GnuCOBOL Sample Programs

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This manual documents GnuCOBOL 3.1 RC-1, July2020 build.

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1. FileStat-Msgs

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

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

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

Here's the FileStat-Msgs.cpy copybook:

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

2. COBDUMP

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

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

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

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

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

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

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

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

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

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

==

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

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

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

3. Colors

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

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

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

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

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

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

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

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

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

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:17

   217   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
   218   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
   219   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
   220   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
   221   05 LINE + 1.
   222   10 COL 22  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
   223   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
   224   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
   225   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
   226   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
   227   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
   228   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
   229   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
   230   05 LINE + 1.
   231   10 COL 22  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
   232   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
   233   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
   234   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
   235   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
   236   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
   237   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
   238   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
   239   05 LINE + 1.
   240   10 COL 22  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
   241   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
   242   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
   243   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
   244   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
   245   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
   246   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
   247   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
   248   05 LINE + 1.
   249   10 COL 22  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
   250   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
   251   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
   252   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
   253   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
   254   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
   255   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
   256   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
   257   05 LINE + 1.
   258   10 COL 22  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
   259   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
   260   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
   261   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
   262   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
   263   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
   264   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
   265   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
   266   05 LINE + 1.
   267   10 COL 22  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
   268   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
   269   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
   270   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:18
    271    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
    272    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
    273    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
    274    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
    275    *> #4
    276    05 LINE 05.
    277    10 COL 32  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    278    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    279    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    280    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    281    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    282    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    283    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    284    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    285    05 LINE + 1.
    286    10 COL 32  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    287    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    288    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    289    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    290    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    291    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    292    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    293    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    294    05 LINE + 1.
    295    10 COL 32  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    296    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    297    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    298    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    299    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    300    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    301    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    302    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    303    05 LINE + 1.
    304    10 COL 32  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    305    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    306    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    307    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    308    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    309    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    310    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    311    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    312    05 LINE + 1.
    313    10 COL 32  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    314    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    315    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    316    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    317    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    318    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    319    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    320    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    321    05 LINE + 1.
    322    10 COL 32 BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    323    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    324    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
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ACS Cobol Xref v2.02.02        Dictionary File for COLORS     07/12/2019  16:57:00:18
    325    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    326    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    327    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    328    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    329    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    330    05 LINE + 1.
    331    10 COL 32  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    332    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    333    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    334    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    335    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    336    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    337    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    338    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    339    05 LINE + 1.
    340    10 COL 32  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    341    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    342    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    343    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    344    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    345    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    346    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    347    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
    348    *> #5
    349    05 LINE 05.
    350    10 COL 42  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
    351    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
    352    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
    353    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
    354    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
    355    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
    356    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
    357    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
    358    05 LINE + 1.
    359    10 COL 42  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
    360    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
    361    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
    362    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
    363    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
    364    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
    365    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
    366    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
    367    05 LINE + 1.
    368    10 COL 42  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
    369    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
    370    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
    371    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
    372    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
    373    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
    374    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
    375    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
    376    05 LINE + 1.
    377    10 COL 42  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
    378    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
```

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

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

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

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

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

  487    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  488    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  489    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  490    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  491    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  492    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  493    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT REVERSE-VIDEO VALUE 'X'.
  494    *> #7
  495    05 LINE 17.
  496    10 COL 02  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
  497    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
  498    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
  499    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
  500    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
  501    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
  502    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
  503    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
  504    05 LINE + 1.
  505    10 COL 02  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
  506    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
  507    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
  508    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
  509    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
  510    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
  511    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
  512    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
  513    05 LINE + 1.
  514    10 COL 02  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
  515    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
  516    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
  517    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
  518    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
  519    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
  520    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
  521    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
  522    05 LINE + 1.
  523    10 COL 02  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
  524    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
  525    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
  526    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
  527    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
  528    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
  529    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
  530    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
  531    05 LINE + 1.
  532    10 COL 02  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
  533    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
  534    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
  535    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
  536    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
  537    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
  538    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
  539    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
  540    05 LINE + 1.
```

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ACS Cobol Xref v2.02.02        Dictionary File for COLORS    07/12/2019  16:57:00:19
   541    10 COL 02  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   542    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   543    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   544    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   545    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   546    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   547    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   548    10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   549    05 LINE + 1.
   550    10 COL 02  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   551    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   552    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   553    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   554    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   555    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   556    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   557    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   558    05 LINE + 1.
   559    10 COL 02  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT BLINK VALUE 'X'.
   560    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT BLINK VALUE 'X'.
   561    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT BLINK VALUE 'X'.
   562    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT BLINK VALUE 'X'.
   563    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT BLINK VALUE 'X'.
   564    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT BLINK VALUE 'X'.
   565    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT BLINK VALUE 'X'.
   566    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT BLINK VALUE 'X'.
   567    *> #8
   568    05 LINE 17.
   569    10 COL 12  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   570    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   571    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   572    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   573    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   574    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   575    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   576    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   577    05 LINE + 1.
   578    10 COL 12  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   579    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   580    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   581    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   582    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   583    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   584    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   585    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
   586    05 LINE + 1.
   587    10 COL 12  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 BLINK VALUE 'X'.
   588    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 BLINK VALUE 'X'.
   589    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 BLINK VALUE 'X'.
   590    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 BLINK VALUE 'X'.
   591    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 BLINK VALUE 'X'.
   592    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 BLINK VALUE 'X'.
   593    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 BLINK VALUE 'X'.
   594    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 BLINK VALUE 'X'.
```

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  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'.
```

