
```

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

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

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

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

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

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

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

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

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```

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

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

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```

```
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 stmnt
  3661 GC1213          SUBTRACT 2 FROM WS-Lines-Left-NUM
  3662 GC1213        END-EVALUATE
  3663 GC1213      ELSE              *> PORTRAIT
  3664 GC1213        EVALUATE WS-Src-Lines-NUM
  3665 GC1213        WHEN 1 *> Print only chars 1-89 of stmnt
  3666 GC1213          WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3667 GC1213            BEFORE 1
  3668 GC1213          SUBTRACT 1 FROM WS-Lines-Left-NUM
  3669 GC1213        WHEN 2 *> Print only chars 1-89 and 90-178 of text
  3670 GC1213          MOVE WS-SDL-Statement-TXT TO WS-Src-Hold-TXT
  3671 GC1213          WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3672 GC1213            BEFORE 1
  3673 GC1213          MOVE SPACES TO WS-Src-Detail-Line-TXT
  3674 GC1213          MOVE WS-Src-Hold-TXT(90:89) TO WS-SDL-Statement-TXT
  3675 GC1213          WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3676 GC1213            BEFORE 1
  3677 GC1213          SUBTRACT 2 FROM WS-Lines-Left-NUM
  3678 GC1213        WHEN 3 *> Print chars 1-89, 90-178 and 179-256 of stmnt
  3679 GC1213          MOVE WS-SDL-Statement-TXT TO WS-Src-Hold-TXT
  3680 GC1213          WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3681 GC1213            BEFORE 1
  3682 GC1213          MOVE SPACES TO WS-Src-Detail-Line-TXT
  3683 GC1213          MOVE WS-Src-Hold-TXT(90:89) TO WS-SDL-Statement-TXT
  3684 GC1213          WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3685 GC1213            BEFORE 1
  3686 GC1213          MOVE SPACES TO WS-Src-Detail-Line-TXT
  3687 GC1213          MOVE WS-Src-Hold-TXT(179:78) TO WS-SDL-Statement-TXT
  3688 GC1213          WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
  3689 GC1213            BEFORE 1
  3690 GC1213          SUBTRACT 3 FROM WS-Lines-Left-NUM
  3691 GC1213        END-EVALUATE
  3692 GC1213      END-IF
  3693          MOVE SPACES TO WS-Src-Detail-Line-TXT
  3694          .
  3695
  3696      END PROGRAM LISTING.
```

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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
```

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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: 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     ]
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                                                                        3610*   3612*   3613
                                                                        3615*   3616    3618*
                                                                        3620*   3621    3623*
                                                                        3624    3650*   3655*
                                                                        3656    3659*   3660
LISTING         F-Listing-96-REC                1434 FILE               3374*   3376*   3378*
                                                                        3379    3381*   3382
                                                                        3385*   3387*   3388
                                                                        3389*   3390*   3391
                                                                        3392    3393    3394
                                                                        3402    3426    3428*
                                                                        3429    3431*   3433*
                                                                        3435    3437    3438

