GnuCOBOL Sample Programs

For Version 3.2 - Final [7 February 2026 at 22:50 GMT.], for 3.3 and 4.0 (partial).

Gary L. Cutler (`cutlergl@gmail.com`).
For updates Vincent B. Coen (`vbcoen@gmail.com`).

This manual documents GnuCOBOL 3.2 - Final, 7 February 2026 at 22:50 GMT. build.

Table of Contents

1 FileStat-Msgs

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

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

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

Here's the current 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 06 MOVE 'LS Multiple records      ' 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 24 MOVE 'KEY BOUNDARY VIOLATION   ' 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 71 MOVE 'BAD CHARACTER            ' TO MSG
     WHEN 91 MOVE 'FILE NOT AVAILABLE       ' TO MSG
     WHEN OTHER MOVE 'UNKNOWN ERROR         ' 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.

```
GNUCOBOL 3.1.2 06MAR202 Source Listing                              2022/03/06
                                                                    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)       **
    50          *>        optional                                            **
    51          *> GC0211 Ported to IBM Enterprise COBOL                      **
    52          *> GC0612 Updated for OpenCOBOL 2.0                           **
    53          *> VC0322 Moved lines only with . to end of previous statement **
```

====== ==
```
    54        *>       Fix for bug #816 by making WS-Buffer-Byte-NUM        **
    55        *>       UNSIGNED                                             **
    56        *>**************************************************************
    57         ENVIRONMENT DIVISION.
    58         CONFIGURATION SECTION.
    59         REPOSITORY.
    60             FUNCTION ALL INTRINSIC.
    61         DATA DIVISION.
    62         WORKING-STORAGE SECTION.
    63         01  WS-Addr-PTR                        USAGE POINTER.
    64         01  WS-Addr-NUM REDEFINES WS-Addr-PTR
    65                                                USAGE BINARY-LONG.
    66
    67         01  WS-Addr-SUB                        USAGE BINARY-CHAR.
    68
    69         01  WS-Addr-Value-NUM                  USAGE BINARY-LONG.
    70
    71         01  WS-Buffer-Byte-CHR.
    72             05 WS-Buffer-Byte-NUM              USAGE BINARY-CHAR
    73                                                     UNSIGNED.
    74
    75         01  WS-Buffer-Length-NUM              USAGE BINARY-LONG.
    76
    77         01  WS-Buffer-SUB                     PIC 9(4) COMP-5.
    78
    79         01  WS-Hex-Digit-TXT VALUE '0123456789ABCDEF'.
    80             05 WS-Hex-Digit-CHR               OCCURS 16 TIMES
    81                                               PIC X(1).
    82
    83         01  WS-Nibble-SUB                     PIC 9(1) COMP-5.
    84
    85         01  WS-Nibble-Left-SUB               PIC 9(1) COMP-5.
    86
    87         01  WS-Nibble-Right-SUB              PIC 9(1) COMP-5.
    88
    89         01  WS-Output-Detail-TXT.
    90             05 WS-OD-Addr-TXT.
    91                10 WS-OD-Addr-Hex-CHR          OCCURS 8 TIMES PIC X.
    92             05 FILLER                         PIC X(1).
    93             05 WS-OD-Relative-Byte-NUM        PIC Z(3)9.
    94             05 FILLER                         PIC X(1).
    95             05 WS-OD-Hex-TXT                  OCCURS 16 TIMES.
    96                10 WS-OD-Hex-1-CHR             PIC X.
    97                10 WS-OD-Hex-2-CHR             PIC X.
    98                10 FILLER                      PIC X.
    99             05 WS-OD-ASCII-Data-TXT.
   100                10 WS-OD-ASCII-CHR             OCCURS 16 TIMES
   101                                               PIC X.
   102         01  WS-Output-SUB                     PIC 9(2) COMP-5.
   103
   104         >>SOURCE FORMAT IS FREE
   105         01  WS-Output-Header-1-TXT.
   106             05 VALUE '<-Addr-> Byte <--------------- Hexadecimal ''----------------> <---
```

```
GNUCOBOL 3.1.2 06MAR202 Source Listing                              2022/03/06
                                                                   COBDUMP.cbl
Line    Statement                                                     Page: 3
====== =========================================================================
  107 - Char ---->' PIC X(80).
  108
  109       01  WS-Output-Header-2-TXT.
  110           05 VALUE '======== ==== ============================================= ======
  111 =========' PIC X(80).
  112       >>SOURCE FORMAT IS FIXED
  113
  114       LINKAGE SECTION.
  115       01  L-Buffer-TXT                        PIC X ANY LENGTH.
  116
  117       01  L-Buffer-Length-NUM                 USAGE BINARY-LONG.
  118
  119       PROCEDURE DIVISION USING L-Buffer-TXT,
  120                             OPTIONAL L-Buffer-Length-NUM.
  121       000-Main SECTION.
  122           IF NUMBER-OF-CALL-PARAMETERS = 1
  123               MOVE LENGTH(L-Buffer-TXT) TO WS-Buffer-Length-NUM
  124           ELSE
  125               MOVE L-Buffer-Length-NUM  TO WS-Buffer-Length-NUM
  126           END-IF
  127           MOVE SPACES TO WS-Output-Detail-TXT
  128           SET WS-Addr-PTR TO ADDRESS OF L-Buffer-TXT
  129           PERFORM 100-Generate-Address
  130           MOVE 0 TO WS-Output-SUB
  131           DISPLAY WS-Output-Header-1-TXT UPON SYSERR
  132           DISPLAY WS-Output-Header-2-TXT UPON SYSERR
  133           PERFORM VARYING WS-Buffer-SUB FROM 1 BY 1
  134                   UNTIL WS-Buffer-SUB > WS-Buffer-Length-NUM
  135               ADD 1 TO WS-Output-SUB
  136               IF WS-Output-SUB = 1
  137                  MOVE WS-Buffer-SUB TO WS-OD-Relative-Byte-NUM
  138               END-IF
  139               MOVE L-Buffer-TXT (WS-Buffer-SUB : 1)
  140                 TO WS-OD-ASCII-CHR (WS-Output-SUB)
  141                    WS-Buffer-Byte-CHR
  142               DIVIDE WS-Buffer-Byte-NUM BY 16
  143                  GIVING WS-Nibble-Left-SUB
  144                  REMAINDER WS-Nibble-Right-SUB
  145               ADD 1 TO WS-Nibble-Left-SUB
  146                       WS-Nibble-Right-SUB
  147               MOVE WS-Hex-Digit-CHR (WS-Nibble-Left-SUB)
  148                 TO WS-OD-Hex-1-CHR  (WS-Output-SUB)
  149               MOVE WS-Hex-Digit-CHR (WS-Nibble-Right-SUB)
  150                 TO WS-OD-Hex-2-CHR  (WS-Output-SUB)
  151               IF WS-Output-SUB = 16
  152                   CALL "C$PRINTABLE" USING WS-OD-ASCII-Data-TXT
  153                   DISPLAY WS-Output-Detail-TXT UPON SYSERR
  154                   MOVE SPACES TO WS-Output-Detail-TXT
  155                   MOVE 0 TO WS-Output-SUB
  156                   SET WS-Addr-PTR UP BY 16
  157                   PERFORM 100-Generate-Address
  158               END-IF
  159           END-PERFORM
```

====== ===
```
   160          IF WS-Output-SUB > 0
   161              CALL "C$PRINTABLE" USING WS-OD-ASCII-Data-TXT
   162              DISPLAY WS-Output-Detail-TXT UPON SYSERR
   163          END-IF
   164          EXIT PROGRAM.
   165
   166      100-Generate-Address SECTION.
   167          MOVE 8 TO WS-Addr-SUB
   168          MOVE WS-Addr-NUM TO WS-Addr-Value-NUM
   169          MOVE ALL ’0’ TO WS-OD-Addr-TXT
   170          PERFORM WITH TEST BEFORE UNTIL WS-Addr-Value-NUM = 0
   171              DIVIDE WS-Addr-Value-NUM BY 16
   172                  GIVING WS-Addr-Value-NUM
   173                  REMAINDER WS-Nibble-SUB
   174              ADD 1 TO WS-Nibble-SUB
   175              MOVE WS-Hex-Digit-CHR (WS-Nibble-SUB)
   176                TO WS-OD-Addr-Hex-CHR (WS-Addr-SUB)
   177              SUBTRACT 1 FROM WS-Addr-SUB
   178          END-PERFORM
   179              .
```

```
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
```
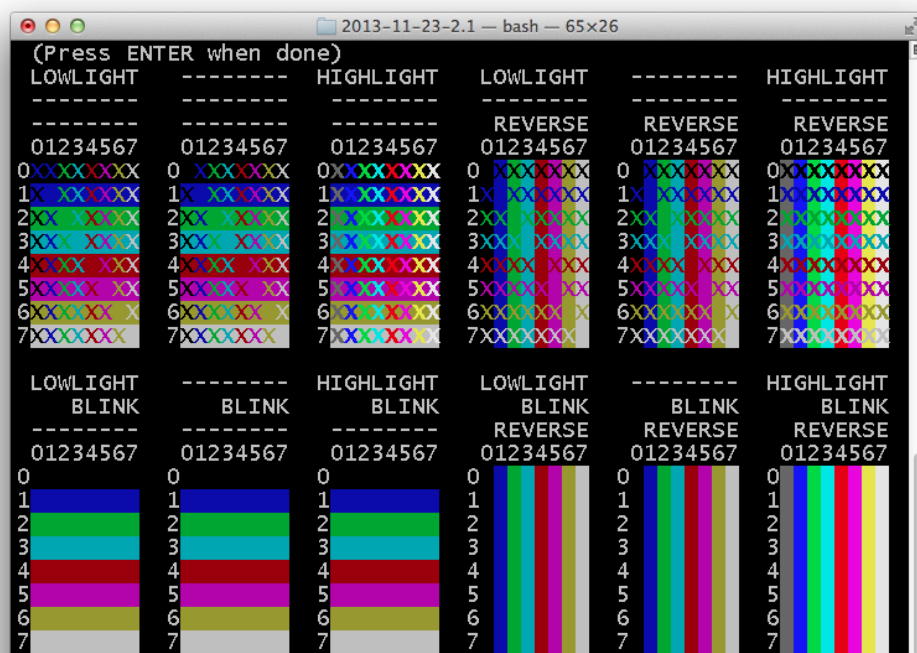
3　Colors

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'.
```

```
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’.
```

```
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'.
```

```
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'.
```

```
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'.
```

```
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'.
```

```
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'.
```

```
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.
```

```
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'.
```

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

  595   05 LINE + 1.
  596   10 COL 12  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 BLINK VALUE ’X’.
  597   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 BLINK VALUE ’X’.
  598   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 BLINK VALUE ’X’.
  599   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 BLINK VALUE ’X’.
  600   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 BLINK VALUE ’X’.
  601   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 BLINK VALUE ’X’.
  602   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 BLINK VALUE ’X’.
  603   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 BLINK VALUE ’X’.
  604   05 LINE + 1.
  605   10 COL 12  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 BLINK VALUE ’X’.
  606   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 BLINK VALUE ’X’.
  607   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 BLINK VALUE ’X’.
  608   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 BLINK VALUE ’X’.
  609   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 BLINK VALUE ’X’.
  610   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 BLINK VALUE ’X’.
  611   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 BLINK VALUE ’X’.
  612   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 BLINK VALUE ’X’.
  613   05 LINE + 1.
  614   10 COL 12  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 BLINK VALUE ’X’.
  615   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 BLINK VALUE ’X’.
  616   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 BLINK VALUE ’X’.
  617   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 BLINK VALUE ’X’.
  618   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 BLINK VALUE ’X’.
  619   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 BLINK VALUE ’X’.
  620   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 BLINK VALUE ’X’.
  621   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 BLINK VALUE ’X’.
  622   05 LINE + 1.
  623   10 COL 12  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 BLINK VALUE ’X’.
  624   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 BLINK VALUE ’X’.
  625   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 BLINK VALUE ’X’.
  626   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 BLINK VALUE ’X’.
  627   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 BLINK VALUE ’X’.
  628   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 BLINK VALUE ’X’.
  629   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 BLINK VALUE ’X’.
  630   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 BLINK VALUE ’X’.
  631   05 LINE + 1.
  632   10 COL 12  BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 BLINK VALUE ’X’.
  633   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 BLINK VALUE ’X’.
  634   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 BLINK VALUE ’X’.
  635   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 BLINK VALUE ’X’.
  636   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 BLINK VALUE ’X’.
  637   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 BLINK VALUE ’X’.
  638   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 BLINK VALUE ’X’.
  639   10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 BLINK VALUE ’X’.
  640   *> #9
  641   05 LINE 17.
  642   10 COL 22  BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE ’X’.
  643   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE ’X’.
  644   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE ’X’.
  645   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE ’X’.
  646   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE ’X’.
  647   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE ’X’.
  648   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE ’X’.
```

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

 649   10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE ’X’.
 650   05 LINE + 1.
 651   10 COL 22  BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE ’X’.
 652   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE ’X’.
 653   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE ’X’.
 654   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE ’X’.
 655   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE ’X’.
 656   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE ’X’.
 657   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE ’X’.
 658   10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE ’X’.
 659   05 LINE + 1.
 660   10 COL 22  BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE ’X’.
 661   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE ’X’.
 662   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE ’X’.
 663   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE ’X’.
 664   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE ’X’.
 665   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE ’X’.
 666   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE ’X’.
 667   10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE ’X’.
 668   05 LINE + 1.
 669   10 COL 22  BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE ’X’.
 670   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE ’X’.
 671   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE ’X’.
 672   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE ’X’.
 673   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE ’X’.
 674   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE ’X’.
 675   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE ’X’.
 676   10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE ’X’.
 677   05 LINE + 1.
 678   10 COL 22  BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE ’X’.
 679   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE ’X’.
 680   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE ’X’.
 681   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE ’X’.
 682   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE ’X’.
 683   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE ’X’.
 684   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE ’X’.
 685   10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE ’X’.
 686   05 LINE + 1.
 687   10 COL 22  BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE ’X’.
 688   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE ’X’.
 689   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE ’X’.
 690   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE ’X’.
 691   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE ’X’.
 692   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE ’X’.
 693   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE ’X’.
 694   10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 HIGHLIGHT BLINK VALUE ’X’.
 695   05 LINE + 1.
 696   10 COL 22  BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 HIGHLIGHT BLINK VALUE ’X’.
 697   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 HIGHLIGHT BLINK VALUE ’X’.
 698   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 HIGHLIGHT BLINK VALUE ’X’.
 699   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 HIGHLIGHT BLINK VALUE ’X’.
 700   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 HIGHLIGHT BLINK VALUE ’X’.
 701   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 HIGHLIGHT BLINK VALUE ’X’.
 702   10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 HIGHLIGHT BLINK VALUE ’X’.
```

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

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

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

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

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

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

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

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

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

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

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

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

S-COLORTST-SCR                 000007S  000934
```

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

None
```

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

None
```

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

None
```

4 DAY-FROM-DATE

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

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

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

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

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

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

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


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

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

```
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, generated by cobxref, begins on the next page.

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC     06/03/2022  23:09:10:96  Page    1

     1          >>SOURCE FORMAT IS FIXED
     2          *> CONFIGURATION SETTINGS: adjust const-set-1.cpy before
     3          *> compiling GCic to adjust the way it works.
     4          *copy "const-set-1.cpy".
     5          *> CONFIGURATION SETTINGS: Set these switches before compiling:
     6          *>
     7          *> Set these 2 for the compiler version.
     8          *>
     9           >>DEFINE CONSTANT COMP-VERS  AS 'GNUCOBOL 3.1.2 06MAR2022'
    10           >>DEFINE CONSTANT COMP-YEAR  AS '2022'
    11          *>
    12          *> LINEDRAW Set to:
    13          *>     0   To use spaces (no lines)
    14          *>     1   To use the line-drawing characterset (PC codepage 437)
    15          *>     2   To use conventional ASCII characters (+, -, |)
    16          *>
    17          *>         OSX USERS - To use the linedrawing characterset,
    18          *>                     set your 'terminal' font to 'Lucida Console'
    19          *>
    20          *> OS      Set to one of the following:
    21          *>           'CYGWIN'  For a Windows/Cygwin version
    22          *>           'MINGW'   For a Windows/MinGW version
    23          *>           'OSX'     For a Macintosh OSX version
    24          *>           'UNIX'    For a Unix/Linux version
    25          *>           'WINDOWS'  For a Native Windows version
    26          *>
    27          *> SELCHAR  Set to the desired single character to be used as the red
    28          *>          'feature selected' character on the screen.
    29          *>          SUGGESTIONS: '>', '*', '=', '+'
    30          *>
    31          *> LPP      Set to maximum printable lines per page when the listing
    32          *>          should be generated for LANDSCAPE orientation (can be over-
    33          *>          ridden at execution time using the GCXREF_LINES environment
    34          *>          variable.
    35          *>
    36          *> LPPP     Set to maximum printable lines per page when the listing
    37          *>          should be generated for PORTRAIT orientation (can be over-
    38          *>          ridden at execution time using the GCXREF_LINES_PORT
    39          *>          environment variable.
    40          *>
    41  GC0712 >>DEFINE CONSTANT LINEDRAW   AS 2
    42  GC0712 >>DEFINE CONSTANT OS         AS 'UNIX'
    43  GC0712 >>DEFINE CONSTANT SELCHAR    AS '>'
    44  GC1213 >>DEFINE CONSTANT LPP        AS 50   *> LANDSCAPE (GCXREF_LINES)
    45  GC1213 >>DEFINE CONSTANT LPPP       AS 60   *> PORTRAIT  (GCXREF_LINES_PORT)
    46          *> -----------------------------------------------------------
    47          *> Now set these switches to establish initial (default) settings
    48          *> for the various on-screen options.  Set them to a value of
    49          *> 0 if they are to be 'OFF' and 1 if they are to be 'ON'
    50  GC1213*> (for F5, 1=ON (Landscape), 2=ON (Portrait))
    51          *>
    52  GC0712 >>DEFINE CONSTANT F1  AS 0 *> Assume WITH DEBUGGING MODE
    53  GC0712 >>DEFINE CONSTANT F2  AS 0 *> Procedure+Statement Trace
    54  GC0712 >>DEFINE CONSTANT F3  AS 0 *> Make A Library (DLL)
```

```
ACS Cobol Xref v2.02.04         Dictionary File for GCIC     06/03/2022  23:09:10:96  Page    2