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ACS Cobol Xref v2.02.02          Dictionary File for COLORS     07/12/2019  16:57:00:20
  703    10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
  704    05 LINE + 1.
  705    10 COL 22  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE 'X'.
  706    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE 'X'.
  707    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE 'X'.
  708    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE 'X'.
  709    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE 'X'.
  710    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE 'X'.
  711    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE 'X'.
  712    10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE 'X'.
  713    *> #10
  714    05 LINE 17.
  715    10 COL 32  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  716    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  717    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  718    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  719    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  720    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  721    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  722    10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  723    05 LINE + 1.
  724    10 COL 32  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  725    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  726    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  727    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  728    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  729    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  730    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  731    10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  732    05 LINE + 1.
  733    10 COL 32  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  734    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  735    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  736    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  737    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  738    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  739    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  740    10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  741    05 LINE + 1.
  742    10 COL 32  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  743    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  744    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  745    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  746    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  747    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  748    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  749    10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  750    05 LINE + 1.
  751    10 COL 32  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  752    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  753    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  754    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  755    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
  756    10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
```

```
ACS Cobol Xref v2.02.02        Dictionary File for COLORS     07/12/2019  16:57:00:20

   757   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   758   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   759   05 LINE + 1.
   760   10 COL 32  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   761   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   762   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   763   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   764   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   765   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   766   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   767   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   768   05 LINE + 1.
   769   10 COL 32  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   770   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   771   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   772   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   773   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   774   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   775   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   776   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   777   05 LINE + 1.
   778   10 COL 32  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   779   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   780   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   781   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   782   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   783   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   784   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   785   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   786   *> #11
   787   05 LINE 17.
   788   10 COL 42  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
   789   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
   790   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   791   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   792   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
   793   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   794   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   795   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   796   05 LINE + 1.
   797   10 COL 42  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
   798   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
   799   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   800   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   801   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
   802   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 BLINK REVERSE-VIDEO VALUE 'X'.
   803   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 BLINK REVERSE-VIDEO VALUE 'X'.
   804   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 BLINK REVERSE-VIDEO VALUE 'X'.
   805   05 LINE + 1.
   806   10 COL 42  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 BLINK REVERSE-VIDEO VALUE 'X'.
   807   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 BLINK REVERSE-VIDEO VALUE 'X'.
   808   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 BLINK REVERSE-VIDEO VALUE 'X'.
   809   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 BLINK REVERSE-VIDEO VALUE 'X'.
   810   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 BLINK REVERSE-VIDEO VALUE 'X'.
```

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

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

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

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

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

   919   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   920   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   921   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   922   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   923   05 LINE + 1.
   924   10 COL 52  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   925   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   926   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   927   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   928   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   929   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   930   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   931   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT BLINK REVERSE-VIDEO VALUE 'X'.
   932   PROCEDURE DIVISION.
   933   000-Main SECTION.
   934    DISPLAY S-COLORTST-SCR.
   935    STOP RUN.
   936       *>>>Info: Total Copy Depth Used = 01
```

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

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

S-COLORTST-SCR                 000007S  000934
```

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

None
```

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

None
```

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

None
```

4. DAY-FROM-DATE

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

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

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

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

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

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

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

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

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

==

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

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

5. GCic

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

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

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

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

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

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

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

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

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

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

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                     Page: 2
====== =========================================================================
    45          IDENTIFICATION DIVISION.
    46          PROGRAM-ID. GCic.
    47          *>***************************************************************
    48          *>     >NOTE<   >NOTE<   >NOTE<   >NOTE<   >NOTE<   >NOTE<    **
    49          *>                                                            **
    50          *> If this program is compiled with '-fdebugging-line', you   **
    51          *> will need to pipe SYSERR to a text file when executing GCic **
    52          *> (by adding the text '2> filename' to the end of the GCic    **
    53          *> command).  You may also need to press the ENTER key when    **
    54          *> GCic is finished.                                           **
    55          *>***************************************************************
    56          *> This program provides a Textual User Interface (TUI) to the **
    57          *> process of compiling and (optionally) executing a GNU COBOL **
    58          *> program.                                                     **
    59          *>                                                            **
    60          *> This programs execution syntax is as follows:              **
    61          *>                                                            **
    62          *> GCic <program-path-and-filename> [ <switch>... ]           **
    63          *>                                                            **
    64          *> Once executed, a display screen will be presented showing   **
    65          *> the compilation options that will be used.  The user will   **
    66          *> have the opportunity to change options, specify new ones    **
    67          *> and specify any program execution arguments to be used if    **
    68          *> you select the 'Execute' option.  When you press the Enter  **
    69          *> key the program will be compiled.                           **
    70          *>                                                            **
    71          *> The SCREEN SECTION contains an image of the screen.         **
    72          *>                                                            **
    73          *> The '010-Parse-Args' section in the PROCEDURE DIVISION has  **
    74          *> documentation on switches and their function.              **
    75          *>***************************************************************
    76          *>                                                            **
    77          *> AUTHOR:      GARY L. CUTLER                                 **
    78          *>             Copyright (C) 2009-2017, Gary L. Cutler, GPL  **
    79          *>                                                            **
    80          *> DATE-WRITTEN: June 14, 2009                                 **
    81          *>                                                            **
    82          *>***************************************************************
    83          *>  DATE   CHANGE DESCRIPTION                                  **
    84          *> ====== ===================================================== **
    85          *> GCO609 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          *> GCO709 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          *> GCO809 Add a SPACE in front of command-line args when       **
    96          *>  GLC   executing users program.  Add a SPACE after the      **
```

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

===
```
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```