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

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

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```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                            2017/12/24
                                            /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function   Defn   Where Defined   References      Page: 100
===============  ==============================  ======  ===============  ========================
LISTING          L-LPP-Port-NUM                  2400  LINKAGE          2408    2489
LISTING          L-OS-Type-CD                    2396  LINKAGE          2406    2432
LISTING          L-Src-Fn-TXT                    2394  LINKAGE          1420    2405    2437
                                                                        2437*   2438    2439
                                                                        2443    2446    2459
                                                                        2461    2463    2468
LISTING          RETURN-CODE                           PROCEDURE        2479
LISTING          WS-CD-In-DATA-DIV-BOOL          1473  WORKING-STORAGE  2533
LISTING          WS-CD-In-ENV-DIV-BOOL           1472  WORKING-STORAGE  2531
LISTING          WS-CD-In-IDENT-DIV-BOOL         1471  WORKING-STORAGE  2529
LISTING          WS-CD-In-PROC-DIV-BOOL          1474  WORKING-STORAGE  2535
LISTING          WS-Copyright-TXT                1459  WORKING-STORAGE  2430*   2435*   3415
                                                                        3430    3573    3593
LISTING          WS-CPI-13-15-TXT                1480  WORKING-STORAGE  2824*
LISTING          WS-CPI-16-CHR                   1481  WORKING-STORAGE  2823
LISTING          WS-CS-1-CHR                     1484  WORKING-STORAGE  2746*
LISTING          WS-CS-11-14-TXT                 1487  WORKING-STORAGE  2748    2749*
LISTING          WS-CS-15-CHR                    1488  WORKING-STORAGE  2751*
LISTING          WS-CS-2-14-TXT                  1485  WORKING-STORAGE  2747*
LISTING          WS-Curr-Char-Is-Punct-BOOL      1462  WORKING-STORAGE  2591    2599    2604
LISTING          WS-Curr-Char-Is-Quote-BOOL      1466  WORKING-STORAGE  2610
LISTING          WS-Curr-Char-Is-X-BOOL          1467  WORKING-STORAGE  2623
LISTING          WS-Curr-Char-Is-Z-BOOL          1468  WORKING-STORAGE  2636
LISTING          WS-Curr-CHR                     1461  WORKING-STORAGE  2581*   2584    2586
                                                                        2592    2600    2606
                                                                        2613
LISTING          WS-Curr-Division-TXT            1470  WORKING-STORAGE  2506*   2542    2593
                                                                        2601    2701    2817*
                                                                        2836*   2862*   2918*
                                                                        2923*
LISTING          WS-Curr-Line-NUM                1476  WORKING-STORAGE  2505*   2565*   2724*
                                                                        2764*   3213    3234
                                                                        3244    3258    3485*
LISTING          WS-Curr-Prog-ID-TXT             1478  WORKING-STORAGE  2495*   2822*   3209
                                                                        3230    3240    3254
LISTING          WS-Curr-Section-TXT             1483  WORKING-STORAGE  2727*   2732    2841*
                                                                        2867*   2913    2914*
                                                                        3212    3233    3243
                                                                        3257
LISTING          WS-Curr-Verb-TXT                1490  WORKING-STORAGE  2496*   2520*   2544*
                                                                        2928    2937
LISTING          WS-Delim-TXT                    1492  WORKING-STORAGE  2653*   2655    2673*
                                                                        2675    2678
LISTING          WS-Dummy-TXT                    1494  WORKING-STORAGE  2471*   2716*   2745*
                                                                        2778*   2783*   2784
                                                                        3471*
LISTING          WS-Expanded-Src-Fn-TXT          1496  WORKING-STORAGE  1416    2476*   2477C
LISTING          WS-Filename-TXT                 1498  WORKING-STORAGE  2470*   2473    2744*
                                                                        2747
LISTING          WS-Flags-TXT                    1500  WORKING-STORAGE
LISTING          WS-Formatted-DT                 1503  WORKING-STORAGE  2494*   3354    3377
                                                                        3611    3630
LISTING          WS-GI-Prog-ID-TXT               1506  WORKING-STORAGE  3281    3287    3292*