    55  GC0712 >>DEFINE CONSTANT F4  AS 0 *> Execute If Compilation OK
    56  GC1213 >>DEFINE CONSTANT F5  AS 0 *> Listings
    57  GC0712 >>DEFINE CONSTANT F6  AS 1 *> "FUNCTION" Is Optional
    58  GC0712 >>DEFINE CONSTANT F7  AS 1 *> Enable All Warnings
    59  GC0712 >>DEFINE CONSTANT F8  AS 1 *> Source Is Free-Format
    60  GC0712 >>DEFINE CONSTANT F9  AS 1 *> No COMP/BINARY Truncation
    61  GC0712 >>DEFINE CONSTANT F12 AS 4 *> Default config file (1-7):
    62         *>                           1 = BS2000
    63         *>                           2 = COBOL85
    64         *>                           3 = COBOL2002
    65         *>                           4 = DEFAULT
    66         *>                           5 = IBM
    67         *>                           6 = MF (i.e. Microfocus)
    68         *>                           7 = MVS
    69         /
    70          IDENTIFICATION DIVISION.
    71          PROGRAM-ID. GCic.
    72         *>****************************************************************
    73         *>    >NOTE<   >NOTE<   >NOTE<   >NOTE<   >NOTE<   >NOTE<    **
    74         *>                                                           **
    75         *> If this program is compiled with '-fdebugging-line', you  **
    76         *> will need to pipe SYSERR to a text file when executing GCic **
    77         *> (by adding the text '2> filename' to the end of the GCic  **
    78         *> command).  You may also need to press the ENTER key when  **
    79         *> GCic is finished.                                         **
    80         *>****************************************************************
    81         *> This program provides a Textual User Interface (TUI) to the **
    82         *> process of compiling and (optionally) executing a GNU COBOL **
    83         *> program.                                                  **
    84         *>                                                           **
    85         *> This programs execution syntax is as follows:            **
    86         *>                                                           **
    87         *> GCic <program-path-and-filename> [ <switch>... ]          **
    88         *>                                                           **
    89         *> Once executed, a display screen will be presented showing  **
    90         *> the compilation options that will be used.  The user will  **
    91         *> have the opportunity to change options, specify new ones   **
    92         *> and specify any program execution arguments to be used if  **
    93         *> you select the 'Execute' option.  When you press the Enter **
    94         *> key the program will be compiled.                         **
    95         *>                                                           **
    96         *> The SCREEN SECTION contains an image of the screen.       **
    97         *>                                                           **
    98         *> The '010-Parse-Args' section in the PROCEDURE DIVISION has  **
    99         *> documentation on switches and their function.            **
   100         *>****************************************************************
   101         *>                                                           **
   102         *> AUTHOR:      GARY L. CUTLER                               **
   103         *>             Copyright (C) 2009-2018, Gary L. Cutler, GPL   **
   104         *>  Updated by   Vincent B Coen, 2018-2020+.                 **
   105         *>                                                           **
   106         *> DATE-WRITTEN: June 14, 2009                               **
   107         *>                                                           **
   108         *>****************************************************************
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC     06/03/2022  23:09:10:96   Page    3

   109        *>  DATE  CHANGE DESCRIPTION                            **
   110        *> ===== ================================================ **
   111        *> GC0609 Don't display compiler messages file if compilation **
   112        *>  GLC   Is successful.  Also don't display messages if the **
   113        *>        output file is busy (just put a message on the    **
   114        *>        screen, leave the OC screen up & let the user fix  **
   115        *>        the problem & resubmit.                            **
   116        *> GC0709 When 'EXECUTE' is selected, a 'FILE BUSY' error will **
   117        *>  CLC   still cause the (old) executable to be launched.   **
   118        *>        Also, the 'EXTRA SWITCHES' field is being ignored. **
   119        *>        Changed the title bar to lowlighted reverse video & **
   120        *>        the message area to highlighted reverse-video.     **
   121        *> GC0809 Add a SPACE in front of command-line args when     **
   122        *>  GLC   executing users program.  Add a SPACE after the    **
   123        *>        -ftraceall switch when building cobc command.      **
   124        *> GC0909 Convert to work on Cygwin/Linux as well as MinGW   **
   125        *> GC0310 Virtualized the key codes for S-F1 thru S-F7 as they **
   126        *>  GLC   differ depending upon whether PDCurses or NCurses is **
   127        *>        being used.                                        **
   128        *> GC0410 Introduced the cross-reference and source listing  **
   129        *>  GLC   features.  Also fixed a bug in EXTRA switch proces- **
   130        *>        sing where garbage will result if more than the    **
   131        *>        EXTRA switch is specified.                         **
   132        *> GC1010 Corrected several problems reported by Vince Coen:  **
   133        *>  GLC   1) Listing/Xref wouldn't work if '-I' additional   **
   134        *>           cobc switch specified.                          **
   135        *>        2) Programs coded with lowercase reserved words did **
   136        *>           not get parsed properly when generating listing **
   137        *>           and/or xref reports.                            **
   138        *>        3) Reliance on a TEMP environment variable caused   **
   139        *>           non-recoverable errors when generating listing  **
   140        *>           and/or xref reports in a session that lacks a   **
   141        *>           TEMP variable.                                  **
   142        *>        As a result of this change, GCic no longer runs a  **
   143        *>        second 'cobc' when generating listing and/or xref  **
   144        *>        reports.  A '-save-temps' (without '=dir') specified **
   145        *>        in the EXTRA options field will be ignored.  A     **
   146        *>        '-save-temps=dir' specified in the EXTRA options    **
   147        *>        field will negate both the XREF and SOURCE opts,   **
   148        *>        if specified.                                      **
   149        *> GC0711 Tailored for 29APR2011 version of GNU COBOL 2.0    **
   150        *> GC0712 Replaced all switches with configuration settings; **
   151        *>  GLC   Tailored for 11FEB2012 version of GNU COBOL 2.0;   **
   152        *>        Reformatted screen layout to fit a 24x80 screen    **
   153        *>        rather than a 25x81 screen and to accommodate shell **
   154        *>        environments having only F1-F12 (like 'terminal' in **
   155        *>        OSX); Fully tested under OSX (required a few altera- **
   156        *>        tions); Expanded both extra-options and runtime-   **
   157        *>        arguments areas to TWO lines (152 chars total) each; **
   158        *>        Added support for MF/IBM/BS2000 listing-control    **
   159        *>        directives EJECT,SKIP1,SKIP2,SKIP3 (any of these in **
   160        *>        copybooks will be ignored)                         **
   161        *> GC0313 Expand the source code record from 80 chars to 256 **
   162        *>  GLC   to facilitate looking for "LINKAGE SECTION" in a   **
```

```
163        *>        free-format file.                           **
164        *> GC1113 Edited to support the change of "OpenCOBOL" to "GNU  **
165        *>  GLC   COBOL"                                       **
166        *> GC1213 Updated for 23NOV2013 version of GNU COBOL 2.1     **
167        *> GC0114 Introduce a "Press ENTER to Close" action after run- **
168        *>  GLC   ning the compiled program in the compiler window (F4)**
169        *> VC0617 Remove the Blinking in meny screen as uncomfortable  **
170        *>  VBC   Update version printed to 2.2 30JUN2017.       **
171        *>        Move the system constant settings to a copy file  **
172        *>        const-set-1.cpy  in case GCic is updated.      **
173        *>        Added  SET ENVIRONMENT "COB_EXIT_WAIT" TO "0" to   **
174        *>        100-Initialization section.                 **
175        *> VC0717 Replaced compile param instrinsic=all with       **
176        *>  VBC   intrinstics=ALL. Changed mod detail inits for Gary  **
177        *>        from GCL to GLC.                            **
178        *>        Update version printed to 2.2 20JUL2017.      **
179        *>        Should really get this from the compiler if avail?  **
180        *> VC1217 Update compiler version to v3.0 24DEC2017.     **
181        *>        and copyright to 2018 (in 3 places).         **
182        *> VC0811 Updated compiler to 3.1 July2020 and the copyright.  **
183        *> VC0322 Update compiler version to v3.1.2 06MAR2022.    **
184        *>***************************************************************
185        *>
186         ENVIRONMENT DIVISION.
187         CONFIGURATION SECTION.
188         REPOSITORY.
189             FUNCTION ALL INTRINSIC.
190         INPUT-OUTPUT SECTION.
191         FILE-CONTROL.
192 GC1010     SELECT F-Cobc-Output-FILE   ASSIGN TO WS-Listing-Filename-TXT
193                                         ORGANIZATION IS LINE SEQUENTIAL.
194
195            SELECT F-Source-Code-FILE   ASSIGN TO WS-File-Name-TXT
196                                        ORGANIZATION IS LINE SEQUENTIAL
197                                        FILE STATUS IS WS-FSM-Status-CD.
198      /
199         DATA DIVISION.
200         FILE SECTION.
201         FD  F-Cobc-Output-FILE.
202         01  F-Cobc-Output-REC             PIC X(256).
203
204         FD  F-Source-Code-FILE.
205 GC0313 01  F-Source-Code-REC             PIC X(256).
206
207         WORKING-STORAGE SECTION.
208         >>source free
209 *>C       COPY screenio.
210 *> Copyright (C) 2008-2012, 2015-2016  Free Software Foundation, Inc.
211 *> Written by Roger While
212 *>
213 *> This file is part of GnuCOBOL.
214 *>
215 *> The GnuCOBOL compiler is free software: you can redistribute
216 *> it and/or modify it under the terms of the GNU General Public
```

```
217  *>  License as published by the Free Software Foundation, either
218  *>  version 3 of the License, or (at your option) any later
219  *>  version.
220  *>
221  *>  GnuCOBOL is distributed in the hope that it will be useful,
222  *>  but WITHOUT ANY WARRANTY; without even the implied warranty of
223  *>  MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.  See the
224  *>  GNU General Public License for more details.
225  *>
226  *>  You should have received a copy of the GNU General Public
227  *>  License along with GnuCOBOL.
228  *>  If not, see <http://www.gnu.org/licenses/>.
229  *>
230  *>   Colors
231  *>
232  78  cob-color-black     value 0.
233  78  COB-COLOR-BLUE      VALUE 1.
234  78  COB-COLOR-GREEN     VALUE 2.
235  78  COB-COLOR-CYAN      VALUE 3.
236  78  COB-COLOR-RED       VALUE 4.
237  78  COB-COLOR-MAGENTA   VALUE 5.
238  78  COB-COLOR-YELLOW    VALUE 6.
239  78  COB-COLOR-WHITE     VALUE 7.
240  *>
241  *> Values that may be returned in CRT STATUS (or COB-CRT-STATUS)
242  *> Normal return - Value 0000
243  78  COB-SCR-OK         VALUE 0.
244  *>  Function keys - Values 1xxx
245  78  COB-SCR-F1          VALUE 1001.
246  78  COB-SCR-F2          VALUE 1002.
247  78  COB-SCR-F3          VALUE 1003.
248  78  COB-SCR-F4          VALUE 1004.
249  78  COB-SCR-F5          VALUE 1005.
250  78  COB-SCR-F6          VALUE 1006.
251  78  COB-SCR-F7          VALUE 1007.
252  78  COB-SCR-F8          VALUE 1008.
253  78  COB-SCR-F9          VALUE 1009.
254  78  COB-SCR-F10         VALUE 1010.
255  78  COB-SCR-F11         VALUE 1011.
256  78  COB-SCR-F12         VALUE 1012.
257  78  COB-SCR-F13         VALUE 1013.
258  78  COB-SCR-F14         VALUE 1014.
259  78  COB-SCR-F15         VALUE 1015.
260  78  COB-SCR-F16         VALUE 1016.
261  78  COB-SCR-F17         VALUE 1017.
262  78  COB-SCR-F18         VALUE 1018.
263  78  COB-SCR-F19         VALUE 1019.
264  78  COB-SCR-F20         VALUE 1020.
265  78  COB-SCR-F21         VALUE 1021.
266  78  COB-SCR-F22         VALUE 1022.
267  78  COB-SCR-F23         VALUE 1023.
268  78  COB-SCR-F24         VALUE 1024.
269  78  COB-SCR-F25         VALUE 1025.
270  78  COB-SCR-F26         VALUE 1026.
```

```
271   78  COB-SCR-F27        VALUE 1027.
272   78  COB-SCR-F28        VALUE 1028.
273   78  COB-SCR-F29        VALUE 1029.
274   78  COB-SCR-F30        VALUE 1030.
275   78  COB-SCR-F31        VALUE 1031.
276   78  COB-SCR-F32        VALUE 1032.
277   78  COB-SCR-F33        VALUE 1033.
278   78  COB-SCR-F34        VALUE 1034.
279   78  COB-SCR-F35        VALUE 1035.
280   78  COB-SCR-F36        VALUE 1036.
281   78  COB-SCR-F37        VALUE 1037.
282   78  COB-SCR-F38        VALUE 1038.
283   78  COB-SCR-F39        VALUE 1039.
284   78  COB-SCR-F40        VALUE 1040.
285   78  COB-SCR-F41        VALUE 1041.
286   78  COB-SCR-F42        VALUE 1042.
287   78  COB-SCR-F43        VALUE 1043.
288   78  COB-SCR-F44        VALUE 1044.
289   78  COB-SCR-F45        VALUE 1045.
290   78  COB-SCR-F46        VALUE 1046.
291   78  COB-SCR-F47        VALUE 1047.
292   78  COB-SCR-F48        VALUE 1048.
293   78  COB-SCR-F49        VALUE 1049.
294   78  COB-SCR-F50        VALUE 1050.
295   78  COB-SCR-F51        VALUE 1051.
296   78  COB-SCR-F52        VALUE 1052.
297   78  COB-SCR-F53        VALUE 1053.
298   78  COB-SCR-F54        VALUE 1054.
299   78  COB-SCR-F55        VALUE 1055.
300   78  COB-SCR-F56        VALUE 1056.
301   78  COB-SCR-F57        VALUE 1057.
302   78  COB-SCR-F58        VALUE 1058.
303   78  COB-SCR-F59        VALUE 1059.
304   78  COB-SCR-F60        VALUE 1060.
305   78  COB-SCR-F61        VALUE 1061.
306   78  COB-SCR-F62        VALUE 1062.
307   78  COB-SCR-F63        VALUE 1063.
308   78  COB-SCR-F64        VALUE 1064.
309   *>  Exception keys - Values 2xxx
310   78  COB-SCR-PAGE-UP    VALUE 2001.
311   78  Cob-Scr-Page_Up    value 2001.
312   78  COB-SCR-PAGE-DOWN  VALUE 2002.
313   78  Cob-Scr-Page_Down  value 2002.
314   78  COB-SCR-KEY-UP     VALUE 2003.
315   78  COB-SCR-KEY_UP     VALUE 2003.
316   78  COB-SCR-KEY-DOWN   VALUE 2004.
317   78  COB-SCR-KEY_DOWN   VALUE 2004.
318   78  COB-SCR-ESC        VALUE 2005.
319   78  COB-SCR-PRINT      VALUE 2006.
320   78  COB-SCR-TAB        VALUE 2007.
321   78  COB-SCR-BACK-TAB   VALUE 2008.
322   78  COB-SCR-KEY-LEFT   VALUE 2009.
323   78  COB-SCR-KEY-RIGHT  VALUE 2010.
324   *>  The following exception keys are currently *only* returned
```

```
ACS Cobol Xref v2.02.04      Dictionary File for GCIC     06/03/2022  23:09:10:97   Page    7

 325  *>  on ACCEPT OMITTED
 326  78  COB-SCR-INSERT      VALUE 2011.
 327  78  COB-SCR-DELETE      VALUE 2012.
 328  78  COB-SCR-BACKSPACE   VALUE 2013.
 329  78  COB-SCR-KEY-HOME    VALUE 2014.
 330  78  COB-SCR-KEY-END     VALUE 2015.
 331  *>  Input validation - Values 8xxx
 332  78  COB-SCR-NO-FIELD    VALUE 8000.
 333  78  COB-SCR-TIME-OUT    VALUE 8001.
 334  *>  Other errors - Values 9xxx
 335  78  COB-SCR-FATAL       VALUE 9000.
 336  78  COB-SCR-MAX-FIELD   VALUE 9001.
 337         >>source fixed
 338  GC0712 01  WS-Compilation-Switches-TXT.
 339  GC0712     05 WS-CS-Args-TXT VALUE SPACES.
 340  GC0712        10 WS-CS-Arg-H1-TXT              PIC X(76).
 341  GC0712        10 WS-CS-Arg-H2-TXT              PIC X(76).
 342  GC0712     05 WS-CS-Filenames-TXT.
 343  GC0712        10 VALUE 'BS2000'               PIC X(9).
 344  GC0712        10 VALUE 'COBOL85'              PIC X(9).
 345  GC0712        10 VALUE 'COBOL2002'            PIC X(9).
 346  GC0712        10 VALUE 'DEFAULT'              PIC X(9).
 347  GC0712        10 VALUE 'IBM'                  PIC X(9).
 348  GC0712        10 VALUE 'MF'                   PIC X(9).
 349  GC0712        10 VALUE 'MVS'                  PIC X(9).
 350  GC0712     05 WS-CS-Filenames-Table-TXT REDEFINES WS-CS-Filenames-TXT.
 351  GC0712        10 WS-CS-Filename-TXT           OCCURS 7 TIMES
 352  GC0712                                        PIC X(9).
 353  GC0712 >>IF F12 < 1
 354  GC0712     05 WS-CS-Config-NUM    VALUE 4     PIC 9(1).
 355  GC0712 >>ELIF F12 > 7
 356  GC0712     05 WS-CS-Config-NUM    VALUE 4     PIC 9(1).
 357  GC0712 >>ELSE
 358  GC0712     05 WS-CS-Config-NUM    VALUE F12   PIC 9(1).
 359  GC0712 >>END-IF
 360  GC0712     05 WS-CS-Extra-TXT VALUE SPACES.
 361  GC0712        10 WS-CS-Extra-H1-TXT           PIC X(76).
 362  GC0712        10 WS-CS-Extra-H2-TXT           PIC X(76).
 363  GC0712     05 WS-CS-Switch-Defaults-TXT.
 364  GC0712        10 VALUE F1                      PIC 9(1). *> WS-CS-DEBUG-CHR
 365  GC0712        10 VALUE F4                      PIC 9(1). *> WS-CS-EXECUTE-CHR
 366  GC0712        10 VALUE F8                      PIC 9(1). *> WS-CS-FREE-CHR
 367  GC0712        10 VALUE F3                      PIC 9(1). *> WS-CS-LIBRARY-CHR
 368  GC0712        10 VALUE F5                      PIC 9(1). *> WS-CS-LISTING-CHR
 369  GC0712        10 VALUE F6                      PIC 9(1). *> WS-CS-NOFUNC-CHR
 370  GC0712        10 VALUE F9                      PIC 9(1). *> WS-CS-NOTRUNC-CHR
 371  GC0712        10 VALUE F2                      PIC 9(1). *> WS-CS-TRACEALL-CHR
 372  GC0712        10 VALUE F7                      PIC 9(1). *> WS-CS-WARNALL-CHR
 373  GC0712     05 WS-CS-All-Switches-TXT REDEFINES
 374  GC0712                            WS-CS-Switch-Defaults-TXT.
 375  GC0712        10 WS-CS-DEBUG-CHR              PIC X(1).
 376  GC0712        10 WS-CS-EXECUTE-CHR            PIC X(1).
 377  GC0712        10 WS-CS-FREE-CHR               PIC X(1).
 378  GC0712        10 WS-CS-LIBRARY-CHR            PIC X(1).
```

```
ACS Cobol Xref v2.02.04          Dictionary File for GCIC    06/03/2022  23:09:10:97  Page    8