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

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

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

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

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

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

```
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```

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

```
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            .
```

```
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             .
```

```
=================================================================================================
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL                    Page: 30
```

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

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

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

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                              2017/12/24
                                    /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                     Page: 33
======  ========================================================================

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

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

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

```
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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====== ================================================================================
 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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====== ================================================================================
 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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====== ================================================================================
 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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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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====== =================================================================================
 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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====== ========================================================================================
 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).
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 1796           05 VALUE ' EXCEPTION-OBJECT            ' PIC X(33).     UNIMPLEMENTED
 1797 GC1213     05 VALUE 'FEXCEPTION-STATEMENT        ' PIC X(33).
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 1803           05 VALUE ' EXPANDS                     ' PIC X(33).     UNIMPLEMENTED
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 1806 GC1213     05 VALUE 'FFACTORIAL                   ' PIC X(33).
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 1808           05 VALUE ' FALSE                       ' PIC X(33).
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 1810           05 VALUE 'KFILE                        ' PIC X(33).
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 1812           05 VALUE ' FILE-ID                     ' PIC X(33).
 1813 GC1113     05 VALUE ' FILLER                      ' PIC X(33).
 1814           05 VALUE ' FINAL                       ' PIC X(33).
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 1817 GC0712     05 VALUE ' FLOAT-BINARY-32             ' PIC X(33).     UNIMPLEMENTED
 1818 GC0712     05 VALUE ' FLOAT-BINARY-64             ' PIC X(33).     UNIMPLEMENTED
 1819           05 VALUE ' FLOAT-DECIMAL-16            ' PIC X(33).
 1820           05 VALUE ' FLOAT-DECIMAL-34            ' PIC X(33).
 1821           05 VALUE ' FLOAT-EXTENDED              ' PIC X(33).     UNIMPLEMENTED
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 1833 GC1213     05 VALUE 'FFORMATTED-DATE              ' PIC X(33).     UNIMPLEMENTED
 1834 GC1213     05 VALUE 'FFORMATTED-DATETIME          ' PIC X(33).     UNIMPLEMENTED
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 1909            05 VALUE ' LC_TIME                       ' PIC X(33).    UNIMPLEMENTED
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 1950 GC1213     05 VALUE 'FMIDRANGE                      ' PIC X(33).
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 1967 GC0711      05 VALUE ' NAME                         ' PIC X(33).
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 1983             05 VALUE ' NULL                         ' PIC X(33).
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 1998             05 VALUE ' OCCURS                       ' PIC X(33).
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 2006            05 VALUE ' OPTIONS                    ' PIC X(33).    UNIMPLEMENTED
 2007            05 VALUE ' OR                         ' PIC X(33).
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 2013            05 VALUE ' ORGANIZATION               ' PIC X(33).
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 2015            05 VALUE ' OUTPUT                     ' PIC X(33).
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 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).
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 2051            05 VALUE ' PURGE                      ' PIC X(33).    OBSOLETE
 2052            05 VALUE ' QUEUE                      ' PIC X(33).    OBSOLETE
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 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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 2059 GC1213     05 VALUE 'KRD                            ' PIC X(33).
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 2063           05 VALUE ' RECORD                         ' PIC X(33).
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 2141           05 VALUE ' SPACE               ' PIC X(33).