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```

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                          2017/12/24
                                       /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
PROGRAM-ID       Identifier/Register/Function   Defn   Where Defined    References      Page: 101
================ ============================== ====== =============== ========================
LISTING          WS-GI-Token-TXT                 1507 WORKING-STORAGE  3282    3293*   3295
                                                                       3307
LISTING          WS-Group-Indicators-TXT         1505 WORKING-STORAGE  3265*
LISTING          WS-Held-Reference-TXT           1509 WORKING-STORAGE  2497*   2522    2523
                                                                       2524*   2559    2560
                                                                       2561*   3040*   3042
                                                                       3043    3044*   3081*
                                                                       3087    3088    3089*
                                                                       3095    3096    3097*
                                                                       3120*   3122    3123*
LISTING          WS-I-SUB                         1511 WORKING-STORAGE  2438*   2439    2440
                                                                       2442    2445*   2446
                                                                       2461*   2463    2464
                                                                       2465    2468    2721*
                                                                       2724    2735*   2737
                                                                       2738    2739    2742
                                                                       3266*   3300*   3312*
                                                                       3325*   3326    3328*
                                                                       3331    3333    3406*
LISTING          WS-J-SUB                         1513 WORKING-STORAGE  2462*   2466*   2468
                                                                       2736*   2740*   2742
LISTING          WS-Lines-Left-NUM               1515 WORKING-STORAGE  3267*   3276    3290
                                                                       3342    3396*   3407
                                                                       3451    3498    3502
                                                                       3529*   3563    3645*
                                                                       3652    3661    3668
                                                                       3677    3690
LISTING          WS-Lines-Per-Page-Env-TXT       1519 WORKING-STORAGE  2451*   2455*   2482
                                                                       2483
LISTING          WS-Lines-Per-Page-NUM           1517 WORKING-STORAGE  2484*   2487*   2489*
                                                                       2492    3396    3645
LISTING          WS-Main-Module-Name-TXT         1521 WORKING-STORAGE  2443*   2447*   2723
                                                                       3473
LISTING          WS-Next-Char-Is-Quote-BOOL      1524 WORKING-STORAGE  2623    2636
LISTING          WS-Next-CHR                     1523 WORKING-STORAGE  2583*   2626    2639
LISTING          WS-OS-Type-FILLER-TXT           1526 WORKING-STORAGE  1532
LISTING          WS-OS-Type-TXT                  1533 WORKING-STORAGE  2432
LISTING          WS-OS-Types-TXT                 1532 WORKING-STORAGE
LISTING          WS-Page-No-TXT                  1538 WORKING-STORAGE  3348C   3363    3386
                                                                       3417    3432    3575
                                                                       3595    3605C   3619
                                                                       3638
LISTING          WS-Page-NUM                     1536 WORKING-STORAGE  2428*   3344*   3346
                                                                       3564    3601*   3603
LISTING          WS-PN-Literal-TXT               1539 WORKING-STORAGE  3345*   3602*
LISTING          WS-PN-Page-NUM                  1540 WORKING-STORAGE  3346*   3347C   3603*
                                                                       3604C
LISTING          WS-Program-Path-TXT             1542 WORKING-STORAGE  2459*   2460C   3357
                                                                       3380    3614    3633
LISTING          WS-Reserved-Word-Table-TXT      2299 WORKING-STORAGE
LISTING          WS-Reserved-Word-TXT            2300 WORKING-STORAGE  2688
LISTING          WS-Reserved-Words-TXT           1544 WORKING-STORAGE  2299
LISTING          WS-RS-Duplicate-CHR             2308 WORKING-STORAGE  3268*   3283*   3298*

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```

```
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

=================================================================================================
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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: 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

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

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

# 6.  STREAMIO

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

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

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

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

- Coding a GnuCOBOL subroutine
- Using the `REPLACING` clause on a CDF `COPY` statement
- Using hexadecimal alphanumeric literals
- Using the following statements:
    - 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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```

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

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

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```

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

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

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

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


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====== ===============================================================================
        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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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.
```

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

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

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

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


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

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


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```
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                        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*
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STREAMIO         WS-Access-Mode-CD               367 WORKING-STORAGE    528*   530*   532*
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STREAMIO         WS-Arg-Length-NUM               368 WORKING-STORAGE    408*   413*   421C
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                                                                        579C   583    587*
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                                                                        641*   642    646*
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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*
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STREAMIO         WS-Tally-NUM                    373 WORKING-STORAGE    595*   597*   598
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                                                                        648    649*   652
```

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