379  GC0712         10 WS-CS-LISTING-CHR                PIC X(1).
380  GC0712         10 WS-CS-NOFUNC-CHR                 PIC X(1).
381  GC0712         10 WS-CS-NOTRUNC-CHR                PIC X(1).
382  GC0712         10 WS-CS-TRACEALL-CHR               PIC X(1).
383  GC0712         10 WS-CS-WARNALL-CHR                PIC X(1).
384
385  GC0909 01  WS-Cmd-TXT                              PIC X(512).
386
387  GC0712 01  WS-Cmd-Args-TXT                         PIC X(256).
388
389  GC0712 01  WS-Cmd-End-Quote-CHR                    PIC X(1).
390
391  GC0712 01  WS-Cmd-SUB                              USAGE BINARY-LONG.
392
393         01  WS-Cobc-Cmd-TXT                         PIC X(256).
394
395         01  WS-Config-Fn-TXT                        PIC X(12).
396
397  GC1113 01  WS-Delete-Fn-TXT                        PIC X(256).
398
399         01  WS-File-Name-TXT.
400            05 WS-FN-CHR                             OCCURS 256 TIMES
401                                                     PIC X(1).
402
403         01  WS-File-Status-Message-TXT.
404            05 VALUE 'Status Code: '                 PIC X(13).
405            05 WS-FSM-Status-CD                      PIC 9(2).
406            05 VALUE ', Meaning: '                   PIC X(11).
407            05 WS-FSM-Msg-TXT                        PIC X(25).
408
409  GC0909 01  WS-Horizontal-Line-TXT                  PIC X(80).
410  GC0909
411         01  WS-I-SUB                                USAGE BINARY-LONG.
412
413         01  WS-J-SUB                                USAGE BINARY-LONG.
414
415  GC1213 01  WS-Listing-CD VALUE F5                  PIC 9(1).
416
417  GC0712 01  WS-Listing-Filename-TXT                 PIC X(256).
418
419  GC1213 01  WS-Listing-TXT VALUE SPACES             PIC X(27).
420
421         01  WS-OC-Compile-DT                        PIC XXXX/XX/XXBXX/XX.
422
423  GC0712 >>IF OS = 'CYGWIN'
424  GC0712 01  WS-OS-Dir-CHR          VALUE '/'        PIC X(1).
425  GC0712 78  WS-OS-Exe-Ext-CONST    VALUE '.exe'.
426  GC0712 78  WS-OS-Lib-Ext-CONST    VALUE '.dll'.
427  GC0712 78  WS-OS-Lib-Type-CONST   VALUE 'DLL)'.
428  GC0712 01  WS-OS-Type-CD          VALUE 2          PIC 9(1).
429  GC0712 >>ELIF OS = 'MINGW'
430  GC0712 01  WS-OS-Dir-CHR          VALUE '\'        PIC X(1).
431  GC0712 78  WS-OS-Exe-Ext-CONST    VALUE '.exe'.
432  GC0712 78  WS-OS-Lib-Ext-CONST    VALUE '.dll'.
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:10:97   Page    9

433  GC0712 78  WS-OS-Lib-Type-CONST  VALUE 'DLL)'.
434  GC0712 01  WS-OS-Type-CD         VALUE 5        PIC 9(1).
435  GC0712 >>ELIF OS = 'OSX'
436  GC0712 01  WS-OS-Dir-CHR         VALUE '/'      PIC X(1).
437  GC0712 78  WS-OS-Exe-Ext-CONST   VALUE ' '.
438  GC0712 78  WS-OS-Lib-Ext-CONST   VALUE '.dylib'.
439  GC0712 78  WS-OS-Lib-Type-CONST  VALUE 'DYLIB)'.
440  GC0712 01  WS-OS-Type-CD         VALUE 4        PIC 9(1).
441  GC0712 >>ELIF OS = 'UNIX'
442  GC0712 01  WS-OS-Dir-CHR         VALUE '/'      PIC X(1).
443  GC0712 78  WS-OS-Exe-Ext-CONST   VALUE ' '.
444  GC0712 78  WS-OS-Lib-Ext-CONST   VALUE '.so'.
445  GC0712 78  WS-OS-Lib-Type-CONST  VALUE 'SO)'.
446  GC0712 01  WS-OS-Type-CD         VALUE 3        PIC 9(1).
447  GC0712 >>ELIF OS = 'WINDOWS'
448  GC0712 01  WS-OS-Dir-CHR         VALUE '\'      PIC X(1).
449  GC0712 78  WS-OS-Exe-Ext-CONST   VALUE '.exe'.
450  GC0712 78  WS-OS-Lib-Ext-CONST   VALUE '.dll'.
451  GC0712 78  WS-OS-Lib-Type-CONST  VALUE 'DLL)'.
452  GC0712 01  WS-OS-Type-CD         VALUE 1        PIC 9(1).
453  GC0712 >>END-IF
454  GC0909    88 WS-OS-Windows-BOOL VALUE 1, 5.
455  GC0909    88 WS-OS-Cygwin-BOOL  VALUE 2.
456  GC0712    88 WS-OS-UNIX-BOOL    VALUE 3, 4.
457  GC0712    88 WS-OS-OSX-BOOL     VALUE 4.
458
459        01  WS-OS-Type-FILLER-TXT.
460            05 VALUE 'Windows'              PIC X(14).
461            05 VALUE 'Windows/Cygwin'       PIC X(14).
462            05 VALUE 'UNIX/Linux'           PIC X(14).
463            05 VALUE 'OSX'                  PIC X(14).
464            05 VALUE 'Windows/MinGW'        PIC X(14).
465        01  WS-OS-Types-TXT REDEFINES WS-OS-Type-FILLER-TXT.
466            05 WS-OS-Type-TXT               OCCURS 5 TIMES
467                                           PIC X(14).
468
469        01  WS-Output-Msg-TXT              PIC X(80).
470
471        01  WS-Path-Delimiter-CHR         PIC X(1).
472
473        01  WS-Prog-Extension-TXT         PIC X(256).
474
475        01  WS-Prog-Folder-TXT            PIC X(256).
476
477  GC0712 01  WS-Prog-File-Name-TXT.
478  GC0712    05 WS-PFN-CHR                  OCCURS 256 TIMES
479  GC0712                                   PIC X(1).
480
481  GC0712 01  WS-Pgm-Nm-TXT                 PIC X(31).
482
483        01  WS-Runtime-Switches-TXT.
484            05 WS-RS-Compile-OK-CHR        PIC X(1).
485               88 WS-RS-Compile-OK-BOOL       VALUE 'Y'.
486  GC0909       88 WS-RS-Compile-OK-Warn-BOOL  VALUE 'W'.
```

```
487                    88 WS-RS-Compile-Failed-BOOL      VALUE 'N'.
488  GC0609    05 WS-RS-Complete-CHR              PIC X(1).
489  GC0609       88 WS-RS-Complete-BOOL          VALUE 'Y'.
490  GC0609       88 WS-RS-Not-Complete-BOOL      VALUE 'N'.
491  GC0712    05 WS-RS-Quote-CHR                 PIC X(1).
492  GC0712       88 WS-RS-Double-Quote-Used-BOOL VALUE 'Y' FALSE 'N'.
493  GC0809    05 WS-RS-IDENT-DIV-CHR             PIC X(1).
494  GC0809       88 WS-RS-1st-Prog-Complete-BOOL VALUE 'Y'.
495  GC0809       88 WS-RS-More-To-1st-Prog-BOOL  VALUE 'N'.
496            05 WS-RS-No-Switch-Chgs-CHR        PIC X(1).
497               88 WS-RS-No-Switch-Changes-BOOL VALUE 'Y'.
498               88 WS-RS-Switch-Changes-BOOL    VALUE 'N'.
499  GC0709    05 WS-RS-Output-File-Busy-CHR      PIC X(1).
500  GC0709       88 WS-RS-Output-File-Busy-BOOL  VALUE 'Y'.
501  GC0709       88 WS-RS-Output-File-Avail-BOOL VALUE 'N'.
502  GC0809    05 WS-RS-Source-Record-Type-CHR    PIC X(1).
503  GC0809       88 WS-RS-Source-Rec-Linkage-BOOL VALUE 'L'.
504  GC0809       88 WS-RS-Source-Rec-Ident-BOOL  VALUE 'I'.
505  GC0712       88 WS-RS-Source-Rec-Ignored-BOOL VALUE ' '.
506            05 WS-RS-Switch-Error-CHR          PIC X(1).
507               88 WS-RS-Switch-Is-Bad-BOOL     VALUE 'Y'.
508               88 WS-RS-Switch-Is-Good-BOOL    VALUE 'N'.
509
510        01  WS-Tally-QTY                       USAGE BINARY-LONG.
511        /
512         SCREEN SECTION.
513        *>
514        *> Here is the layout of the GCic screen.
515        *>
516        *> The sample screen below shows how the screen would look if the LINEDRAW
517        *> configuration setting is set to a value of 2
518        *>
519        *> The following sample screen layout shows how the screen looks with line-drawing
520        *> characters disabled.
521        *>
522        *>          1         2         3         4         5         6         7         8
523        *>12345678901234567890123456789012345678901234567890123456789012345678901234567890
524        *>================================================================================
525 VC 01 *> GCic (2020/08/11 23:00) - GNU COBOL V3.1 01July2020 Interactive Compilation
526    02 *>+----------------------------------------------------------------------------+
527    03 *>| Folder:   E:\GNU COBOL\Samples                                             |
528    04 *>| Filename: GCic.cbl                                                         |
529    05 *>+----------------------------------------------------------------------------+
530    06 *> Set/Clr Switches Via F1-F9; Set Config Via F12; ENTER Key Compiles; ESC Quits
531    07 *>+------------------------------------------------------------+------------+
532    08 *>| F1  Assume WITH DEBUGGING MODE  F6  "FUNCTION" Is Optional  | Current    |
533    09 *>| F2  Procedure+Statement Trace   F7  Enable All Warnings     | Config:    |
534    10 *>| F3  Make A Library (DLL)        F8  Source Is Free-Format    | XXXXXXXXXX |
535    11 *>| F4  Execute If Compilation OK   F9  No COMP/BINARY Truncation |          |
536    12 *>| F5 >Produce Listing (Landscape)                             |            |
537    13 *>+------------------------------------------------------------+------------+
538    14 *> Extra "cobc" Switches, If Any ("-save-temps=xxx" Prevents Listings):
539    15 *>+----------------------------------------------------------------------------+
540    16 *>| _____ |
```

```
ACS Cobol Xref v2.02.04         Dictionary File for GCIC    06/03/2022  23:09:10:97   Page   11
   541      17 *>| _____ |
   542      18 *>+---------------------------------------------------------------------------+
   543      19 *> Program Execution Arguments, If Any:
   544      20 *>+---------------------------------------------------------------------------+
   545      21 *>| _____ |
   546      22 *>| _____ |
   547      23 *>+---------------------------------------------------------------------------+
   548  VC 24 *> GCic Copyright (C) 2009-2022, Gary L. Cutler, GPL
   549         *>=========================================================================
   550         *>12345678901234567890123456789012345678901234567890123456789012345678901234567890
   551         *>         1         2         3         4         5         6         7         8
   552         *>
   553         *> If this program is run on Windows, it must run with codepage 437 activated to
   554         *> display the line-drawing characters.  With a native Windows build or a
   555         *> Windows/MinGW build, one could use the command 'chcp 437' to set that codepage
   556         *> for display within a Windows console window (that should be the default though).
   557         *> With a Windows/Cygwin build, set the environment variable CYGWIN to a value of
   558         *> 'codepage:oem' (this cannot be done from within the program though - you will
   559         *> have to use the 'Computer/Advanced System Settings/Environment Variables' (Vista
   560         *> or Windows 7) function to define the variable.  XP Users: use 'My Computer/
   561         *> Properties/Advanced/Environment Variables'.
   562         *>
   563         *> OSX users may use line drawing characters in this and any GNU COBOL program
   564         *> simply by setting their 'terminal' application's font to "Lucida Console".
   565         *>
   566          >>IF LINEDRAW IS EQUAL TO 0
   567          78 LD-UL-Corner              VALUE ' '.
   568          78 LD-LL-Corner              VALUE ' '.
   569          78 LD-UR-Corner              VALUE ' '.
   570          78 LD-LR-Corner              VALUE ' '.
   571          78 LD-Upper-T                VALUE ' '.
   572          78 LD-Lower-T                VALUE ' '.
   573          78 LD-Horiz-Line             VALUE ' '.
   574          78 LD-Vert-Line              VALUE ' '.
   575          >>ELIF LINEDRAW IS EQUAL TO 1
   576          78 LD-UL-Corner              VALUE X'DA'.
   577          78 LD-LL-Corner              VALUE X'C0'.
   578          78 LD-UR-Corner              VALUE X'BF'.
   579          78 LD-LR-Corner              VALUE X'D9'.
   580          78 LD-Upper-T                VALUE X'C2'.
   581          78 LD-Lower-T                VALUE X'C1'.
   582          78 LD-Horiz-Line             VALUE X'C4'.
   583          78 LD-Vert-Line              VALUE X'B3'.
   584          >>ELSE
   585          78 LD-UL-Corner              VALUE '+'.
   586          78 LD-LL-Corner              VALUE '+'.
   587          78 LD-UR-Corner              VALUE '+'.
   588          78 LD-LR-Corner              VALUE '+'.
   589          78 LD-Upper-T                VALUE '+'.
   590          78 LD-Lower-T                VALUE '+'.
   591          78 LD-Horiz-Line             VALUE '-'.
   592          78 LD-Vert-Line              VALUE '|'.
   593          >>END-IF
   594
```

```
ACS Cobol Xref v2.02.04          Dictionary File for GCIC    06/03/2022  23:09:10:97  Page   12
    595          01 S-Blank-SCR LINE 1 COLUMN 1 BLANK SCREEN.
    596
    597         01 S-Switches-SCR BACKGROUND-COLOR COB-COLOR-BLACK
    598                          FOREGROUND-COLOR COB-COLOR-WHITE AUTO.
    599       *>
    600       *> GENERAL SCREEN FRAMEWORK
    601       *>
    602          03 BACKGROUND-COLOR COB-COLOR-BLACK
    603             FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
    604  GC0712     05 LINE 02 COL 01          VALUE LD-UL-Corner.
    605  GC0712     05         COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
    606             05         COL 80           VALUE LD-UR-Corner.
    607
    608  GC0712     05 LINE 03 COL 01          VALUE LD-Vert-Line.
    609             05         COL 80           VALUE LD-Vert-Line.
    610
    611  GC0712     05 LINE 04 COL 01          VALUE LD-Vert-Line.
    612             05         COL 80           VALUE LD-Vert-Line.
    613
    614  GC0712     05 LINE 05 COL 01          VALUE LD-LL-Corner.
    615  GC0712     05         COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
    616             05         COL 80           VALUE LD-LR-Corner.
    617
    618  GC0712     05 LINE 07 COL 01          VALUE LD-UL-Corner.
    619  GC0712     05         COL 02 PIC X(65) FROM  WS-Horizontal-Line-TXT.
    620  GC0712     05         COL 67           VALUE LD-Upper-T.
    621  GC0712     05         COL 68 PIC X(12) FROM  WS-Horizontal-Line-TXT.
    622             05         COL 80           VALUE LD-UR-Corner.
    623
    624  GC0712     05 LINE 08 COL 01          VALUE LD-Vert-Line.
    625  GC0712     05         COL 67           VALUE LD-Vert-Line.
    626             05         COL 80           VALUE LD-Vert-Line.
    627
    628  GC0712     05 LINE 09 COL 01          VALUE LD-Vert-Line.
    629  GC0712     05         COL 67           VALUE LD-Vert-Line.
    630             05         COL 80           VALUE LD-Vert-Line.
    631
    632  GC0712     05 LINE 10 COL 01          VALUE LD-Vert-Line.
    633  GC0712     05         COL 67           VALUE LD-Vert-Line.
    634             05         COL 80           VALUE LD-Vert-Line.
    635
    636  GC0712     05 LINE 11 COL 01          VALUE LD-Vert-Line.
    637  GC0712     05         COL 67           VALUE LD-Vert-Line.
    638             05         COL 80           VALUE LD-Vert-Line.
    639
    640  GC0712     05 LINE 12 COL 01          VALUE LD-Vert-Line.
    641  GC0712     05         COL 67           VALUE LD-Vert-Line.
    642             05         COL 80           VALUE LD-Vert-Line.
    643
    644  GC0712     05 LINE 13 COL 01          VALUE LD-LL-Corner.
    645  GC0712     05         COL 02 PIC X(65) FROM  WS-Horizontal-Line-TXT.
    646  GC0712     05         COL 67           VALUE LD-Lower-T.
    647  GC0712     05         COL 68 PIC X(12) FROM  WS-Horizontal-Line-TXT.
    648             05         COL 80           VALUE LD-LR-Corner.
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:10:97   Page   13

 649
 650  GC0712      05 LINE 15 COL 01          VALUE LD-UL-Corner.
 651  GC0712      05          COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
 652              05          COL 80          VALUE LD-UR-Corner.
 653
 654  GC0712      05 LINE 16 COL 01          VALUE LD-Vert-Line.
 655              05          COL 80          VALUE LD-Vert-Line.
 656
 657  GC0712      05 LINE 17 COL 01          VALUE LD-Vert-Line.
 658              05          COL 80          VALUE LD-Vert-Line.
 659
 660  GC0712      05 LINE 18 COL 01          VALUE LD-LL-Corner.
 661  GC0712      05          COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
 662              05          COL 80          VALUE LD-LR-Corner.
 663
 664  GC0712      05 LINE 20 COL 01          VALUE LD-UL-Corner.
 665  GC0712      05          COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
 666              05          COL 80          VALUE LD-UR-Corner.
 667
 668  GC0712      05 LINE 21 COL 01          VALUE LD-Vert-Line.
 669              05          COL 80          VALUE LD-Vert-Line.
 670
 671  GC0712      05 LINE 22 COL 01          VALUE LD-Vert-Line.
 672              05          COL 80          VALUE LD-Vert-Line.
 673
 674  GC0712      05 LINE 23 COL 01          VALUE LD-LL-Corner.
 675  GC0712      05          COL 02 PIC X(78) FROM  WS-Horizontal-Line-TXT.
 676              05          COL 80          VALUE LD-LR-Corner.
 677       *>
 678       *> TOP AND BOTTOM LINES
 679       *>
 680  GC0712   03 BACKGROUND-COLOR COB-COLOR-BLUE
 681           FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
 682  GC0410      05 LINE 01 COL 01 VALUE ' GCic ('.
 683  GC0410      05          COL 08 PIC X(16) FROM WS-OC-Compile-DT.
 684  GC1213      05          COL 24 VALUE ') GNUCOBOL 3.1.2 06MAR2022 ' &
 685  GC0410                          'Interactive Compilation        '.
 686  VC0617   03 BACKGROUND-COLOR COB-COLOR-RED
 687  GC0712      FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
 688  GC0712      05 LINE 24 COL 01 PIC X(80) FROM WS-Output-Msg-TXT.
 689       *>
 690       *> LABELS
 691       *>
 692           03 BACKGROUND-COLOR COB-COLOR-BLACK
 693              FOREGROUND-COLOR COB-COLOR-CYAN  HIGHLIGHT.
 694  GC0712      05 LINE 06 COL 02 VALUE 'Set/Clr Switches Via F1-F9; ' &
 695  GC0712                              'Set Config Via F12; Enter Key ' &
 696  GC0712                              'Compiles; Esc Quits'.
 697  GC0712      05 LINE 14 COL 02 VALUE 'Extra "cobc" Switches, If Any ' &
 698  GC0712                              '("-save-temps=xxx" Prevents ' &
 699  GC0712                              'Listings):'.
 700  GC0712      05 LINE 19 COL 02 VALUE 'Program Execution Arguments, ' &
 701  GC0712                              'If Any:'.
 702  GC0712   03 BACKGROUND-COLOR COB-COLOR-BLACK
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:10:98   Page   14