 2142           05 VALUE ' SPACE-FILL          ' PIC X(33).      UNIMPLEMENTED
 2143           05 VALUE ' SPACES              ' PIC X(33).
 2144           05 VALUE ' SPECIAL-NAMES       ' PIC X(33).
 2145 GC1213    05 VALUE 'FSQRT                ' PIC X(33).
 2146           05 VALUE ' STANDARD            ' PIC X(33).
 2147           05 VALUE ' STANDARD-1          ' PIC X(33).
 2148           05 VALUE ' STANDARD-2          ' PIC X(33).
 2149           05 VALUE ' STANDARD-BINARY     ' PIC X(33).      UNIMPLEMENTED
 2150 GC1213    05 VALUE 'FSTANDARD-COMPARE    ' PIC X(33).      UNIMPLEMENTED
 2151           05 VALUE ' STANDARD-DECIMAL    ' PIC X(33).      UNIMPLEMENTED
 2152 GC1213    05 VALUE 'FSTANDARD-DEVIATION  ' PIC X(33).
 2153           05 VALUE 'VSTART               ' PIC X(33).
 2154           05 VALUE ' STATEMENT           ' PIC X(33).      UNIMPLEMENTED
 2155           05 VALUE ' STATIC              ' PIC X(33).
 2156           05 VALUE ' STATUS              ' PIC X(33).
 2157           05 VALUE ' STDCALL             ' PIC X(33).
 2158           05 VALUE 'MSTDERR              ' PIC X(33).
 2159           05 VALUE 'MSTDIN               ' PIC X(33).
 2160           05 VALUE 'MSTDOUT              ' PIC X(33).
 2161           05 VALUE ' STEP                ' PIC X(33).
 2162           05 VALUE 'VSTOP                ' PIC X(33).
```

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GNUCOBOL 3.0 24DEC2017  Source Listing                                  2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                        Page: 50
====== ==========================================================================
 2163 GC1213    05 VALUE 'FSTORED-CHAR-LENGTH            ' PIC X(33).
 2164           05 VALUE 'VSTRING                        ' PIC X(33).
 2165           05 VALUE ' STRONG                        ' PIC X(33).    UNIMPLEMENTED
 2166           05 VALUE ' SUB-QUEUE-1                   ' PIC X(33).    OBSOLETE
 2167           05 VALUE ' SUB-QUEUE-2                   ' PIC X(33).    OBSOLETE
 2168           05 VALUE ' SUB-QUEUE-3                   ' PIC X(33).    OBSOLETE
 2169 GC1213    05 VALUE 'FSUBSTITUTE                    ' PIC X(33).
 2170 GC1213    05 VALUE 'FSUBSTITUTE-CASE               ' PIC X(33).
 2171           05 VALUE 'VSUBTRACT                      ' PIC X(33).
 2172 GC1213    05 VALUE 'FSUM                           ' PIC X(33).
 2173           05 VALUE ' SUPER                         ' PIC X(33).    UNIMPLEMENTED
 2174           05 VALUE 'VSUPPRESS                      ' PIC X(33).
 2175           05 VALUE 'MSW0                           ' PIC X(33).
 2176           05 VALUE 'MSW1                           ' PIC X(33).
 2177           05 VALUE 'MSW10                          ' PIC X(33).
 2178           05 VALUE 'MSW11                          ' PIC X(33).
 2179           05 VALUE 'MSW12                          ' PIC X(33).
 2180           05 VALUE 'MSW13                          ' PIC X(33).
 2181           05 VALUE 'MSW14                          ' PIC X(33).
 2182           05 VALUE 'MSW15                          ' PIC X(33).
 2183           05 VALUE 'MSW2                           ' PIC X(33).
 2184           05 VALUE 'MSW3                           ' PIC X(33).
 2185           05 VALUE 'MSW4                           ' PIC X(33).
 2186           05 VALUE 'MSW5                           ' PIC X(33).
 2187           05 VALUE 'MSW6                           ' PIC X(33).
 2188           05 VALUE 'MSW7                           ' PIC X(33).
 2189           05 VALUE 'MSW8                           ' PIC X(33).
 2190           05 VALUE 'MSW9                           ' PIC X(33).
 2191           05 VALUE 'MSWITCH-0                      ' PIC X(33).
 2192           05 VALUE 'MSWITCH-1                      ' PIC X(33).
 2193           05 VALUE 'MSWITCH-10                     ' PIC X(33).
 2194           05 VALUE 'MSWITCH-11                     ' PIC X(33).
 2195           05 VALUE 'MSWITCH-12                     ' PIC X(33).
 2196           05 VALUE 'MSWITCH-13                     ' PIC X(33).
 2197           05 VALUE 'MSWITCH-14                     ' PIC X(33).
 2198           05 VALUE 'MSWITCH-15                     ' PIC X(33).
 2199           05 VALUE 'MSWITCH-2                      ' PIC X(33).
 2200           05 VALUE 'MSWITCH-3                      ' PIC X(33).
 2201           05 VALUE 'MSWITCH-4                      ' PIC X(33).
 2202           05 VALUE 'MSWITCH-5                      ' PIC X(33).
 2203           05 VALUE 'MSWITCH-6                      ' PIC X(33).
 2204           05 VALUE 'MSWITCH-7                      ' PIC X(33).
 2205           05 VALUE 'MSWITCH-8                      ' PIC X(33).
 2206           05 VALUE 'MSWITCH-9                      ' PIC X(33).
 2207           05 VALUE ' SYMBOL                        ' PIC X(33).    UNIMPLEMENTED
 2208           05 VALUE ' SYMBOLIC                      ' PIC X(33).
 2209           05 VALUE ' SYNC                          ' PIC X(33).
 2210           05 VALUE ' SYNCHRONISED                  ' PIC X(33).
 2211           05 VALUE ' SYNCHRONIZED                  ' PIC X(33).
 2212           05 VALUE 'MSYSERR                        ' PIC X(33).
 2213           05 VALUE 'MSYSIN                         ' PIC X(33).
 2214           05 VALUE 'MSYSIPT                        ' PIC X(33).
 2215           05 VALUE 'MSYSLIST                       ' PIC X(33).
```

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

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

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

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

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

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

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GNUCOBOL 3.0 24DEC2017  Source Listing                                   2017/12/24
                                           /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 56
======  ================================================================================

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

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GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                            Page: 57
====== ================================================================================
  2474 GC1010            '.i'
  2475 GC1010               DELIMITED SIZE
  2476 GC1010               INTO WS-Expanded-Src-Fn-TXT
  2477 GC1010      CALL 'CBL_CHECK_FILE_EXIST' USING WS-Expanded-Src-Fn-TXT
  2478 GC1010                                         WS-Temp-256-Chars-TXT
  2479 GC1010      IF RETURN-CODE NOT = 0
  2480 GC1010         GOBACK
  2481 GC1010      END-IF
  2482             IF WS-Lines-Per-Page-Env-TXT NOT = SPACES
  2483                MOVE NUMVAL(WS-Lines-Per-Page-Env-TXT)
  2484                  TO WS-Lines-Per-Page-NUM
  2485             ELSE
  2486 GC1213         IF L-LISTING-CD = 1 *> LANDSCAPE
  2487 GC1213            MOVE L-LPP-NUM TO WS-Lines-Per-Page-NUM
  2488 GC1213         ELSE                *> PORTRAIT
  2489 GC1213            MOVE L-LPP-Port-NUM TO WS-Lines-Per-Page-NUM
  2490 GC1213         END-IF
  2491             END-IF
  2492 GC1213      SUBTRACT 3 FROM WS-Lines-Per-Page-NUM *> FOR PAGE FOOTER
  2493             ACCEPT WS-Today-DT FROM DATE YYYYMMDD
  2494 GC1213      MOVE WS-Today-DT TO WS-Formatted-DT
  2495             MOVE '????????????...' TO WS-Curr-Prog-ID-TXT
  2496             MOVE SPACES            TO WS-Curr-Verb-TXT
  2497                                       WS-Held-Reference-TXT
  2498             .
```

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

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

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

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                              Page: 60
======  ===========================================================================================
 2603             END-IF
 2604             IF WS-Curr-Char-Is-Punct-BOOL
 2605                 ADD 1 TO WS-Src-SUB
 2606                 MOVE WS-Curr-CHR TO WS-Token-Curr-TXT
 2607                 MOVE SPACE TO WS-Token-Type-CD
 2608                 EXIT SECTION
 2609             END-IF
 2610             IF WS-Curr-Char-Is-Quote-BOOL
 2611                 ADD 1 TO WS-Src-SUB
 2612                 UNSTRING F-Expanded-Src-REC
 2613                     DELIMITED BY WS-Curr-CHR
 2614                     INTO WS-Token-Curr-TXT
 2615                     WITH POINTER WS-Src-SUB
 2616                 IF F-Expanded-Src-REC(WS-Src-SUB : 1) = '.'
 2617                     MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2618                     ADD 1 TO WS-Src-SUB
 2619                 END-IF
 2620                 SET WS-TT-Token-Is-Lit-Alpha-BOOL TO TRUE
 2621                 EXIT SECTION
 2622             END-IF
 2623             IF WS-Curr-Char-Is-X-BOOL AND WS-Next-Char-Is-Quote-BOOL
 2624                 ADD 2 TO WS-Src-SUB
 2625                 UNSTRING F-Expanded-Src-REC
 2626                     DELIMITED BY WS-Next-CHR
 2627                     INTO WS-Token-Curr-TXT
 2628                     WITH POINTER WS-Src-SUB
 2629                 IF F-Expanded-Src-REC(WS-Src-SUB : 1) = '.'
 2630                     MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2631                     ADD 1 TO WS-Src-SUB
 2632                 END-IF
 2633                 SET WS-TT-Token-Is-Lit-Number-BOOL TO TRUE
 2634                 EXIT SECTION
 2635             END-IF
 2636             IF WS-Curr-Char-Is-Z-BOOL AND WS-Next-Char-Is-Quote-BOOL
 2637                 ADD 2 TO WS-Src-SUB
 2638                 UNSTRING F-Expanded-Src-REC
 2639                     DELIMITED BY WS-Next-CHR
 2640                     INTO WS-Token-Curr-TXT
 2641                     WITH POINTER WS-Src-SUB
 2642                 IF F-Expanded-Src-REC(WS-Src-SUB : 1) = '.'
 2643                     MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2644                     ADD 1 TO WS-Src-SUB
 2645                 END-IF
 2646                 SET WS-TT-Token-Is-Lit-Alpha-BOOL TO TRUE
 2647                 EXIT SECTION
 2648             END-IF
 2649             IF WS-RS-Processing-PICTURE-CHR = 'Y'
 2650                 UNSTRING F-Expanded-Src-REC
 2651                     DELIMITED BY '. ' OR ' '
 2652                     INTO WS-Token-Curr-TXT
 2653                     DELIMITER IN WS-Delim-TXT
 2654                     WITH POINTER WS-Src-SUB
 2655                 IF WS-Delim-TXT = '. '
```