 703  GC0712        FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
 704  GC0712        05 LINE 06 COL 23 VALUE 'F1'.
 705  GC0712        05         COL 26 VALUE 'F9'.
 706  GC0712        05         COL 45 VALUE 'F12'.
 707  GC0712        05         COL 50 VALUE 'ENTER'.
 708  GC0712        05         COL 70 VALUE 'ESC'.
 709       *>
 710       *> TOP SECTION BACKGROUND
 711       *>
 712           03 BACKGROUND-COLOR COB-COLOR-BLACK
 713              FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
 714  GC0712        05 LINE 03 COL 62 VALUE 'Enter'.
 715  GC0712        05 LINE 04 COL 62 VALUE 'Esc'.
 716
 717           03 BACKGROUND-COLOR COB-COLOR-BLACK
 718              FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
 719  GC0712        05 LINE 04 COL 03 VALUE 'Folder:   '.
 720  GC0712        05 LINE 03 COL 03 VALUE 'Filename: '.
 721
 722  GC0712        05 LINE 03 COL 67 VALUE ': Compile   '.
 723  GC0712        05 LINE 04 COL 65 VALUE ':   Quit       '.
 724       *>
 725       *> TOP SECTION PROGRAM INFO
 726       *>
 727           03 BACKGROUND-COLOR COB-COLOR-BLACK
 728              FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
 729  GC0712        05 LINE 03 COL 13 PIC X(66) FROM WS-Prog-File-Name-TXT.
 730  GC0712        05 LINE 04 COL 13 PIC X(66) FROM WS-Prog-Folder-TXT.
 731       *>
 732       *> MIDDLE LEFT SECTION F-KEYS
 733       *>
 734           03 BACKGROUND-COLOR COB-COLOR-BLACK
 735              FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
 736  GC0712        05 LINE 08 COL 03 VALUE 'F1'.
 737  GC0712        05 LINE 09 COL 03 VALUE 'F2'.
 738  GC0712        05 LINE 10 COL 03 VALUE 'F3'.
 739  GC0712        05 LINE 11 COL 03 VALUE 'F4'.
 740  GC0712        05 LINE 12 COL 03 VALUE 'F5'.
 741
 742  GC0712        05 LINE 08 COL 35 VALUE 'F6'.
 743  GC0712        05 LINE 09 COL 35 VALUE 'F7'.
 744  GC0712        05 LINE 10 COL 35 VALUE 'F8'.
 745  GC0712        05 LINE 11 COL 35 VALUE 'F9'.
 746       *>
 747       *> MIDDLE LEFT SECTION SWITCHES
 748       *>
 749           03 BACKGROUND-COLOR COB-COLOR-BLACK
 750              FOREGROUND-COLOR COB-COLOR-RED    HIGHLIGHT.
 751  GC0712        05 LINE 08 COL 06 PIC X(1) FROM WS-CS-DEBUG-CHR.
 752  GC0712        05 LINE 09 COL 06 PIC X(1) FROM WS-CS-TRACEALL-CHR.
 753  GC0712        05 LINE 10 COL 06 PIC X(1) FROM WS-CS-LIBRARY-CHR.
 754  GC0712        05 LINE 11 COL 06 PIC X(1) FROM WS-CS-EXECUTE-CHR.
 755  GC0712        05 LINE 12 COL 06 PIC X(1) FROM WS-CS-LISTING-CHR.
 756
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:10:98   Page   15

 757  GC0712        05 LINE 08 COL 38 PIC X(1) FROM WS-CS-NOFUNC-CHR.
 758  GC0712        05 LINE 09 COL 38 PIC X(1) FROM WS-CS-WARNALL-CHR.
 759  GC0712        05 LINE 10 COL 38 PIC X(1) FROM WS-CS-FREE-CHR.
 760  GC0712        05 LINE 11 COL 38 PIC X(1) FROM WS-CS-NOTRUNC-CHR.
 761       *>
 762       *> MIDDLE LEFT SECTION BACKGROUND
 763       *>
 764            03 BACKGROUND-COLOR COB-COLOR-BLACK
 765               FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
 766  GC0712     05 LINE 08 COL 07 VALUE 'Assume WITH DEBUGGING MODE'.
 767  GC0712     05 LINE 09 COL 07 VALUE 'Procedure+Statement Trace '.
 768  GC0712     05 LINE 10 COL 07 VALUE 'Make a Library ('.
 769  GC0712     05         COL 23 VALUE WS-OS-Lib-Type-CONST.
 770  GC0712     05 LINE 11 COL 07 VALUE 'Execute If Compilation OK '.
 771  GC1213     05 LINE 12 COL 07 FROM  WS-Listing-TXT.
 772
 773  GC0712     05 LINE 08 COL 39 VALUE '"FUNCTION" Is Optional    '.
 774  GC0712     05 LINE 09 COL 39 VALUE 'Enable All Warnings       '.
 775  GC0712     05 LINE 10 COL 39 VALUE 'Source Is Free-Format     '.
 776  GC0712     05 LINE 11 COL 39 VALUE 'No COMP/BINARY Truncation '.
 777       *>
 778       *> MIDDLE RIGHT SECTION Text
 779       *>
 780            03 BACKGROUND-COLOR COB-COLOR-BLACK
 781               FOREGROUND-COLOR COB-COLOR-GREEN HIGHLIGHT.
 782  GC0712     05 LINE 08 COL 69 VALUE 'Current'.
 783  GC0712     05 LINE 09 COL 69 VALUE 'Config:'.
 784       *>
 785       *> MIDDLE RIGHT SECTION CONFIG FILE
 786       *>
 787            03 BACKGROUND-COLOR COB-COLOR-BLACK
 788               FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
 789  GC0712     05 LINE 10 COL 69 PIC X(10)
 790  GC0712        FROM WS-CS-Filename-TXT (WS-CS-Config-NUM).
 791       *>
 792       *> FREE-FORM OPTIONS FIELDS
 793       *>
 794            03 BACKGROUND-COLOR COB-COLOR-BLACK
 795               FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
 796  GC0712     05 LINE 16 COL 03 PIC X(76) USING WS-CS-Extra-H1-TXT.
 797  GC0712     05 LINE 17 COL 03 PIC X(76) USING WS-CS-Extra-H2-TXT.
 798  GC0712     05 LINE 21 COL 03 PIC X(76) USING WS-CS-Arg-H1-TXT.
 799  GC0712     05 LINE 22 COL 03 PIC X(76) USING WS-CS-Arg-H2-TXT.
 800       /
 801        PROCEDURE DIVISION.
 802       *>************************************************************
 803       *> Legend to procedure names:                             **
 804       *>                                                         **
 805       *> 00x-xxx   All MAIN driver procedures                   **
 806       *> 0xx-xxx   All GLOBAL UTILITY procedures                **
 807       *> 1xx-xxx   All INITIALIZATION procedures                **
 808       *> 2xx-xxx   All CORE PROCESSING procedures               **
 809       *> 9xx-xxx   All TERMINATION procedures                   **
 810       *>************************************************************
```

ACS Cobol Xref v2.02.04   Dictionary File for GCIC   06/03/2022 23:09:10:98   Page   16

```
811          DECLARATIVES.
812          000-File-Error SECTION.
813              USE AFTER STANDARD ERROR PROCEDURE ON F-Source-Code-FILE.
814      *    COPY FileStat-Msgs
815      *        REPLACING STATUS BY WS-FSM-Status-CD
816      *                MSG   BY WS-FSM-Msg-TXT.
817      *> *************************************************************
818      *> ** Author: Gary L. Cutler                            **
819      *> **         CutlerGL@gmail.com                         **
820      *> **                                                    **
821      *> ** This copybook defines an EVALUATE statement capable of  **
822      *> ** translating two-digit FILE-STATUS codes to a message.   **
823      *> **                                                    **
824      *> ** Use the REPLACING option to COPY to change the names of  **
825      *> ** the MSG and STATUS identifiers to the names your program **
826      *> ** needs.                                             **
827      *> *************************************************************
828          EVALUATE WS-FSM-Status-CD
829          WHEN 00 MOVE 'SUCCESS                ' TO WS-FSM-Msg-TXT
830          WHEN 02 MOVE 'SUCCESS DUPLICATE       ' TO WS-FSM-Msg-TXT
831          WHEN 04 MOVE 'SUCCESS INCOMPLETE      ' TO WS-FSM-Msg-TXT
832          WHEN 05 MOVE 'SUCCESS OPTIONAL        ' TO WS-FSM-Msg-TXT
833          WHEN 07 MOVE 'SUCCESS NO UNIT         ' TO WS-FSM-Msg-TXT
834          WHEN 10 MOVE 'END OF FILE             ' TO WS-FSM-Msg-TXT
835          WHEN 14 MOVE 'OUT OF KEY RANGE        ' TO WS-FSM-Msg-TXT
836          WHEN 21 MOVE 'KEY INVALID             ' TO WS-FSM-Msg-TXT
837          WHEN 22 MOVE 'KEY EXISTS              ' TO WS-FSM-Msg-TXT
838          WHEN 23 MOVE 'KEY NOT EXISTS          ' TO WS-FSM-Msg-TXT
839          WHEN 30 MOVE 'PERMANENT ERROR         ' TO WS-FSM-Msg-TXT
840          WHEN 31 MOVE 'INCONSISTENT FILENAME   ' TO WS-FSM-Msg-TXT
841          WHEN 34 MOVE 'BOUNDARY VIOLATION      ' TO WS-FSM-Msg-TXT
842          WHEN 35 MOVE 'FILE NOT FOUND          ' TO WS-FSM-Msg-TXT
843          WHEN 37 MOVE 'PERMISSION DENIED       ' TO WS-FSM-Msg-TXT
844          WHEN 38 MOVE 'CLOSED WITH LOCK        ' TO WS-FSM-Msg-TXT
845          WHEN 39 MOVE 'CONFLICT ATTRIBUTE      ' TO WS-FSM-Msg-TXT
846          WHEN 41 MOVE 'ALREADY OPEN            ' TO WS-FSM-Msg-TXT
847          WHEN 42 MOVE 'NOT OPEN                ' TO WS-FSM-Msg-TXT
848          WHEN 43 MOVE 'READ NOT DONE           ' TO WS-FSM-Msg-TXT
849          WHEN 44 MOVE 'RECORD OVERFLOW         ' TO WS-FSM-Msg-TXT
850          WHEN 46 MOVE 'READ ERROR              ' TO WS-FSM-Msg-TXT
851          WHEN 47 MOVE 'INPUT DENIED            ' TO WS-FSM-Msg-TXT
852          WHEN 48 MOVE 'OUTPUT DENIED           ' TO WS-FSM-Msg-TXT
853          WHEN 49 MOVE 'I/O DENIED              ' TO WS-FSM-Msg-TXT
854          WHEN 51 MOVE 'RECORD LOCKED           ' TO WS-FSM-Msg-TXT
855          WHEN 52 MOVE 'END-OF-PAGE             ' TO WS-FSM-Msg-TXT
856          WHEN 57 MOVE 'I/O LINAGE              ' TO WS-FSM-Msg-TXT
857          WHEN 61 MOVE 'FILE SHARING FAILURE    ' TO WS-FSM-Msg-TXT
858          WHEN 91 MOVE 'FILE NOT AVAILABLE      ' TO WS-FSM-Msg-TXT
859          END-EVALUATE.
860  *>>W Msg29 Caution: One or more replacing sources not found
861          MOVE SPACES TO WS-Output-Msg-TXT
862          IF WS-FSM-Status-CD = 35
863              DISPLAY
864                  'File not found: "'
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:10:98   Page   17

    865                    TRIM(WS-File-Name-TXT,TRAILING)
    866                    '"'
    867              ELSE
    868                  DISPLAY
    869                      'Error accessing file: "'
    870                      TRIM(WS-File-Name-TXT,TRAILING)
    871                      '"'
    872              END-IF
    873              GOBACK
    874              .
    875          END DECLARATIVES.
    876
    877          000-Main SECTION.
    878              PERFORM 100-Initialization
    879 GC0609      SET WS-RS-Not-Complete-BOOL TO TRUE
    880 GC0609      PERFORM UNTIL WS-RS-Complete-BOOL
    881 GC0609          PERFORM 200-Let-User-Set-Switches
    882 GC0609          PERFORM 210-Run-Compiler
    883 GC0410          IF (WS-RS-Compile-OK-BOOL OR WS-RS-Compile-OK-Warn-BOOL)
    884 GC0712          AND (WS-CS-LISTING-CHR > SPACE)
    885 GC0712              DISPLAY S-Blank-SCR
    886 GC0410              PERFORM 220-Make-Listing
    887 GC0410          END-IF
    888 GC0709          IF  (WS-CS-EXECUTE-CHR NOT = SPACES)
    889 GC0709          AND (WS-RS-Output-File-Avail-BOOL)
    890 GC0609              PERFORM 230-Run-Program
    891 GC0609          END-IF
    892 GC0712          PERFORM 250-Autoload-Listing
    893 GC0609      END-PERFORM
    894              PERFORM 900-Terminate
    895        * -- Control will NOT return
    896              .
    897        /
    898          *>************************************************************
    899          *> Perform all program-wide initialization operations       **
    900          *>************************************************************
    901           100-Initialization SECTION.
    902          *>************************************************************
    903          *> Make sure full screen-handling is in effect              **
    904          *>************************************************************
    905              SET ENVIRONMENT 'COB_SCREEN_EXCEPTIONS' TO 'Y'
    906              SET ENVIRONMENT 'COB_SCREEN_ESC'        TO 'Y'
    907 VC0617      SET ENVIRONMENT "COB_EXIT_WAIT"         TO "0".
    908          *>************************************************************
    909          *> Get GCic Compilation Date/Time                           **
    910          *>************************************************************
    911              MOVE WHEN-COMPILED (1:12) TO WS-OC-Compile-DT
    912              INSPECT WS-OC-Compile-DT
    913                  REPLACING ALL '/' BY ':'
    914                  AFTER INITIAL SPACE
    915          *>************************************************************
    916          *> Convert WS-CS-All-Switches-TXT to Needed Alphanumeric Values**
    917          *>************************************************************
    918              INSPECT WS-CS-All-Switches-TXT
```

```
  919                    REPLACING ALL '0' BY SPACE
  920                             ALL '1' BY SELCHAR
  921  GC1213                     ALL '2' BY SELCHAR
  922         *>****************************************************************
  923         *> Process filename (the only command-line argument)        **
  924         *>****************************************************************
  925  GC0712     ACCEPT WS-Cmd-Args-TXT FROM COMMAND-LINE
  926  GC0712     MOVE 1 TO WS-Cmd-SUB
  927  GC0712     IF WS-Cmd-Args-TXT(WS-Cmd-SUB:1) = '"' OR "'"
  928  GC0712         MOVE WS-Cmd-Args-TXT(WS-Cmd-SUB:1)
  929  GC0712           TO WS-Cmd-End-Quote-CHR
  930  GC0712         ADD 1 TO WS-Cmd-SUB
  931  GC0712         UNSTRING WS-Cmd-Args-TXT
  932  GC0712             DELIMITED BY WS-Cmd-End-Quote-CHR
  933  GC0712             INTO WS-File-Name-TXT
  934  GC0712             WITH POINTER WS-Cmd-SUB
  935  GC0712     ELSE
  936  GC0712         UNSTRING WS-Cmd-Args-TXT
  937  GC0712             DELIMITED BY ALL SPACES
  938  GC0712             INTO WS-File-Name-TXT
  939  GC0712             WITH POINTER WS-Cmd-SUB
  940  GC0712     END-IF
  941             IF WS-File-Name-TXT = SPACES
  942  GC0712         DISPLAY 'No program filename was specified'
  943             PERFORM 900-Terminate
  944       * ------ Control will NOT return
  945             END-IF
  946         *>****************************************************************
  947         *> Determine if 'Make A Library' feature should be forced 'ON' **
  948         *>****************************************************************
  949             PERFORM 240-Find-LINKAGE-SECTION
  950         *>****************************************************************
  951         *> Split 'WS-File-Name-TXT' into 'WS-Prog-Folder-TXT' and     **
  952         *> 'WS-Prog-File-Name-TXT'                                    **
  953         *>****************************************************************
  954  GC0909     IF WS-OS-Cygwin-BOOL AND WS-File-Name-TXT (2:1) = ':'
  955  GC0712         MOVE '\' TO WS-OS-Dir-CHR
  956  GC0909     END-IF
  957  GC0712     MOVE LENGTH(WS-File-Name-TXT) TO WS-I-SUB
  958  GC0712     PERFORM UNTIL WS-I-SUB = 0
  959  GC0712     OR WS-FN-CHR (WS-I-SUB) = WS-OS-Dir-CHR
  960             SUBTRACT 1 FROM WS-I-SUB
  961             END-PERFORM
  962             IF WS-I-SUB = 0
  963                 MOVE SPACES    TO WS-Prog-Folder-TXT
  964                 MOVE WS-File-Name-TXT TO WS-Prog-File-Name-TXT
  965             ELSE
  966                 MOVE '*' TO WS-FN-CHR (WS-I-SUB)
  967                 UNSTRING WS-File-Name-TXT DELIMITED BY '*'
  968                   INTO WS-Prog-Folder-TXT
  969                        WS-Prog-File-Name-TXT
  970  GC0712         MOVE WS-OS-Dir-CHR TO WS-FN-CHR (WS-I-SUB)
  971             END-IF
  972             IF WS-Prog-Folder-TXT = SPACES
```

```
ACS Cobol Xref v2.02.04      Dictionary File for GCIC    06/03/2022  23:09:10:98   Page   19

 973                    ACCEPT WS-Prog-Folder-TXT FROM ENVIRONMENT 'CD'
 974  GC0909     ELSE
 975  GC0909         CALL 'CBL_CHANGE_DIR'
 976  GC0909             USING TRIM(WS-Prog-Folder-TXT,TRAILING)
 977             END-IF
 978  GC0909     IF WS-OS-Cygwin-BOOL AND WS-File-Name-TXT (2:1) = ':'
 979  GC0712         MOVE '/' TO WS-OS-Dir-CHR
 980  GC0909     END-IF
 981        *>**************************************************************
 982        *> Split 'WS-Prog-File-Name-TXT' into 'WS-Pgm-Nm-TXT' &       **
 983        *> 'WS-Prog-Extension-TXT'                                    **
 984        *>**************************************************************
 985  GC0712     MOVE LENGTH(WS-Prog-File-Name-TXT) TO WS-I-SUB
 986  GC0712     PERFORM UNTIL WS-I-SUB = 0
 987  GC0712     OR WS-PFN-CHR (WS-I-SUB) = '.'
 988  GC0712         SUBTRACT 1 FROM WS-I-SUB
 989  GC0712     END-PERFORM
 990  GC0712     IF WS-I-SUB = 0
 991  GC0712         MOVE WS-Prog-File-Name-TXT TO WS-Pgm-Nm-TXT
 992  GC0712         MOVE SPACES        TO WS-Prog-Extension-TXT
 993  GC0712     ELSE
 994  GC0712         MOVE '*' TO WS-PFN-CHR (WS-I-SUB)
 995  GC0712         UNSTRING WS-Prog-File-Name-TXT DELIMITED BY '*'
 996  GC0712             INTO WS-Pgm-Nm-TXT
 997  GC0712                  WS-Prog-Extension-TXT
 998  GC0712         MOVE '.' TO WS-PFN-CHR (WS-I-SUB)
 999  GC0712     END-IF
1000        *>**************************************************************
1001        *> Build initial Line 24 Message                             **
1002        *>**************************************************************
1003  GC0909     MOVE ALL LD-Horiz-Line TO WS-Horizontal-Line-TXT.
1004  GC0410     MOVE CONCATENATE(' GCic for '
1005  GC0410                     TRIM(WS-OS-Type-TXT(WS-OS-Type-CD),Trailing)
1006  VC0811                     ' Copyright (C) 2009-2022, Gary L. '
1007  GC0410                     'Cutler, GPL')
1008  GC0410        TO WS-Output-Msg-TXT.
1009  GC0909
1010        /
1011        *>**************************************************************
1012        *> Show the user the current switch settings and allow them to **
1013        *> be changed.                                               **
1014        *>**************************************************************
1015         200-Let-User-Set-Switches SECTION.
1016             SET WS-RS-Switch-Changes-BOOL TO TRUE
1017             PERFORM UNTIL WS-RS-No-Switch-Changes-BOOL
1018  GC1213         EVALUATE WS-Listing-CD
1019  GC1213         WHEN 0
1020  GC1213             MOVE 'Listing Off'          TO WS-Listing-TXT
1021  GC1213             MOVE SPACE                  TO WS-CS-LISTING-CHR
1022  GC1213         WHEN 1
1023  GC1213             MOVE 'Listing On (Landscape)' TO WS-Listing-TXT
1024  GC1213             MOVE SELCHAR                TO WS-CS-LISTING-CHR
1025  GC1213         WHEN 2
1026  GC1213             MOVE 'Listing On (Portrait)' TO WS-Listing-TXT
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:10:98   Page   20

   1027  GC1213             MOVE SELCHAR               TO WS-CS-LISTING-CHR
   1028  GC1213          END-EVALUATE
   1029                  ACCEPT S-Switches-SCR
   1030                  IF COB-CRT-STATUS > 0
   1031                      EVALUATE COB-CRT-STATUS
   1032                          WHEN COB-SCR-F1
   1033                              IF WS-CS-DEBUG-CHR = SPACE
   1034  GC0712                         MOVE SELCHAR TO WS-CS-DEBUG-CHR
   1035                              ELSE
   1036                                  MOVE ' ' TO WS-CS-DEBUG-CHR
   1037                              END-IF
   1038  GC0712              WHEN COB-SCR-F2
   1039  GC0712                  IF  WS-CS-TRACEALL-CHR = SPACE
   1040  GC0712                      MOVE SELCHAR TO WS-CS-TRACEALL-CHR
   1041  GC0712                  ELSE
   1042  GC0712                      MOVE ' ' TO WS-CS-TRACEALL-CHR
   1043  GC0712                  END-IF
   1044                      WHEN COB-SCR-F3
   1045  GC0712                  IF WS-CS-LIBRARY-CHR = SPACE
   1046  GC0712                      MOVE SELCHAR TO WS-CS-LIBRARY-CHR
   1047                          ELSE
   1048  GC0712                      MOVE ' ' TO WS-CS-LIBRARY-CHR
   1049                          END-IF
   1050                      WHEN COB-SCR-F4
   1051                          IF  WS-CS-EXECUTE-CHR = SPACE
   1052  GC0712                      MOVE SELCHAR TO WS-CS-EXECUTE-CHR
   1053                          ELSE
   1054                              MOVE ' ' TO WS-CS-EXECUTE-CHR
   1055                          END-IF
   1056  GC0712              WHEN COB-SCR-F5
   1057  GC1213                  ADD 1 TO WS-Listing-CD
   1058  GC1213                  IF WS-Listing-CD > 2
   1059  GC1213                      MOVE 0 TO WS-Listing-CD
   1060  GC1213                  END-IF
   1061  GC0712              WHEN COB-SCR-F6
   1062  GC0712                  IF WS-CS-NOFUNC-CHR = SPACE
   1063  GC0712                      MOVE SELCHAR TO WS-CS-NOFUNC-CHR
   1064  GC0712                  ELSE
   1065  GC0712                      MOVE ' ' TO WS-CS-NOFUNC-CHR
   1066  GC0712                  END-IF
   1067  GC0712              WHEN COB-SCR-F7
   1068  GC0712                  IF WS-CS-WARNALL-CHR = SPACE
   1069  GC0712                      MOVE SELCHAR TO WS-CS-WARNALL-CHR
   1070  GC0712                  ELSE
   1071  GC0712                      MOVE ' ' TO WS-CS-WARNALL-CHR
   1072  GC0712                  END-IF
   1073  GC0712              WHEN COB-SCR-F8
   1074  GC0712                  IF WS-CS-FREE-CHR = SPACE
   1075  GC0712                      MOVE SELCHAR TO WS-CS-FREE-CHR
   1076  GC0712                  ELSE
   1077  GC0712                      MOVE ' ' TO WS-CS-FREE-CHR
   1078  GC0712                  END-IF
   1079  GC0712              WHEN COB-SCR-F9
   1080  GC0712                  IF  WS-CS-NOTRUNC-CHR = SPACE
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:10:98   Page   21

 1081  GC0712                            MOVE SELCHAR TO WS-CS-NOTRUNC-CHR
 1082  GC0712                          ELSE
 1083  GC0712                            MOVE ' ' TO WS-CS-NOTRUNC-CHR
 1084  GC0712                          END-IF
 1085                              WHEN COB-SCR-ESC
 1086                                PERFORM 900-Terminate
 1087         * ----------------- Control will NOT return
 1088  GC0712                      WHEN COB-SCR-F12
 1089  GC0712                        ADD 1 TO WS-CS-Config-NUM
 1090  GC0712                        IF WS-CS-Config-NUM > 7
 1091  GC0712                          MOVE 1 TO WS-CS-Config-NUM
 1092  GC0712                        END-IF
 1093                              WHEN OTHER
 1094                                MOVE 'An unsupported key was pressed'
 1095                                  TO WS-Output-Msg-TXT
 1096                            END-EVALUATE
 1097                      ELSE
 1098                          SET WS-RS-No-Switch-Changes-BOOL TO TRUE
 1099                      END-IF
 1100            END-PERFORM
 1101            .
 1102      /
 1103        *>*************************************************************
 1104        *> Run the compiler using the switch settings we've prepared.  **
 1105        *>*************************************************************
 1106         210-Run-Compiler SECTION.
 1107            MOVE SPACES TO WS-Cmd-TXT
 1108                           WS-Cobc-Cmd-TXT
 1109                           WS-Output-Msg-TXT
 1110            DISPLAY S-Switches-SCR
 1111            MOVE 1 TO WS-I-SUB
 1112  GC0712    MOVE LOWER-CASE(WS-CS-Filename-TXT (WS-CS-Config-NUM))
 1113  GC0712      TO WS-Config-Fn-TXT
 1114        *>*************************************************************
 1115        *> Build the 'cobc' command                                  **
 1116        *>*************************************************************
 1117  GC0909    MOVE SPACES TO WS-Cobc-Cmd-TXT
 1118  GC0909    STRING 'cobc -v -std='
 1119  GC0909       TRIM(WS-Config-Fn-TXT,TRAILING)
 1120  GC0909       ' '
 1121  GC0909       INTO WS-Cobc-Cmd-TXT
 1122  GC0909       WITH POINTER WS-I-SUB
 1123            IF WS-CS-LIBRARY-CHR NOT = ' '
 1124              STRING '-m '
 1125                  DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
 1126                  WITH POINTER WS-I-SUB
 1127            ELSE
 1128              STRING '-x '
 1129                  DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
 1130                  WITH POINTER WS-I-SUB
 1131            END-IF
 1132            IF WS-CS-DEBUG-CHR NOT = ' '
 1133              STRING '-fdebugging-line '
 1134                  DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:10:99  Page   22
  1135                  WITH POINTER WS-I-SUB
  1136              END-IF
  1137              IF WS-CS-NOTRUNC-CHR NOT = ' '
  1138                 STRING '-fnotrunc '
  1139                     DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
  1140                     WITH POINTER WS-I-SUB
  1141              END-IF
  1142              IF WS-CS-TRACEALL-CHR NOT = ' '
  1143  GC0809          STRING '-ftraceall '
  1144                     DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
  1145                     WITH POINTER WS-I-SUB
  1146              END-IF
  1147  GC0712      IF WS-CS-NOFUNC-CHR NOT = ' '
  1148  VC0717          STRING '-fintrinsics=ALL '
  1149  GC0712              DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
  1150  GC0712              WITH POINTER WS-I-SUB
  1151  GC0712      END-IF
  1152  GC0712      IF WS-CS-WARNALL-CHR NOT = ' '
  1153  GC0712          STRING '-Wall '
  1154  GC0712              DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
  1155  GC0712              WITH POINTER WS-I-SUB
  1156  GC0712      END-IF
  1157  GC0712      IF WS-CS-FREE-CHR NOT = ' '
  1158  GC0712          STRING '-free '
  1159  GC0712              DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
  1160  GC0712              WITH POINTER WS-I-SUB
  1161  GC0712      ELSE
  1162  GC0712          STRING '-fixed '
  1163  GC0712              DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
  1164  GC0712              WITH POINTER WS-I-SUB
  1165  GC0712      END-IF
  1166
  1167  GC0712      MOVE 0 TO WS-Tally-QTY
  1168  GC0712      INSPECT WS-CS-Extra-TXT
  1169  GC0712          TALLYING WS-Tally-QTY FOR ALL '-save-temps'
  1170  GC0712      IF WS-CS-LISTING-CHR > SPACE
  1171  GC0712      AND WS-Tally-QTY > 0
  1172  GC0712          MOVE SPACE TO WS-CS-LISTING-CHR *> Can't generate listing if -save-temps used
  1173  GC0712      END-IF
  1174  GC0712      IF WS-CS-LISTING-CHR > SPACE
  1175  GC1010          STRING '-save-temps '
  1176  GC1010              DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
  1177  GC1010              WITH POINTER WS-I-SUB
  1178  GC1010      END-IF
  1179
  1180  GC0709      IF WS-CS-Extra-TXT > SPACES
  1181  GC0709          STRING ' '
  1182  GC0709                  TRIM(WS-CS-Extra-TXT,TRAILING)
  1183  GC0709                  ' '
  1184  GC0709                  DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
  1185  GC0709                  WITH POINTER WS-I-SUB
  1186  GC0709      END-IF
  1187  GC0909      STRING TRIM(WS-Prog-File-Name-TXT,TRAILING)
  1188  GC0909          DELIMITED SIZE INTO WS-Cobc-Cmd-TXT
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:10:99   Page   23

 1189  GC0909         WITH POINTER WS-I-SUB
 1190        *>**************************************************************
 1191        *> Prepare the compilation listing file                    **
 1192        *>**************************************************************
 1193  GC1113    MOVE CONCATENATE(TRIM(WS-Pgm-Nm-TXT,Trailing),'.gclst')
 1194  GC0712       TO WS-Listing-Filename-TXT
 1195  GC0712    CALL 'CBL_DELETE_FILE' USING WS-Listing-Filename-TXT
 1196        *>**************************************************************
 1197        *> Now execute the 'cobc' command                          **
 1198        *>**************************************************************
 1199  GC0410    MOVE ' Compiling...' TO WS-Output-Msg-TXT
 1200  GC0410    DISPLAY S-Switches-SCR
 1201  GC0609    SET WS-RS-Output-File-Avail-BOOL TO TRUE
 1202           MOVE SPACES TO WS-Cmd-TXT
 1203           STRING TRIM(WS-Cobc-Cmd-TXT,TRAILING)
 1204  GC0712         ' >' WS-Listing-Filename-TXT
 1205  GC0712         ' 2>&1'
 1206              DELIMITED SIZE
 1207              INTO WS-Cmd-TXT
 1208  DEBUG D  DISPLAY WS-Cmd-TXT UPON SYSERR
 1209           CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
 1210  GC0712    OPEN EXTEND F-Cobc-Output-FILE
 1211  GC0712    WRITE F-Cobc-Output-REC FROM SPACES
 1212  GC0712    IF RETURN-CODE = 0
 1213  GC0712       SET WS-RS-Compile-OK-BOOL TO TRUE
 1214  GC0712       MOVE ' Compilation Was Successful' TO WS-Output-Msg-TXT
 1215  GC0712       MOVE CONCATENATE('GNU COBOL',WS-Output-Msg-TXT)
 1216  GC0712         TO F-Cobc-Output-REC
 1217  GC0712       WRITE F-Cobc-Output-REC
 1218  GC0712       SET WS-RS-Complete-BOOL TO TRUE
 1219  GC0712    ELSE
 1220  GC0712       SET WS-RS-Compile-Failed-BOOL TO TRUE
 1221  GC0712       MOVE CONCATENATE(' Compilation Failed - See ',
 1222  GC0712                 TRIM(WS-Listing-Filename-TXT,Trailing))
 1223  GC0712         TO WS-Output-Msg-TXT
 1224  GC0712       MOVE 'GNU COBOL Compilation HAS FAILED - See Above'
 1225  GC0712         TO F-Cobc-Output-REC
 1226  GC0712       WRITE F-Cobc-Output-REC
 1227  GC0712    END-IF
 1228  GC0712    CLOSE F-Cobc-Output-FILE
 1229  GC0712    DISPLAY S-Switches-SCR
 1230  GC0712    CALL 'C$SLEEP' USING 2
 1231  GC0712    MOVE SPACES TO WS-Output-Msg-TXT
 1232           IF WS-RS-Compile-Failed-BOOL
 1233  GC0712       PERFORM 250-Autoload-Listing
 1234           PERFORM 900-Terminate
 1235        *> ----- Control will not return
 1236           END-IF
 1237           .
 1238        /
 1239        *>**************************************************************
 1240        *> Generate a source + xref listing using 'LISTING' subroutine **
 1241        *>**************************************************************
 1242  GC0410 220-Make-Listing SECTION.
```

```
 1243  GC0410     MOVE ' Generating listing...' TO WS-Output-Msg-TXT
 1244  GC0410     DISPLAY S-Switches-SCR
 1245  GC0410     MOVE 0 TO RETURN-CODE
 1246         *>************************************************************
 1247         *> Create the listing                                      **
 1248         *>************************************************************
 1249  GC0410     MOVE SPACES TO WS-Output-Msg-TXT
 1250  GC0410     CALL 'LISTING' USING WS-Listing-Filename-TXT
 1251  GC0712                         WS-File-Name-TXT
 1252  GC0712                         WS-OS-Type-CD
 1253  GC1213                         LPP
 1254  GC1213                         LPPP
 1255  GC1213                         WS-Listing-CD
 1256  GC0410     ON EXCEPTION
 1257  GC0410        MOVE ' LISTING module is not available'
 1258  GC0410          TO WS-Output-Msg-TXT
 1259  GC0410        MOVE 1 TO RETURN-CODE
 1260  GC0410     END-CALL
 1261  GC0410     IF RETURN-CODE = 0
 1262  GC0712        MOVE ' Source+Xref listing generated '
 1263  GC0712          TO WS-Output-Msg-TXT
 1264  GC0410     END-IF
 1265  GC0712     DISPLAY S-Switches-SCR
 1266  GC0712     CALL 'C$SLEEP' USING 2
 1267  GC0712     PERFORM 250-Autoload-Listing
 1268  GC0410     .
 1269      /
 1270         *>************************************************************
 1271         *> Run the compiled program                                **
 1272         *>************************************************************
 1273       230-Run-Program SECTION.
 1274  GC0114     MOVE ' Preparing to run program ... press ENTER to close '
 1275  GC0114       TO WS-Output-Msg-TXT
 1276  GC0114     DISPLAY S-Switches-SCR
 1277  GC0114     CALL 'C$SLEEP' USING 3
 1278  GC0909     MOVE SPACES TO WS-Cmd-TXT
 1279  GC0909     MOVE 1 TO WS-I-SUB
 1280         *>************************************************************
 1281         *> If necessary, start with 'cobcrun' command              **
 1282         *>************************************************************
 1283  GC0712     IF WS-CS-LIBRARY-CHR NOT = ' '
 1284                 STRING 'cobcrun ' DELIMITED SIZE
 1285                     INTO WS-Cmd-TXT
 1286                     WITH POINTER WS-I-SUB
 1287             END-IF
 1288         *>************************************************************
 1289         *> Add any necessary path prefix                           **
 1290         *>************************************************************
 1291  GC0712     SET WS-RS-Double-Quote-Used-BOOL TO FALSE
 1292             IF WS-Prog-Folder-TXT NOT = SPACES
 1293  GC0909        IF WS-OS-Cygwin-BOOL AND WS-Prog-Folder-TXT (2:1) = ':'
 1294  GC0909           STRING '/cygdrive/'
 1295  GC0909              INTO WS-Cmd-TXT
 1296  GC0909              WITH POINTER WS-I-SUB
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:10:99   Page   25

   1297  GC0909             STRING LOWER-CASE(WS-Prog-Folder-TXT (1:1))
   1298  GC0909                 INTO WS-Cmd-TXT
   1299  GC0909                 WITH POINTER WS-I-SUB
   1300  GC0909             PERFORM
   1301  GC0909                 VARYING WS-J-SUB FROM 3 BY 1
   1302  GC0909                 UNTIL WS-J-SUB > LENGTH(TRIM(WS-Prog-Folder-TXT))
   1303  GC0909                 IF WS-Prog-Folder-TXT (WS-J-SUB:1) = '\'
   1304  GC0909                     STRING '/'
   1305  GC0909                         INTO WS-Cmd-TXT
   1306  GC0909                         WITH POINTER WS-I-SUB
   1307  GC0909                     ELSE
   1308  GC0909                     STRING WS-Prog-Folder-TXT (WS-J-SUB:1)
   1309  GC0909                         INTO WS-Cmd-TXT
   1310  GC0909                         WITH POINTER WS-I-SUB
   1311  GC0909                 END-IF
   1312  GC0909             END-PERFORM
   1313  GC0909         ELSE
   1314  GC0410             STRING '"' TRIM(WS-Prog-Folder-TXT,TRAILING)
   1315  GC0909                 INTO WS-Cmd-TXT
   1316  GC0909                 WITH POINTER WS-I-SUB
   1317  GC0712             SET WS-RS-Double-Quote-Used-BOOL TO TRUE
   1318  GC0909         END-IF
   1319  GC0712         STRING WS-OS-Dir-CHR
   1320  GC0909             INTO WS-Cmd-TXT
   1321  GC0909             WITH POINTER WS-I-SUB
   1322  GC0909     ELSE
   1323  GC0909         IF WS-OS-Cygwin-BOOL OR WS-OS-UNIX-BOOL
   1324  GC0909             STRING './'
   1325  GC0909                 INTO WS-Cmd-TXT
   1326  GC0909                 WITH POINTER WS-I-SUB
   1327  GC0909         END-IF
   1328          END-IF
   1329      *>*************************************************************
   1330      *> Insert program filename                               **
   1331      *>*************************************************************
   1332  GC0909     STRING TRIM(WS-Pgm-Nm-TXT,TRAILING)
   1333  GC0909         INTO WS-Cmd-TXT
   1334  GC0909         WITH POINTER WS-I-SUB
   1335      *>*************************************************************
   1336      *> Insert proper extension                               **
   1337      *>*************************************************************
   1338  GC0712     IF WS-CS-LIBRARY-CHR = ' '
   1339  GC0712         IF WS-OS-Exe-Ext-CONST > ' '
   1340  GC0712             STRING WS-OS-Exe-Ext-CONST DELIMITED SPACE
   1341  GC0712                 INTO WS-Cmd-TXT
   1342  GC0712                 WITH POINTER WS-I-SUB
   1343  GC0712         END-IF
   1344  GC0712     ELSE
   1345  GC0712         IF WS-OS-Lib-Ext-CONST > ' '
   1346  GC0712             STRING WS-OS-Lib-Ext-CONST DELIMITED SPACE
   1347  GC0712                 INTO WS-Cmd-TXT
   1348  GC0712                 WITH POINTER WS-I-SUB
   1349  GC0712         END-IF
   1350  GC0712     END-IF
```