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                2017/12/24
                                      /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                         Page: 61
====== =========================================================================
 2656                     MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2657                     ADD 1 TO WS-Src-SUB
 2658                 END-IF
 2659                 IF UPPER-CASE(WS-Token-Curr-TXT) = 'IS'
 2660                     MOVE SPACE TO WS-Token-Type-CD
 2661                     EXIT SECTION
 2662                 ELSE
 2663                     MOVE 'N' TO WS-RS-Processing-PICTURE-CHR
 2664                     MOVE SPACE TO WS-Token-Type-CD
 2665                     EXIT SECTION
 2666                 END-IF
 2667             END-IF
 2668             UNSTRING F-Expanded-Src-REC
 2669                 DELIMITED BY '. ' OR ' ' OR '=' OR '(' OR ')' OR '*'
 2670                                  OR '/' OR '&' OR ';' OR ',' OR '<'
 2671                                  OR '>' OR ':'
 2672                 INTO WS-Token-Curr-TXT
 2673                 DELIMITER IN WS-Delim-TXT
 2674                 WITH POINTER WS-Src-SUB
 2675             IF WS-Delim-TXT = '. '
 2676                 MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
 2677             END-IF
 2678             IF WS-Delim-TXT NOT = '. ' AND ' '
 2679                 SUBTRACT 1 FROM WS-Src-SUB
 2680             END-IF
 2681       *>-- Classify Token
 2682             MOVE UPPER-CASE(WS-Token-Curr-TXT) TO WS-Token-Search-TXT
 2683             IF WS-Token-Search-TXT = 'EQUAL' OR 'EQUALS'
 2684                 MOVE 'EQUALS' TO WS-Token-Curr-TXT
 2685                 MOVE 'K'      TO WS-Token-Type-CD
 2686                 EXIT SECTION
 2687             END-IF
 2688             SEARCH ALL WS-Reserved-Word-TXT
 2689                 WHEN WS-RW-Word-TXT (WS-RW-IDX) = WS-Token-Search-TXT
 2690                     MOVE WS-RW-Type-CD (WS-RW-IDX) TO WS-Token-Type-CD
 2691 GC0710            IF WS-TT-Token-Is-Verb-BOOL
 2692 GC0710                MOVE 'Y' TO WS-RS-Verb-Has-Been-Found-CHR
 2693 GC0710            END-IF
 2694                     EXIT SECTION
 2695             END-SEARCH
 2696       *>-- Not a reserved word, must be a user name
 2697             SET WS-TT-Token-Is-Identifier-BOOL TO TRUE
 2698             PERFORM 313-Check-For-Numeric-Token
 2699             IF WS-TT-Token-Is-Lit-Number-BOOL
 2700                 IF  (WS-RS-Last-Token-Ended-Sent-CHR = 'Y')
 2701                 AND (WS-Curr-Division-TXT = 'D')
 2702                     MOVE 'LEVEL #' TO WS-Token-Curr-TXT
 2703                     MOVE 'K'      TO WS-Token-Type-CD
 2704                     EXIT SECTION
 2705                 ELSE
 2706                     EXIT SECTION
 2707                 END-IF
 2708             END-IF
```

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

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line   Statement                                                             Page: 64
====== =============================================================================

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                                    2017/12/24
                                        /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                           Page: 65
======  =========================================================================

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

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

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

```
GNUCOBOL 3.0 24DEC2017  Source Listing                            2017/12/24
                                   /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                     Page: 67
====== ========================================================================

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

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

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                                          /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
Line    Statement                                                          Page: 68
======  =====================================================================================

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

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

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

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

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

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

===
GCic for UNIX/Linux Copyright (C) 2009-2018, Gary L. Cutler, GPL   Page: 71

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

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

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

====== ===
 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

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

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```

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

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

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

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

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

```
  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         .
```

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

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

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

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

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

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

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

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

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

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

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

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

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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: 91
==============  ================================  ======  ==============  ========================
GCic            COB-SCR-F30                      181 [screenio      ]
GCic            COB-SCR-F31                      181 [screenio      ]
GCic            COB-SCR-F32                      181 [screenio      ]
GCic            COB-SCR-F33                      181 [screenio      ]
GCic            COB-SCR-F34                      181 [screenio      ]
GCic            COB-SCR-F35                      181 [screenio      ]
GCic            COB-SCR-F36                      181 [screenio      ]
GCic            COB-SCR-F37                      181 [screenio      ]
GCic            COB-SCR-F38                      181 [screenio      ]
GCic            COB-SCR-F39                      181 [screenio      ]
GCic            COB-SCR-F4                       181 [screenio      ]        851
GCic            COB-SCR-F40                      181 [screenio      ]
GCic            COB-SCR-F41                      181 [screenio      ]
GCic            COB-SCR-F42                      181 [screenio      ]
GCic            COB-SCR-F43                      181 [screenio      ]
GCic            COB-SCR-F44                      181 [screenio      ]
GCic            COB-SCR-F45                      181 [screenio      ]
GCic            COB-SCR-F46                      181 [screenio      ]
GCic            COB-SCR-F47                      181 [screenio      ]
GCic            COB-SCR-F48                      181 [screenio      ]
GCic            COB-SCR-F49                      181 [screenio      ]
GCic            COB-SCR-F5                       181 [screenio      ]        857
GCic            COB-SCR-F50                      181 [screenio      ]
GCic            COB-SCR-F51                      181 [screenio      ]
GCic            COB-SCR-F52                      181 [screenio      ]
GCic            COB-SCR-F53                      181 [screenio      ]
GCic            COB-SCR-F54                      181 [screenio      ]
GCic            COB-SCR-F55                      181 [screenio      ]
GCic            COB-SCR-F56                      181 [screenio      ]
GCic            COB-SCR-F57                      181 [screenio      ]
GCic            COB-SCR-F58                      181 [screenio      ]
GCic            COB-SCR-F59                      181 [screenio      ]
GCic            COB-SCR-F6                       181 [screenio      ]        862
GCic            COB-SCR-F60                      181 [screenio      ]
GCic            COB-SCR-F61                      181 [screenio      ]
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GCic             WS-CS-LISTING-CHR               224 WORKING-STORAGE     600     685      822*
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GCic             WS-CS-NOFUNC-CHR                225 WORKING-STORAGE     602     863      864*
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                                                                        3349     3398     3410
                                                                        3551     3565     3606
                                                                        3647
LISTING          L-Listing-Fn-TXT                2392 LINKAGE           1418     2404
LISTING          L-LPP-NUM                       2398 LINKAGE           2407     2487
```

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

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

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