```
1351  GC0712     IF WS-RS-Double-Quote-Used-BOOL
1352  GC0712        STRING '"' DELIMITED SIZE
1353  GC0712           INTO WS-Cmd-TXT
1354  GC0712           WITH POINTER WS-I-SUB
1355  GC0712     END-IF
1356             IF WS-CS-Args-TXT NOT = SPACES
1357  GC0809        STRING ' ' TRIM(WS-CS-Args-TXT,TRAILING)
1358                   INTO WS-Cmd-TXT
1359                   WITH POINTER WS-I-SUB
1360             END-IF
1361         *>**********************************************************
1362         *> Run the program                                       **
1363         *>**********************************************************
1364  GC0114     CALL X'E4'
1365             CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
1366  GC0712     MOVE SPACES TO WS-Output-Msg-TXT
1367  GC0114     ACCEPT WS-Output-Msg-TXT(1:1) AT 0101
1368             PERFORM 900-Terminate
1369         * -- Control will NOT return
1370             .
1371         /
1372         *>**********************************************************
1373         *> Determine if the program being compiled is a MAIN program   **
1374         *>**********************************************************
1375          240-Find-LINKAGE-SECTION SECTION.
1376             OPEN INPUT F-Source-Code-FILE
1377  GC0712     MOVE ' ' TO WS-CS-LIBRARY-CHR
1378             SET WS-RS-More-To-1st-Prog-BOOL   TO TRUE
1379             PERFORM UNTIL WS-RS-1st-Prog-Complete-BOOL
1380                 READ F-Source-Code-FILE AT END
1381                     CLOSE F-Source-Code-FILE
1382                     EXIT SECTION
1383                 END-READ
1384  GC0712         CALL 'CHECKSRC'
1385  GC0712            USING BY CONTENT   F-Source-Code-REC
1386  GC0712                  BY REFERENCE WS-RS-Source-Record-Type-CHR
1387                 IF WS-RS-Source-Rec-Ident-BOOL
1388                     SET WS-RS-1st-Prog-Complete-BOOL TO TRUE
1389                 END-IF
1390             END-PERFORM
1391  GC0712     SET WS-RS-Source-Rec-Ignored-BOOL TO TRUE
1392             PERFORM UNTIL WS-RS-Source-Rec-Linkage-BOOL
1393                     OR WS-RS-Source-Rec-Ident-BOOL
1394                 READ F-Source-Code-FILE AT END
1395                     CLOSE F-Source-Code-FILE
1396                     EXIT SECTION
1397                 END-READ
1398  GC0712         CALL 'CHECKSRC'
1399  GC0712            USING BY CONTENT   F-Source-Code-REC
1400  GC0712                  BY REFERENCE WS-RS-Source-Record-Type-CHR
1401             END-PERFORM
1402             CLOSE F-Source-Code-FILE
1403             IF WS-RS-Source-Rec-Linkage-BOOL
1404  GC0712         MOVE SELCHAR TO WS-CS-LIBRARY-CHR
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:10:99   Page    27
  1405            END-IF
  1406               .
  1407        /
  1408  GC0712*>*****************************************************************
  1409  GC0712*> Attempt to open the listing file as a command.  This will - **
  1410  GC1113*> if the user has associated filetype/extension 'gclst' with  **
  1411  GC0712*> an application - invoke the appropriate application to       **
  1412  GC0712*> allow the user to view the listing.                         **
  1413  GC0712*>*****************************************************************'
  1414  GC0712 250-Autoload-Listing SECTION.
  1415  GC0712     EVALUATE TRUE
  1416  GC0712        WHEN WS-OS-Windows-BOOL OR WS-OS-Cygwin-BOOL
  1417  GC0712            MOVE SPACES TO WS-Cmd-TXT
  1418  GC0712            STRING
  1419  GC0712                'cmd /c '
  1420  GC0712                TRIM(WS-Listing-Filename-TXT,TRAILING)
  1421  GC0712                DELIMITED SIZE INTO WS-Cmd-TXT
  1422  GC0712            CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
  1423  GC0712        WHEN WS-OS-OSX-BOOL
  1424  GC0712            MOVE SPACES TO WS-Cmd-TXT
  1425  GC0712            STRING
  1426  GC0712                'open -t '
  1427  GC0712                TRIM(WS-Listing-Filename-TXT,TRAILING)
  1428  GC0712                DELIMITED SIZE INTO WS-Cmd-TXT
  1429  GC0712            CALL 'SYSTEM' USING TRIM(WS-Cmd-TXT,TRAILING)
  1430  GC0712     END-EVALUATE
  1431  GC0712*>    **********************************************************
  1432  GC0712*>    ** Since we had to do our own '-save-temps' when we      **
  1433  GC0712*>    ** compiled (in order to generate the cross-reference    **
  1434  GC0712*>    ** listing) we now need to clean up after ourselves.     **
  1435  GC0712*>    **********************************************************
  1436  GC1112     DISPLAY S-Blank-SCR
  1437  GC0712     IF WS-OS-Windows-BOOL
  1438  GC0712        MOVE CONCATENATE('del ',TRIM(WS-Pgm-Nm-TXT,TRAILING))
  1439  GC0712           TO WS-Cmd-TXT
  1440  GC0712     ELSE
  1441  GC0712        MOVE CONCATENATE('rm ',TRIM(WS-Pgm-Nm-TXT,TRAILING))
  1442  GC0712           TO WS-Cmd-TXT
  1443  GC0712     END-IF
  1444  GC0712     CALL 'SYSTEM'
  1445  GC0712        USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.c')
  1446  GC0712     CALL 'SYSTEM'
  1447  GC0712        USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.c.h')
  1448  GC0712     CALL 'SYSTEM'
  1449  GC0712        USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.c.l*.h')
  1450  GC0712     CALL 'SYSTEM'
  1451  GC0712        USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.i')
  1452  GC0712     CALL 'SYSTEM'
  1453  GC0712        USING CONCATENATE(TRIM(WS-Cmd-TXT,TRAILING),'.o')
  1454
  1455  GC0712     .
  1456        /
  1457        *>*************************************************************
  1458        *> Display a message and halt the program                   **
```

```
ACS Cobol Xref v2.02.04          Dictionary File for GCIC     06/03/2022  23:09:10:99   Page   28

  1459        *>************************************************************
  1460          900-Terminate SECTION.
  1461 GC0909     IF WS-Output-Msg-TXT > SPACES
  1462 GC0909         DISPLAY S-Switches-SCR
  1463 GC0909         CALL 'C$SLEEP' USING 2
  1464 GC0909     END-IF
  1465            DISPLAY S-Blank-SCR
  1466            STOP RUN
  1467            .
  1468
  1469         END PROGRAM GCic.
  1470       /
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:10:99   Page   29
Symbols of Module: GCIC (GCIC)
-----------------------------

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

F-COBC-OUTPUT-FILE             000192F  000201 001210 001228
F-COBC-OUTPUT-REC              000202F  001211 001216 001217 001225 001226
F-SOURCE-CODE-FILE             000195F  000204 000813 001376 001380 001381 001394 001395 001402
F-SOURCE-CODE-REC              000205F  001385 001399
WS-FILE-NAME-TXT               000195F  000399 000865 000870 000933 000938 000941 000954 000957
                                        000964 000967 000978 001251
WS-FSM-STATUS-CD               000197F  000405 000828 000862
WS-LISTING-FILENAME-TXT        000192F  000417 001194 001195 001204 001222 001250 001420 001427
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:11:00   Page   30
Symbols of Module: GCIC (GCIC)
------------------------------


Data Section (WORKING-STORAGE)  Defn    Locations
------------------------------+----------------------------------------------------------------


COB-COLOR-BLACK                000232W  000597 000602 000692 000702 000712 000717 000727 000734
                                        000749 000764 000780 000787 000794
COB-COLOR-BLUE                 000233W  000680
COB-COLOR-CYAN                 000235W  000693
COB-COLOR-GREEN                000234W  000603 000718 000765 000781
COB-COLOR-MAGENTA              000237W
COB-COLOR-RED                  000236W  000686 000750
COB-COLOR-WHITE                000239W  000598 000681 000687 000703 000713 000728 000735 000788
                                        000795
COB-COLOR-YELLOW               000238W
COB-SCR-BACK-TAB               000321W
COB-SCR-BACKSPACE              000328W
COB-SCR-DELETE                 000327W
COB-SCR-ESC                    000318W  001085
COB-SCR-F1                     000245W  001032
COB-SCR-F10                    000254W
COB-SCR-F11                    000255W
COB-SCR-F12                    000256W  001088
COB-SCR-F13                    000257W
COB-SCR-F14                    000258W
COB-SCR-F15                    000259W
COB-SCR-F16                    000260W
COB-SCR-F17                    000261W
COB-SCR-F18                    000262W
COB-SCR-F19                    000263W
COB-SCR-F2                     000246W  001038
COB-SCR-F20                    000264W
COB-SCR-F21                    000265W
COB-SCR-F22                    000266W
COB-SCR-F23                    000267W
COB-SCR-F24                    000268W
COB-SCR-F25                    000269W
COB-SCR-F26                    000270W
COB-SCR-F27                    000271W
COB-SCR-F28                    000272W
COB-SCR-F29                    000273W
COB-SCR-F3                     000247W  001044
COB-SCR-F30                    000274W
COB-SCR-F31                    000275W
COB-SCR-F32                    000276W
COB-SCR-F33                    000277W
COB-SCR-F34                    000278W
COB-SCR-F35                    000279W
COB-SCR-F36                    000280W
COB-SCR-F37                    000281W
COB-SCR-F38                    000282W
COB-SCR-F39                    000283W
COB-SCR-F4                     000248W  001050
COB-SCR-F40                    000284W
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC     06/03/2022  23:09:11:00   Page   31
Symbols of Module: GCIC (GCIC)
-----------------------------

Data Section (WORKING-STORAGE)  Defn     Locations
-----------------------------+----------------------------------------------------------------

COB-SCR-F41                  000285W
COB-SCR-F42                  000286W
COB-SCR-F43                  000287W
COB-SCR-F44                  000288W
COB-SCR-F45                  000289W
COB-SCR-F46                  000290W
COB-SCR-F47                  000291W
COB-SCR-F48                  000292W
COB-SCR-F49                  000293W
COB-SCR-F5                   000249W  001056
COB-SCR-F50                  000294W
COB-SCR-F51                  000295W
COB-SCR-F52                  000296W
COB-SCR-F53                  000297W
COB-SCR-F54                  000298W
COB-SCR-F55                  000299W
COB-SCR-F56                  000300W
COB-SCR-F57                  000301W
COB-SCR-F58                  000302W
COB-SCR-F59                  000303W
COB-SCR-F6                   000250W  001061
COB-SCR-F60                  000304W
COB-SCR-F61                  000305W
COB-SCR-F62                  000306W
COB-SCR-F63                  000307W
COB-SCR-F64                  000308W
COB-SCR-F7                   000251W  001067
COB-SCR-F8                   000252W  001073
COB-SCR-F9                   000253W  001079
COB-SCR-FATAL                000335W
COB-SCR-INSERT               000326W
COB-SCR-KEY-DOWN             000316W
COB-SCR-KEY-END              000330W
COB-SCR-KEY-HOME             000329W
COB-SCR-KEY-LEFT             000322W
COB-SCR-KEY-RIGHT            000323W
COB-SCR-KEY-UP               000314W
COB-SCR-KEY_DOWN             000317W
COB-SCR-KEY_UP               000315W
COB-SCR-MAX-FIELD            000336W
COB-SCR-NO-FIELD             000332W
COB-SCR-OK                   000243W
COB-SCR-PAGE-DOWN            000312W
COB-SCR-PAGE-UP              000310W
COB-SCR-PAGE_DOWN            000313W
COB-SCR-PAGE_UP              000311W
COB-SCR-PRINT                000319W
COB-SCR-TAB                  000320W
COB-SCR-TIME-OUT             000333W
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:11:00   Page   32
Symbols of Module: GCIC (GCIC)
----------------------------


Data Section (WORKING-STORAGE)  Defn    Locations
-----------------------------+-----------------------------------------------------------------


F1                        000364W
F12                       000358W
F2                        000371W
F3                        000367W
F4                        000365W
F5                        000368W  000415
F6                        000369W
F7                        000372W
F8                        000366W
F9                        000370W
WS-CMD-ARGS-TXT           000387W  000925 000927 000928 000931 000936
WS-CMD-END-QUOTE-CHR      000389W  000929 000932
WS-CMD-SUB                000391W  000926 000930 000934 000939
WS-CMD-TXT                000385W  001107 001202 001207 001208 001209 001278 001285 001295
                                   001298 001305 001309 001315 001320 001325 001333 001341
                                   001347 001353 001358 001365 001417 001421 001422 001424
                                   001428 001429 001439 001442 001445 001447 001449 001451
                                   001453
WS-COBC-CMD-TXT           000393W  001108 001117 001121 001125 001129 001134 001139 001144
                                   001149 001154 001159 001163 001176 001184 001188 001203
WS-COMPILATION-SWITCHES-TXT 000338W
WS-CONFIG-FN-TXT          000395W  001113 001119
WS-CS-ALL-SWITCHES-TXT    000373W  000918
WS-CS-ARG-H1-TXT          000340W  000798
WS-CS-ARG-H2-TXT          000341W  000799
WS-CS-ARGS-TXT            000339W  001356 001357
WS-CS-CONFIG-NUM          000354W  000356 000358 001089 001090 001091 001112
WS-CS-DEBUG-CHR           000375W  000751 001033 001034 001036 001132
WS-CS-EXECUTE-CHR         000376W  000754 000888 001051 001052 001054
WS-CS-EXTRA-H1-TXT        000361W  000796
WS-CS-EXTRA-H2-TXT        000362W  000797
WS-CS-EXTRA-TXT           000360W  001168 001180 001182
WS-CS-FILENAME-TXT        000351W  000790 001112
WS-CS-FILENAMES-TABLE-TXT 000350W
WS-CS-FILENAMES-TXT       000342W  000350
WS-CS-FREE-CHR            000377W  000759 001074 001075 001077 001157
WS-CS-LIBRARY-CHR         000378W  000753 001045 001046 001048 001123 001283 001338 001377
                                   001404
WS-CS-LISTING-CHR         000379W  000755 000884 001021 001024 001027 001170 001172 001174
WS-CS-NOFUNC-CHR          000380W  000757 001062 001063 001065 001147
WS-CS-NOTRUNC-CHR         000381W  000760 001080 001081 001083 001137
WS-CS-SWITCH-DEFAULTS-TXT 000363W  000374
WS-CS-TRACEALL-CHR        000382W  000752 001039 001040 001042 001142
WS-CS-WARNALL-CHR         000383W  000758 001068 001069 001071 001152
WS-DELETE-FN-TXT          000397W
WS-FILE-NAME-TXT          000399W  000865 000870 000933 000938 000941 000954 000957 000964
                                   000967 000978 001251
WS-FILE-STATUS-MESSAGE-TXT 000403W
WS-FN-CHR                 000400W  000959 000966 000970
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:11:00   Page   33
Symbols of Module: GCIC (GCIC)
-----------------------------


Data Section (WORKING-STORAGE)  Defn    Locations
-----------------------------+------------------------------------------------------------------


WS-FSM-MSG-TXT                  000407W  000829 000830 000831 000832 000833 000834 000835 000836
                                         000837 000838 000839 000840 000841 000842 000843 000844
                                         000845 000846 000847 000848 000849 000850 000851 000852
                                         000853 000854 000855 000856 000857 000858
WS-FSM-STATUS-CD                000405W  000828 000862
WS-HORIZONTAL-LINE-TXT          000409W  000605 000615 000619 000621 000645 000647 000651 000661
                                         000665 000675 001003
WS-I-SUB                        000411W  000957 000958 000959 000960 000962 000966 000970 000985
                                         000986 000987 000988 000990 000994 000998 001111 001122
                                         001126 001130 001135 001140 001145 001150 001155 001160
                                         001164 001177 001185 001189 001279 001286 001296 001299
                                         001306 001310 001316 001321 001326 001334 001342 001348
                                         001354 001359
WS-J-SUB                        000413W  001301 001302
WS-LISTING-CD                   000415W  001018 001057 001058 001059 001255
WS-LISTING-FILENAME-TXT         000417W  001194 001195 001204 001222 001250 001420 001427
WS-LISTING-TXT                  000419W  000771 001020 001023 001026
WS-OC-COMPILE-DT                000421W  000683 000911 000912
WS-OS-CYGWIN-BOOL               000455W  000954 000978 001293 001323 001416
WS-OS-DIR-CHR                   000424W  000430 000436 000442 000448 000955 000959 000970 000979
                                         001319
WS-OS-EXE-EXT-CONST             000425W  000431 000437 000443 000449 001339 001340
WS-OS-LIB-EXT-CONST             000426W  000432 000438 000444 000450 001345 001346
WS-OS-LIB-TYPE-CONST            000427W  000433 000439 000445 000451 000769
WS-OS-OSX-BOOL                  000457W  001423
WS-OS-TYPE-CD                   000428W  000434 000440 000446 000452 001005 001252
WS-OS-TYPE-FILLER-TXT           000459W  000465
WS-OS-TYPE-TXT                  000466W  001005
WS-OS-TYPES-TXT                 000465W
WS-OS-UNIX-BOOL                 000456W  001323
WS-OS-WINDOWS-BOOL              000454W  001416 001437
WS-OUTPUT-MSG-TXT               000469W  000688 000861 001008 001095 001109 001199 001214 001215
                                         001223 001231 001243 001249 001258 001263 001275 001366
                                         001367 001461
WS-PATH-DELIMITER-CHR           000471W
WS-PFN-CHR                      000478W  000987 000994 000998
WS-PGM-NM-TXT                   000481W  000991 000996 001193 001332 001438 001441
WS-PROG-EXTENSION-TXT           000473W  000992 000997
WS-PROG-FILE-NAME-TXT           000477W  000729 000964 000969 000985 000991 000995 001187
WS-PROG-FOLDER-TXT              000475W  000730 000963 000968 000972 000973 000976 001292 001293
                                         001297 001302 001303 001308 001314
WS-RS-1ST-PROG-COMPLETE-BOOL    000494W  001379 001388
WS-RS-COMPILE-FAILED-BOOL       000487W  001220 001232
WS-RS-COMPILE-OK-BOOL           000485W  000883 001213
WS-RS-COMPILE-OK-CHR            000484W
WS-RS-COMPILE-OK-WARN-BOOL      000486W  000883
WS-RS-COMPLETE-BOOL             000489W  000880 001218
WS-RS-COMPLETE-CHR              000488W
WS-RS-DOUBLE-QUOTE-USED-BOOL    000492W  001291 001317 001351
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:11:00   Page   34
Symbols of Module: GCIC (GCIC)
------------------------------