```
GNUCOBOL 3.0 24DEC2017  Cross-Reference Listing                          2017/12/24
                                              /home/vince/cobolsrc/Cobol-Tools/ocic/GCic.cbl
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==============  ==============================  ======  ==============  ========================
                                                                3309    3310*
LISTING         WS-RS-In-Copybook-BOOL         2311 WORKING-STORAGE  2730*   3479*
LISTING         WS-RS-In-Main-Module-BOOL      2310 WORKING-STORAGE  2725*   2763    3474*
                                                                3484
LISTING         WS-RS-In-Which-Pgm-CHR         2309 WORKING-STORAGE
LISTING         WS-RS-Last-Token-Ended-Sent-CHR 2312 WORKING-STORAGE  2554*   2700
LISTING         WS-RS-Processing-PICTURE-CHR   2313 WORKING-STORAGE  2649    2663*   2872*
LISTING         WS-RS-Token-Ended-Sentence-CHR 2314 WORKING-STORAGE  2541    2553    2555*
                                                                2588*   2617*   2630*
                                                                2643*   2656*   2676*
LISTING         WS-RS-Verb-Has-Been-Found-CHR  2315 WORKING-STORAGE  2507*   2692*   2814*
LISTING         WS-Runtime-Switches            2307 WORKING-STORAGE
LISTING         WS-RW-IDX                      2303 WORKING-STORAGE  2689    2690
LISTING         WS-RW-Type-CD                  2304 WORKING-STORAGE  2690
LISTING         WS-RW-Word-TXT                 2305 WORKING-STORAGE  2302    2689
LISTING         WS-Saved-Section-TXT           2317 WORKING-STORAGE  2726    2727    2731
                                                                2732*
LISTING         WS-SDL-Line-NUM                2324 WORKING-STORAGE  3489*
LISTING         WS-SDL-Statement-TXT           2326 WORKING-STORAGE  3490*   3522*   3552
                                                                3556    3558    3654
                                                                3658*   3670    3674*
                                                                3679    3683*   3687*
LISTING         WS-Src-Dashes-TXT              2319 WORKING-STORAGE  3622    3641
LISTING         WS-Src-Detail-Line-TXT         2323 WORKING-STORAGE  3449*   3488*   3496*
                                                                3500*   3505*   3509*
                                                                3513*   3520*   3532*
                                                                3536*   3540*   3650
                                                                3655    3657*   3659
                                                                3666    3671    3673*
                                                                3675    3680    3682*
                                                                3684    3686*   3688
                                                                3693*
LISTING         WS-Src-Hold-TXT                2328 WORKING-STORAGE  3654*   3658    3670*
                                                                3674    3679*   3683
                                                                3687
LISTING         WS-Src-Line-NUM                2330 WORKING-STORAGE  3446*   3475    3487*
                                                                3489
LISTING         WS-Src-Lines-NUM               2332 WORKING-STORAGE  3550*   3553*   3557*
                                                                3559*   3563    3566
                                                                3580    3648    3664
LISTING         WS-Src-SUB                     2334 WORKING-STORAGE  2503*   2556    2557
                                                                2576*   2580    2582
                                                                2585*   2594*   2605*
                                                                2611*   2615*   2616
                                                                2618*   2624*   2628*
                                                                2629    2631*   2637*
                                                                2641*   2642    2644*
                                                                2654*   2657*   2674*
                                                                2679    2754*   2759*
                                                                2761*
LISTING         WS-Suppress-FF-CHR             1501 WORKING-STORAGE  2429*   3277*   3419
                                                                3434
LISTING         WS-Tally-QTY                   2336 WORKING-STORAGE  2793*   2795*   2796
```

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

==

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

6. STREAMIO

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

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

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

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

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

First, here is the STREAMIOcb.cpy copybook:

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

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

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         *>                                                             **
```

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

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

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

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

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```

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

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

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

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```

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

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```

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.          **
```
==

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


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```