Data Section (WORKING-STORAGE)  Defn     Locations
-----------------------------+------------------------------------------------------------------

WS-RS-IDENT-DIV-CHR            000493W
WS-RS-MORE-TO-1ST-PROG-BOOL    000495W  001378
WS-RS-NO-SWITCH-CHANGES-BOOL   000497W  001017 001098
WS-RS-NO-SWITCH-CHGS-CHR       000496W
WS-RS-NOT-COMPLETE-BOOL        000490W  000879
WS-RS-OUTPUT-FILE-AVAIL-BOOL   000501W  000889 001201
WS-RS-OUTPUT-FILE-BUSY-BOOL    000500W
WS-RS-OUTPUT-FILE-BUSY-CHR     000499W
WS-RS-QUOTE-CHR                000491W
WS-RS-SOURCE-REC-IDENT-BOOL    000504W  001387 001393
WS-RS-SOURCE-REC-IGNORED-BOOL  000505W  001391
WS-RS-SOURCE-REC-LINKAGE-BOOL  000503W  001392 001403
WS-RS-SOURCE-RECORD-TYPE-CHR   000502W  001386 001400
WS-RS-SWITCH-CHANGES-BOOL      000498W  001016
WS-RS-SWITCH-ERROR-CHR         000506W
WS-RS-SWITCH-IS-BAD-BOOL       000507W
WS-RS-SWITCH-IS-GOOD-BOOL      000508W
WS-RUNTIME-SWITCHES-TXT        000483W
WS-TALLY-QTY                   000510W  001167 001169 001171
```

```
ACS Cobol Xref v2.02.04       Dictionary File for GCIC    06/03/2022  23:09:11:00   Page   35
Symbols of Module: GCIC (GCIC)
-----------------------------

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

COB-COLOR-BLACK                  000597S  000602 000692 000702 000712 000717 000727 000734 000749
                                          000764 000780 000787 000794
COB-COLOR-BLUE                   000680S
COB-COLOR-CYAN                   000693S
COB-COLOR-GREEN                  000603S  000718 000765 000781
COB-COLOR-RED                    000686S  000750
COB-COLOR-WHITE                  000598S  000681 000687 000703 000713 000728 000735 000788 000795
LD-HORIZ-LINE                    000573S  000582 000591 001003
LD-LL-CORNER                     000568S  000577 000586 000614 000644 000660 000674
LD-LOWER-T                       000572S  000581 000590 000646
LD-LR-CORNER                     000570S  000579 000588 000616 000648 000662 000676
LD-UL-CORNER                     000567S  000576 000585 000604 000618 000650 000664
LD-UPPER-T                       000571S  000580 000589 000620
LD-UR-CORNER                     000569S  000578 000587 000606 000622 000652 000666
LD-VERT-LINE                     000574S  000583 000592 000608 000609 000611 000612 000624 000625
                                          000626 000628 000629 000630 000632 000633 000634 000636
                                          000637 000638 000640 000641 000642 000654 000655 000657
                                          000658 000668 000669 000671 000672
S-BLANK-SCR                      000595S  000885 001436 001465
S-SWITCHES-SCR                   000597S  001029 001110 001200 001229 001244 001265 001276 001462
WS-CS-ARG-H1-TXT                 000798S
WS-CS-ARG-H2-TXT                 000799S
WS-CS-DEBUG-CHR                  000751S  001033 001034 001036 001132
WS-CS-EXECUTE-CHR                000754S  000888 001051 001052 001054
WS-CS-EXTRA-H1-TXT               000796S
WS-CS-EXTRA-H2-TXT               000797S
WS-CS-FILENAME-TXT               000790S  001112
WS-CS-FREE-CHR                   000759S  001074 001075 001077 001157
WS-CS-LIBRARY-CHR                000753S  001045 001046 001048 001123 001283 001338 001377 001404
WS-CS-LISTING-CHR                000755S  000884 001021 001024 001027 001170 001172 001174
WS-CS-NOFUNC-CHR                 000757S  001062 001063 001065 001147
WS-CS-NOTRUNC-CHR                000760S  001080 001081 001083 001137
WS-CS-TRACEALL-CHR               000752S  001039 001040 001042 001142
WS-CS-WARNALL-CHR                000758S  001068 001069 001071 001152
WS-HORIZONTAL-LINE-TXT           000605S  000615 000619 000621 000645 000647 000651 000661 000665
                                          000675 001003
WS-LISTING-TXT                   000771S  001020 001023 001026
WS-OC-COMPILE-DT                 000683S  000911 000912
WS-OS-LIB-TYPE-CONST             000769S
WS-OUTPUT-MSG-TXT                000688S  000861 001008 001095 001109 001199 001214 001215 001223
                                          001231 001243 001249 001258 001263 001275 001366 001367
                                          001461
WS-PROG-FILE-NAME-TXT            000729S  000964 000969 000985 000991 000995 001187
WS-PROG-FOLDER-TXT               000730S  000963 000968 000972 000973 000976 001292 001293 001297
                                          001302 001303 001308 001314
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:11:00   Page   36
Symbols of Module: GCIC (GCIC)
-----------------------------
Variable Tested [S]           Symbol (88-Conditions)
--------------------------------------------------------------

WS-OS-TYPE-CD                 WS-OS-WINDOWS-BOOL
WS-OS-TYPE-CD                 WS-OS-CYGWIN-BOOL
WS-OS-TYPE-CD                 WS-OS-UNIX-BOOL
WS-OS-TYPE-CD                 WS-OS-OSX-BOOL
WS-RS-COMPILE-OK-CHR          WS-RS-COMPILE-OK-BOOL
WS-RS-COMPILE-OK-CHR          WS-RS-COMPILE-OK-WARN-BOOL
WS-RS-COMPILE-OK-CHR          WS-RS-COMPILE-FAILED-BOOL
WS-RS-COMPLETE-CHR            WS-RS-COMPLETE-BOOL
WS-RS-COMPLETE-CHR            WS-RS-NOT-COMPLETE-BOOL
WS-RS-IDENT-DIV-CHR           WS-RS-1ST-PROG-COMPLETE-BOOL
WS-RS-IDENT-DIV-CHR           WS-RS-MORE-TO-1ST-PROG-BOOL
WS-RS-NO-SWITCH-CHGS-CHR      WS-RS-NO-SWITCH-CHANGES-BOOL
WS-RS-NO-SWITCH-CHGS-CHR      WS-RS-SWITCH-CHANGES-BOOL
WS-RS-OUTPUT-FILE-BUSY-CHR    WS-RS-OUTPUT-FILE-BUSY-BOOL
WS-RS-OUTPUT-FILE-BUSY-CHR    WS-RS-OUTPUT-FILE-AVAIL-BOOL
WS-RS-QUOTE-CHR               WS-RS-DOUBLE-QUOTE-USED-BOOL
WS-RS-SOURCE-RECORD-TYPE-CHR  WS-RS-SOURCE-REC-LINKAGE-BOOL
WS-RS-SOURCE-RECORD-TYPE-CHR  WS-RS-SOURCE-REC-IDENT-BOOL
WS-RS-SOURCE-RECORD-TYPE-CHR  WS-RS-SOURCE-REC-IGNORED-BOOL
WS-RS-SWITCH-ERROR-CHR        WS-RS-SWITCH-IS-BAD-BOOL
WS-RS-SWITCH-ERROR-CHR        WS-RS-SWITCH-IS-GOOD-BOOL
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:11:00   Page   37
Symbols of Module: GCIC (GCIC)
-----------------------------
Variable Tested               Symbol (88-Conditions) [S]
-------------------------------------------------------------

WS-OS-TYPE-CD                 WS-OS-CYGWIN-BOOL
WS-OS-TYPE-CD                 WS-OS-OSX-BOOL
WS-OS-TYPE-CD                 WS-OS-UNIX-BOOL
WS-OS-TYPE-CD                 WS-OS-WINDOWS-BOOL
WS-RS-IDENT-DIV-CHR           WS-RS-1ST-PROG-COMPLETE-BOOL
WS-RS-COMPILE-OK-CHR          WS-RS-COMPILE-FAILED-BOOL
WS-RS-COMPILE-OK-CHR          WS-RS-COMPILE-OK-BOOL
WS-RS-COMPILE-OK-CHR          WS-RS-COMPILE-OK-WARN-BOOL
WS-RS-COMPLETE-CHR            WS-RS-COMPLETE-BOOL
WS-RS-QUOTE-CHR               WS-RS-DOUBLE-QUOTE-USED-BOOL
WS-RS-IDENT-DIV-CHR           WS-RS-MORE-TO-1ST-PROG-BOOL
WS-RS-NO-SWITCH-CHGS-CHR      WS-RS-NO-SWITCH-CHANGES-BOOL
WS-RS-COMPLETE-CHR            WS-RS-NOT-COMPLETE-BOOL
WS-RS-OUTPUT-FILE-BUSY-CHR    WS-RS-OUTPUT-FILE-AVAIL-BOOL
WS-RS-OUTPUT-FILE-BUSY-CHR    WS-RS-OUTPUT-FILE-BUSY-BOOL
WS-RS-SOURCE-RECORD-TYPE-CHR  WS-RS-SOURCE-REC-IDENT-BOOL
WS-RS-SOURCE-RECORD-TYPE-CHR  WS-RS-SOURCE-REC-IGNORED-BOOL
WS-RS-SOURCE-RECORD-TYPE-CHR  WS-RS-SOURCE-REC-LINKAGE-BOOL
WS-RS-NO-SWITCH-CHGS-CHR      WS-RS-SWITCH-CHANGES-BOOL
WS-RS-SWITCH-ERROR-CHR        WS-RS-SWITCH-IS-BAD-BOOL
WS-RS-SWITCH-ERROR-CHR        WS-RS-SWITCH-IS-GOOD-BOOL
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:11:00   Page   38
Symbols of Module: GCIC (GCIC)
------------------------------
Functions                     Defn    Locations
-----------------------------+-----------------------------------------------------------------

CONCATENATE                   001004I  001193 001215 001221 001438 001441 001445 001447 001449
                                       001451 001453
LOWER-CASE                    001112I  001297
TRIM                          000865I  000870 000976 001005 001119 001182 001187 001193 001203
                                       001209 001222 001302 001314 001332 001357 001365 001420
                                       001422 001427 001429 001438 001441 001445 001447 001449
                                       001451 001453
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC     06/03/2022  23:09:11:00   Page   39
Symbols of Module: GCIC (GCIC)
-----------------------------
Called Procedures              Type   Locations
-----------------------------+----------------------------------------------------------
 
C$SLEEP                        SYSTEM 001230 001266 001277 001463
CBL_CHANGE_DIR                 SYSTEM 000975
CBL_DELETE_FILE                SYSTEM 001195
CHECKSRC                       USER   001384 001398
E4                             SYSTEM 001364
LISTING                        USER   001250
SYSTEM                         SYSTEM 001209 001365 001422 001429 001444 001446 001448 001450
                                      001452
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:11:00   Page   40
Symbols of Module: GCIC (GCIC)
-----------------------------
Procedure                      Defn   Locations
-----------------------------+----------------------------------------------------------------

CAUTION:                       000860P
FOUND                          000860P
G29                            000860P
LPP                            001253P
LPPP                           001254P
MORE                           000860P
ONE                            000860P
SELCHAR                        000920P  000921 001024 001027 001034 001040 001046 001052 001063
                                        001069 001075 001081 001404
SYSERR                         001208P
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:11:00   Page   41
Symbols of Module: GCIC (GCIC)
------------------------------
Unreferenced Working Storage Symbols


CBL_CHANGE_DIR                  000975C
CBL_DELETE_FILE                 001195C
COB-COLOR-MAGENTA               000237W
COB-COLOR-YELLOW                000238W
COB-SCR-BACK-TAB                000321W
COB-SCR-BACKSPACE               000328W
COB-SCR-DELETE                  000327W
COB-SCR-F10                     000254W
COB-SCR-F11                     000255W
COB-SCR-F13                     000257W
COB-SCR-F14                     000258W
COB-SCR-F15                     000259W
COB-SCR-F16                     000260W
COB-SCR-F17                     000261W
COB-SCR-F18                     000262W
COB-SCR-F19                     000263W
COB-SCR-F20                     000264W
COB-SCR-F21                     000265W
COB-SCR-F22                     000266W
COB-SCR-F23                     000267W
COB-SCR-F24                     000268W
COB-SCR-F25                     000269W
COB-SCR-F26                     000270W
COB-SCR-F27                     000271W
COB-SCR-F28                     000272W
COB-SCR-F29                     000273W
COB-SCR-F30                     000274W
COB-SCR-F31                     000275W
COB-SCR-F32                     000276W
COB-SCR-F33                     000277W
COB-SCR-F34                     000278W
COB-SCR-F35                     000279W
COB-SCR-F36                     000280W
COB-SCR-F37                     000281W
COB-SCR-F38                     000282W
COB-SCR-F39                     000283W
COB-SCR-F40                     000284W
COB-SCR-F41                     000285W
COB-SCR-F42                     000286W
COB-SCR-F43                     000287W
COB-SCR-F44                     000288W
COB-SCR-F45                     000289W
COB-SCR-F46                     000290W
COB-SCR-F47                     000291W
COB-SCR-F48                     000292W
COB-SCR-F49                     000293W
COB-SCR-F50                     000294W
COB-SCR-F51                     000295W
COB-SCR-F52                     000296W
COB-SCR-F53                     000297W
COB-SCR-F54                     000298W
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:11:00  Page   42
Symbols of Module: GCIC (GCIC)
------------------------------
Unreferenced Working Storage Symbols


COB-SCR-F55                    000299W
COB-SCR-F56                    000300W
COB-SCR-F57                    000301W
COB-SCR-F58                    000302W
COB-SCR-F59                    000303W
COB-SCR-F60                    000304W
COB-SCR-F61                    000305W
COB-SCR-F62                    000306W
COB-SCR-F63                    000307W
COB-SCR-F64                    000308W
COB-SCR-FATAL                  000335W
COB-SCR-INSERT                 000326W
COB-SCR-KEY-DOWN               000316W
COB-SCR-KEY-END                000330W
COB-SCR-KEY-HOME               000329W
COB-SCR-KEY-LEFT               000322W
COB-SCR-KEY-RIGHT              000323W
COB-SCR-KEY-UP                 000314W
COB-SCR-KEY_DOWN               000317W
COB-SCR-KEY_UP                 000315W
COB-SCR-MAX-FIELD              000336W
COB-SCR-NO-FIELD               000332W
COB-SCR-OK                     000243W
COB-SCR-PAGE-DOWN              000312W
COB-SCR-PAGE-UP                000310W
COB-SCR-PAGE_DOWN              000313W
COB-SCR-PAGE_UP                000311W
COB-SCR-PRINT                  000319W
COB-SCR-TAB                    000320W
COB-SCR-TIME-OUT               000333W
E4                             001364C
F1                             000364W
F12                            000358W
F2                             000371W
F3                             000367W
F4                             000365W
F6                             000369W
F7                             000372W
F8                             000366W
F9                             000370W
LISTING                        001250C
WS-COMPILATION-SWITCHES-TXT    000338W
WS-CS-FILENAMES-TABLE-TXT      000350W
WS-DELETE-FN-TXT               000397W
WS-FILE-STATUS-MESSAGE-TXT     000403W
WS-OS-TYPES-TXT                000465W
WS-PATH-DELIMITER-CHR          000471W
WS-RS-COMPILE-OK-CHR           000484W
WS-RS-COMPLETE-CHR             000488W
WS-RS-IDENT-DIV-CHR            000493W
WS-RS-NO-SWITCH-CHGS-CHR       000496W
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:11:00   Page   43
Symbols of Module: GCIC (GCIC)
-----------------------------
Unreferenced Working Storage Symbols

WS-RS-OUTPUT-FILE-BUSY-BOOL      000500W
WS-RS-OUTPUT-FILE-BUSY-CHR       000499W
WS-RS-QUOTE-CHR                  000491W
WS-RS-SWITCH-ERROR-CHR           000506W
WS-RS-SWITCH-IS-BAD-BOOL         000507W
WS-RS-SWITCH-IS-GOOD-BOOL        000508W
WS-RUNTIME-SWITCHES-TXT          000483W
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC    06/03/2022  23:09:11:00   Page   44
Symbols of Module: GCIC (GCIC)
-----------------------------
Unreferenced Procedures

CAUTION:                000860P
FOUND                   000860P
G29                     000860P
LPP                     001253P
LPPP                    001254P
MORE                    000860P
ONE                     000860P
SYSERR                  001208P
```

```
1471         IDENTIFICATION DIVISION.
1472         PROGRAM-ID.  CHECKSRC.
1473        *>*************************************************************
1474        *> This subprogram will scan a line of source code it is given **
1475        *> looking for 'LINKAGE SECTION' or 'IDENTIFICATION DIVISION'. **
1476        *>                                                           **
1477        *>  ****NOTE****   ****NOTE****    ****NOTE****   ****NOTE*** **
1478        *>                                                           **
1479        *> These two strings must be found IN THEIR ENTIRETY within   **
1480        *> the 1st 80 columns of program source records, and cannot   **
1481        *> follow either a '*>' sequence OR a '*' in col 7.          **
1482        *>*************************************************************
1483        *>  DATE  CHANGE DESCRIPTION                                 **
1484        *> ====== ================================================= **
1485        *> GC0809 Initial coding.                                    **
1486        *>*************************************************************
1487         ENVIRONMENT DIVISION.
1488         CONFIGURATION SECTION.
1489         REPOSITORY.
1490             FUNCTION ALL INTRINSIC.
1491         DATA DIVISION.
1492         WORKING-STORAGE SECTION.
1493         01  WS-Compressed-Src-TXT.
1494             05 WS-CS-CHR                    OCCURS 80 TIMES
1495                                             PIC X(1).
1496
1497         01  WS-Runtime-Switches-TXT.
1498             05 WS-RS-Found-SPACE-CHR        PIC X(1).
1499                88 WS-RS-Skipping-SPACE-BOOL     VALUE 'Y'.
1500                88 WS-RS-Not-Skipping-SPACE-BOOL VALUE 'N'.
1501
1502         01  WS-I-SUB                        USAGE BINARY-CHAR.
1503
1504         01  WS-J-SUB                        USAGE BINARY-CHAR.
1505         LINKAGE SECTION.
1506         01  L-Argument-1-TXT.
1507             02 L-A1-CHR                     OCCURS 80 TIMES
1508                                             PIC X(1).
1509
1510         01  L-Argument-2-CHR               PIC X(1).
1511             88 L-A2-LINKAGE-SECTION-BOOL VALUE 'L'.
1512             88 L-A2-IDENT-DIVISION-BOOL  VALUE 'I'.
1513             88 L-A2-Nothing-Special-BOOL VALUE ' '.
1514        /
1515 GC0712 PROCEDURE DIVISION USING BY VALUE     L-Argument-1-TXT
1516 GC0712                         BY REFERENCE L-Argument-2-CHR.
1517        000-Main SECTION.
1518            SET L-A2-Nothing-Special-BOOL TO TRUE
1519            IF L-A1-CHR (7) = '*'
1520                GOBACK
1521            END-IF
1522             .
1523        *>
1524        *> Compress multiple consecutive spaces
```