```
GNU COBOL 2.1 23NOV2013 Source Listing                                    2014/03/27
                              C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line   Statement                                                              Page: 9
====== ================================================================================
       88 L-SCB-Func-WRITE-Delim-BOOL VALUE 'WD' 'wd'
       'wD' 'Wd'.
       05 L-SCB-Delimiter-Mode-CD PIC X(1).
       88 L-SCB-DELIM-Unix-BOOL VALUE 'U' 'u'.
       88 L-SCB-DELIM-Windows-BOOL VALUE 'W' 'w'.
       05 L-SCB-Offset-NUM PIC X(8) COMP-X.
       05 L-SCB-Error-Routine-PTR USAGE PROGRAM-POINTER.
       05 L-SCB-Error-Routine-NUM REDEFINES L-SCB-Error-Routine-PTR
       USAGE BINARY-LONG.
       05 L-SCB-Return-CD USAGE BINARY-LONG.
       05 L-SCB-Filename-TXT PIC X(256).
  380      01  L-Arg2-TXT                          PIC X ANY LENGTH.
  381      PROCEDURE DIVISION USING L-StreamIO-Control-Block-TXT,
  382                               L-Arg2-TXT.
  383      000-Main SECTION.
  384          MOVE 00 TO L-SCB-Return-CD
  385          EVALUATE TRUE
  386              WHEN L-SCB-Func-CLOSE-BOOL
  387                  PERFORM 030-Validate-Handle-NonZero
  388                  PERFORM 200-CLOSE
  389              WHEN L-SCB-Func-DELETE-BOOL
  390                  CALL "CBL_DELETE_FILE" USING L-SCB-Filename-TXT
  391              WHEN L-SCB-Func-OPEN-BOOL
  392                  PERFORM 020-Validate-Handle-Zero
  393                  PERFORM 100-OPEN
  394              WHEN L-SCB-Func-READ-BOOL
  395                  PERFORM 030-Validate-Handle-NonZero
  396                  PERFORM 400-READ
  397              WHEN L-SCB-Func-READ-Delim-BOOL
  398                  PERFORM 030-Validate-Handle-NonZero
  399                  PERFORM 500-READ-Delim
  400              WHEN L-SCB-Func-WRITE-BOOL
  401                  PERFORM 030-Validate-Handle-NonZero
  402                  PERFORM 300-WRITE
  403              WHEN L-SCB-Func-WRITE-Delim-BOOL
  404                  EVALUATE TRUE
  405                      WHEN L-SCB-Delim-Unix-BOOL
  406                          PERFORM 030-Validate-Handle-NonZero
  407                          PERFORM 300-WRITE
  408                          MOVE 1 TO WS-Arg-Length-NUM
  409                          MOVE X"0A" TO WS-Delim-Buffer-TXT
  410                      WHEN L-SCB-Delim-Windows-BOOL
  411                          PERFORM 030-Validate-Handle-NonZero
  412                          PERFORM 300-WRITE
  413                          MOVE 2 TO WS-Arg-Length-NUM
  414                          MOVE X"0D0A" TO WS-Delim-Buffer-TXT
  415                      WHEN OTHER
  416                          MOVE -4 TO L-SCB-Return-CD
  417                          PERFORM 099-ERROR-Return


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

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

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```

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

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


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

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

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

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

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


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GNU COBOL 2.1 23NOV2013 Cross-Reference Listing                      2014/03/27
                              C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
PROGRAM-ID      Identifier/Register/Function  Defn  Where Defined  References      Page: 16
==============  =============================  ====  =============  ========================
                                                                   608C     623*    629*
                                                                   638*
STREAMIO        L-SCB-Return-CD                379  [STREAMIOcb  ]  384*     416*    427*
                                                                   434*     440*    446*
                                                                   450*     453*    457*
                                                                   461*     464*    488*
                                                                   534*     543*    547*
                                                                   550*     556*    559*
                                                                   603*     613*
STREAMIO        L-StreamIO-Control-Block-TXT   377  LINKAGE        381
STREAMIO        RETURN-CODE                         PROCEDURE      445      449     456
                                                                   460      542     546
                                                                   555      564     575
                                                                   587      612     616
STREAMIO        WS-256-Byte-TXT                375  WORKING-STORAGE 510*     512*    522
STREAMIO        WS-8-Digit-NUM                 374  WORKING-STORAGE 496*     503     515*
                                                                   521
STREAMIO        WS-Access-Mode-CD              367  WORKING-STORAGE 528*     530*    532*
                                                                   538C
STREAMIO        WS-Arg-Length-NUM              368  WORKING-STORAGE 408*     413*    421C
                                                                   425      564*    567C
                                                                   571      575*    576
                                                                   579C     583     587*
                                                                   588      591C    596
                                                                   599      600     602
                                                                   604*     609C    635
                                                                   641*     642     646*
                                                                   647      652     655
STREAMIO        WS-Buffer-TXT                  369  WORKING-STORAGE 606*     611C
STREAMIO        WS-Delim-Buffer-TXT            370  WORKING-STORAGE 409*     414*    423C
STREAMIO        WS-Env-Temp-TXT                371  WORKING-STORAGE 467*     469     471
                                                                   474*     500     518
STREAMIO        WS-Slash-CHR                   372  WORKING-STORAGE 470*     472*    475*
                                                                   501      519
STREAMIO        WS-Tally-NUM                   373  WORKING-STORAGE 595*     597*    598
                                                                   619*     621*    622
                                                                   625*     627*    629
                                                                   634*     636*    638
                                                                   639      640     643
                                                                   648      649*    652




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