```
1525         *>
1526              SET WS-RS-Not-Skipping-SPACE-BOOL TO TRUE
1527              MOVE 0 TO WS-J-SUB
1528              MOVE SPACES TO WS-Compressed-Src-TXT
1529              PERFORM VARYING WS-I-SUB FROM 1 BY 1
1530                    UNTIL WS-I-SUB > 80
1531                IF L-A1-CHR (WS-I-SUB) = SPACE
1532                    IF WS-RS-Not-Skipping-SPACE-BOOL
1533                        ADD 1 TO WS-J-SUB
1534                        MOVE UPPER-CASE(L-A1-CHR (WS-I-SUB))
1535                          TO WS-CS-CHR (WS-J-SUB)
1536                        SET WS-RS-Skipping-SPACE-BOOL TO TRUE
1537                    END-IF
1538                ELSE
1539                    SET WS-RS-Not-Skipping-SPACE-BOOL TO TRUE
1540                    ADD 1 TO WS-J-SUB
1541                    MOVE L-A1-CHR (WS-I-SUB) TO WS-CS-CHR (WS-J-SUB)
1542                END-IF
1543              END-PERFORM
1544         *>
1545         *> Scan the compressed source line
1546         *>
1547              PERFORM VARYING WS-I-SUB FROM 1 BY 1
1548                    UNTIL WS-I-SUB > 66
1549                EVALUATE TRUE
1550                    WHEN WS-CS-CHR (WS-I-SUB) = '*'
1551                        IF WS-Compressed-Src-TXT (WS-I-SUB : 2) = '*>'
1552                            GOBACK
1553                        END-IF
1554                    WHEN (WS-CS-CHR (WS-I-SUB) = 'L') AND (WS-I-SUB < 66)
1555                        IF WS-Compressed-Src-TXT (WS-I-SUB : 15)
1556                          = 'LINKAGE SECTION'
1557                            SET L-A2-LINKAGE-SECTION-BOOL TO TRUE
1558                            GOBACK
1559                        END-IF
1560                    WHEN (WS-CS-CHR (WS-I-SUB) = 'I') AND (WS-I-SUB < 58)
1561                        IF WS-Compressed-Src-TXT (WS-I-SUB : 23)
1562                          = 'IDENTIFICATION DIVISION'
1563                            SET L-A2-IDENT-DIVISION-BOOL TO TRUE
1564                            GOBACK
1565                        END-IF
1566                END-EVALUATE
1567              END-PERFORM
1568         *>
1569         *> If we get to here, we never found anything!
1570         *>
1571   +          GOBACK
1572                  .
1573          END PROGRAM CHECKSRC.
1574
```

```
ACS Cobol Xref v2.02.04         Dictionary File for GCIC (CHECKSRC) 06/03/2022  23:09:11:00    Page   47
Symbols of Module: GCIC (CHECKSRC)
----------------------------------

Data Section (WORKING-STORAGE)  Defn    Locations
----------------------------+------------------------------------------------------------------

WS-COMPRESSED-SRC-TXT           001493W  001528 001551 001555 001561
WS-CS-CHR                       001494W  001535 001541 001550 001554 001560
WS-I-SUB                        001502W  001529 001530 001531 001534 001541 001547 001548 001550
                                         001551 001554 001555 001560 001561
WS-J-SUB                        001504W  001527 001533 001535 001540 001541
WS-RS-FOUND-SPACE-CHR           001498W
WS-RS-NOT-SKIPPING-SPACE-BOOL   001500W  001526 001532 001539
WS-RS-SKIPPING-SPACE-BOOL       001499W  001536
WS-RUNTIME-SWITCHES-TXT         001497W
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (CHECKSRC) 06/03/2022  23:09:11:00   Page   48
Symbols of Module: GCIC (CHECKSRC)
--------------------------------


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

L-A1-CHR                         001507K  001519 001531 001534 001541
L-A2-IDENT-DIVISION-BOOL         001512K  001563
L-A2-LINKAGE-SECTION-BOOL        001511K  001557
L-A2-NOTHING-SPECIAL-BOOL        001513K  001518
L-ARGUMENT-1-TXT                 001506K  001515
L-ARGUMENT-2-CHR                 001510K  001516
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (CHECKSRC) 06/03/2022  23:09:11:00    Page   49
Symbols of Module: GCIC (CHECKSRC)
--------------------------------
Variable Tested [S]           Symbol (88-Conditions)
-------------------------------------------------------------

L-ARGUMENT-2-CHR              L-A2-LINKAGE-SECTION-BOOL
L-ARGUMENT-2-CHR              L-A2-IDENT-DIVISION-BOOL
L-ARGUMENT-2-CHR              L-A2-NOTHING-SPECIAL-BOOL
WS-RS-FOUND-SPACE-CHR         WS-RS-SKIPPING-SPACE-BOOL
WS-RS-FOUND-SPACE-CHR         WS-RS-NOT-SKIPPING-SPACE-BOOL
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (CHECKSRC) 06/03/2022  23:09:11:00   Page   50
Symbols of Module: GCIC (CHECKSRC)
-------------------------------
Variable Tested              Symbol (88-Conditions) [S]
-------------------------------------------------------------

L-ARGUMENT-2-CHR             L-A2-IDENT-DIVISION-BOOL
L-ARGUMENT-2-CHR             L-A2-LINKAGE-SECTION-BOOL
L-ARGUMENT-2-CHR             L-A2-NOTHING-SPECIAL-BOOL
WS-RS-FOUND-SPACE-CHR        WS-RS-NOT-SKIPPING-SPACE-BOOL
WS-RS-FOUND-SPACE-CHR        WS-RS-SKIPPING-SPACE-BOOL
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (CHECKSRC) 06/03/2022  23:09:11:00    Page   51
Symbols of Module: GCIC (CHECKSRC)
--------------------------------
Functions                     Defn    Locations
-----------------------------+-----------------------------------------------------------------

UPPER-CASE                    001534I
```

```
ACS Cobol Xref v2.02.04          Dictionary File for GCIC (CHECKSRC) 06/03/2022  23:09:11:00   Page   52
Symbols of Module: GCIC (CHECKSRC)
---------------------------------
Procedure                        Defn    Locations
-----------------------------+----------------------------------------------------------------

None
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (CHECKSRC) 06/03/2022  23:09:11:00    Page    53
Symbols of Module: GCIC (CHECKSRC)
--------------------------------
Unreferenced Working Storage Symbols

WS-RS-FOUND-SPACE-CHR           001498W
WS-RUNTIME-SWITCHES-TXT         001497W


ACS Cobol Xref v2.02.04        Dictionary File for GCIC (CHECKSRC) 06/03/2022  23:09:11:00    Page    54
Symbols of Module: GCIC (CHECKSRC)
--------------------------------
Unreferenced Procedures

None
```

```
ACS Cobol Xref v2.02.04      Dictionary File for GCIC (CHECKSRC) 06/03/2022  23:09:11:00   Page   55
   1575         IDENTIFICATION DIVISION.
   1576         PROGRAM-ID.  LISTING.
   1577         *>**************************************************************
   1578         *> This subprogram generates a cross-reference listing of an   **
   1579         *> GNU COBOL program.                                          **
   1580         *>**************************************************************
   1581         *>                                                            **
   1582         *> AUTHOR:      GARY L. CUTLER                                 **
   1583         *>              Copyright (C) 2010, Gary L. Cutler, GPL        **
   1584         *>                                                            **
   1585         *> DATE-WRITTEN: April 1, 2010                                **
   1586         *>                                                            **
   1587         *>**************************************************************
   1588         *>  DATE  CHANGE DESCRIPTION                                   **
   1589         *> ====== =================================================== **
   1590         *> GC0410 Initial coding                                       **
   1591         *> GC0711 Updates to accommodate the 12MAR2010 version of OC   **
   1592         *> GC0710 Handle duplicate data names (i.e. 'CORRESPONDING' or **
   1593         *>        qualified items) better; ignore 'END PROGRAM' recs   **
   1594         *>        so program name doesn't appear in listing.           **
   1595         *> GC0313 Fix problem where the first procedure name defined   **
   1596         *>        in the PROCEDURE DIVISION lacks a "Defined" line      **
   1597         *>        number.                                              **
   1598         *> GC1213 Updated for 23NOV2013 version of GNU COBOL 2.1; Stop **
   1599         *>        showing functions as if they were identifiers in the **
   1600         *>        xref listing; Flag all CALL argument references with **
   1601         *>        a "C" rather than "*" because they aren't necessari- **
   1602         *>        ly altered; Fixed assorted formatting bugs; DOWN-    **
   1603         *>        WARD COMPATIBLE WITH GNU COBOL 2.0 SYNTAX            **
   1604         *> GC0314 Fix problem where 1st char of 1st token on a line is **
   1605         *>        lost if >>SOURCE MODE IS FREE is in effect and the   **
   1606         *>        1st character is non-blank.                          **
   1607         *> VC1217 Updated compiler version & date to v3.0 & 24DEC2017. **
   1608         *> VC0720 Updated compiler to 3.1 July2020 and the copyright.  **
   1609         *> VC0322 Updated compiler to 3.1.2 March2022 & the copyright. **
   1610         *>**************************************************************
   1611         ENVIRONMENT DIVISION.
   1612         CONFIGURATION SECTION.
   1613         REPOSITORY.
   1614             FUNCTION ALL INTRINSIC.
   1615         INPUT-OUTPUT SECTION.
   1616         FILE-CONTROL.
   1617             SELECT F-Expanded-Src-FILE  ASSIGN TO WS-Expanded-Src-Fn-TXT
   1618                                         ORGANIZATION IS LINE SEQUENTIAL.
   1619  GC0712     SELECT F-Listing-FILE       ASSIGN TO L-Listing-Fn-TXT
   1620                                         ORGANIZATION IS LINE SEQUENTIAL.
   1621             SELECT F-Original-Src-FILE  ASSIGN TO L-Src-Fn-TXT
   1622                                         ORGANIZATION IS LINE SEQUENTIAL.
   1623             SELECT F-Sort-Work-FILE     ASSIGN TO DISK.
   1624         DATA DIVISION.
   1625         FILE SECTION.
   1626         FD  F-Expanded-Src-FILE.
   1627         01  F-Expanded-Src-REC.
   1628             05 F-ES-1-CHR                     PIC X.
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:00     Page   56

  1629              05 F-ES-2-256-TXT-256              PIC X(256).
  1630  GC0712 01  F-Expanded-Src2-REC.
  1631  GC0712     05 F-ES-1-7-TXT                     PIC X(7).
  1632  GC0712     05 F-ES-8-256-TXT                   PIC X(249).
  1633
  1634  GC0712 FD  F-Listing-FILE.
  1635  GC1213 01  F-Listing-96-REC                    PIC X(96).
  1636  GC1213 01  F-Listing-135-REC                   PIC X(135).
  1637         01  F-Listing-REC                       PIC X(135).
  1638
  1639         FD  F-Original-Src-FILE.
  1640         01  F-Original-Src-REC.
  1641  GC0410     05 F-OS-1-128-TXT.
  1642  GC0410        10 FILLER                        PIC X(6).
  1643  GC0410        10 F-OS-7-CHR                     PIC X(1).
  1644  GC0712        10 F-OS-8-72-TXT                  PIC X(65).
  1645  GC0712        10 FILLER                         PIC X(56).
  1646              05 F-OS-129-256-TXT                 PIC X(128).
  1647
  1648         SD  F-Sort-Work-FILE.
  1649         01  F-Sort-Work-REC.
  1650              05 F-SW-Prog-ID-TXT                 PIC X(15).
  1651              05 F-SW-Token-Uc-TXT                PIC X(32).
  1652              05 F-SW-Token-TXT                   PIC X(32).
  1653              05 F-SW-Section-TXT                 PIC X(15).
  1654              05 F-SW-Def-Line-NUM                PIC 9(6).
  1655              05 F-SW-Reference-TXT.
  1656                 10 F-SW-Ref-Line-NUM             PIC 9(6).
  1657                 10 F-SW-Ref-Flag-CHR             PIC X(1).
  1658
  1659         WORKING-STORAGE SECTION.
  1660  GC1213 01  WS-Copyright-TXT                     PIC X(86).
  1661
  1662         01  WS-Curr-CHR                          PIC X(1).
  1663              88 WS-Curr-Char-Is-Punct-BOOL       VALUE '=', '(', ')',
  1664                                                        '*', '/', '&',
  1665                                                        ';', ',', '<',
  1666                                                        '>', ':'.
  1667              88 WS-Curr-Char-Is-Quote-BOOL       VALUE "'", '"'.
  1668              88 WS-Curr-Char-Is-X-BOOL           VALUE 'x', 'X'.
  1669              88 WS-Curr-Char-Is-Z-BOOL           VALUE 'z', 'Z'.
  1670
  1671         01  WS-Curr-Division-TXT                 PIC X(1).
  1672  GC1010      88 WS-CD-In-IDENT-DIV-BOOL          VALUE 'i', 'I', '?'.
  1673  GC1010      88 WS-CD-In-ENV-DIV-BOOL            VALUE 'e', 'E'.
  1674  GC1010      88 WS-CD-In-DATA-DIV-BOOL           VALUE 'd', 'D'.
  1675  GC1010      88 WS-CD-In-PROC-DIV-BOOL           VALUE 'p', 'P'.
  1676
  1677         01  WS-Curr-Line-NUM                     PIC 9(6).
  1678
  1679         01  WS-Curr-Prog-ID-TXT.
  1680              05 FILLER                           PIC X(12).
  1681              05 WS-CPI-13-15-TXT                 PIC X(3).
  1682  GC0712     05 WS-CPI-16-CHR                     PIC X(1).
```

```
1683
1684          01  WS-Curr-Section-TXT.
1685              05 WS-CS-1-CHR                   PIC X(1).
1686              05 WS-CS-2-14-TXT.
1687                  10 FILLER                     PIC X(10).
1688                  10 WS-CS-11-14-TXT            PIC X(3).
1689              05 WS-CS-15-CHR                  PIC X(1).
1690
1691          01  WS-Curr-Verb-TXT                 PIC X(12).
1692
1693          01  WS-Delim-TXT                     PIC X(2).
1694
1695          01  WS-Dummy-TXT                     PIC X(1).
1696
1697          01  WS-Expanded-Src-Fn-TXT           PIC X(256).
1698
1699          01  WS-Filename-TXT                  PIC X(256).
1700
1701  GC1213 01  WS-Flags-TXT.
1702  GC1213     05 WS-Suppress-FF-CHR             PIC X(1).
1703
1704  GC1213 01  WS-Formatted-DT                   PIC 9999/99/99.
1705
1706          01  WS-Group-Indicators-TXT.
1707              05 WS-GI-Prog-ID-TXT              PIC X(15).
1708              05 WS-GI-Token-TXT                PIC X(32).
1709
1710          01  WS-Held-Reference-TXT            PIC X(100).
1711
1712          01  WS-I-SUB                          USAGE BINARY-LONG.
1713
1714          01  WS-J-SUB                          USAGE BINARY-LONG.
1715
1716          01  WS-Lines-Left-NUM                USAGE BINARY-LONG.
1717
1718          01  WS-Lines-Per-Page-NUM            USAGE BINARY-LONG.
1719
1720          01  WS-Lines-Per-Page-Env-TXT        PIC X(256).
1721
1722  GC1010 01  WS-Main-Module-Name-TXT           PIC X(256).
1723
1724          01  WS-Next-CHR                       PIC X(1).
1725              88 WS-Next-Char-Is-Quote-BOOL     VALUE '"', "'".
1726
1727          01  WS-OS-Type-FILLER-TXT.
1728              05 VALUE 'Windows'                 PIC X(14).
1729              05 VALUE 'Windows/Cygwin'          PIC X(14).
1730              05 VALUE 'UNIX/Linux'              PIC X(14).
1731              05 VALUE 'OSX'                     PIC X(14).
1732              05 VALUE 'Windows/MinGW'           PIC X(14).
1733          01  WS-OS-Types-TXT REDEFINES WS-OS-Type-FILLER-TXT.
1734              05 WS-OS-Type-TXT                 PIC X(14)
1735                                     OCCURS 5 TIMES .
1736
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:00     Page    58

  1737  GC0712 01  WS-Page-NUM                           USAGE BINARY-LONG.
  1738
  1739  GC0712 01  WS-Page-No-TXT.
  1740  GC0712     05 WS-PN-Literal-TXT                  PIC X(6).
  1741  GC0712     05 WS-PN-Page-NUM                     PIC Z(3)9.
  1742
  1743  GC1213 01  WS-Program-Path-TXT                   PIC X(135).
  1744
  1745         01  WS-Reserved-Words-TXT.
  1746             05 VALUE '                            ' PIC X(33).
  1747  GC1213     05 VALUE 'FABS                        ' PIC X(33).
  1748             05 VALUE 'VACCEPT                     ' PIC X(33).
  1749             05 VALUE ' ACCESS                     ' PIC X(33).
  1750  GC1213     05 VALUE 'FACOS                       ' PIC X(33).
  1751             05 VALUE ' ACTIVE-CLASS               ' PIC X(33).    UNIMPLEMENTED
  1752             05 VALUE 'VADD                        ' PIC X(33).
  1753             05 VALUE ' ADDRESS                    ' PIC X(33).
  1754             05 VALUE ' ADVANCING                  ' PIC X(33).
  1755             05 VALUE 'KAFTER                      ' PIC X(33).
  1756             05 VALUE ' ALIGNED                    ' PIC X(33).    UNIMPLEMENTED
  1757             05 VALUE ' ALL                        ' PIC X(33).
  1758             05 VALUE 'VALLOCATE                   ' PIC X(33).
  1759             05 VALUE ' ALPHABET                   ' PIC X(33).
  1760             05 VALUE ' ALPHABETIC                 ' PIC X(33).
  1761             05 VALUE ' ALPHABETIC-LOWER           ' PIC X(33).
  1762             05 VALUE ' ALPHABETIC-UPPER           ' PIC X(33).
  1763             05 VALUE ' ALPHANUMERIC               ' PIC X(33).
  1764             05 VALUE ' ALPHANUMERIC-EDITED        ' PIC X(33).
  1765             05 VALUE ' ALSO                       ' PIC X(33).
  1766             05 VALUE 'VALTER                      ' PIC X(33).
  1767             05 VALUE ' ALTERNATE                  ' PIC X(33).
  1768             05 VALUE ' AND                        ' PIC X(33).
  1769  GC1213     05 VALUE 'FANNUITY                    ' PIC X(33).
  1770             05 VALUE ' ANY                        ' PIC X(33).
  1771             05 VALUE ' ANYCASE                    ' PIC X(33).    UNIMPLEMENTED
  1772             05 VALUE ' ARE                        ' PIC X(33).
  1773             05 VALUE ' AREA                       ' PIC X(33).
  1774             05 VALUE ' AREAS                      ' PIC X(33).
  1775             05 VALUE ' ARGUMENT-NUMBER            ' PIC X(33).
  1776             05 VALUE ' ARGUMENT-VALUE             ' PIC X(33).
  1777             05 VALUE ' ARITHMETIC                 ' PIC X(33).    UNIMPLEMENTED
  1778             05 VALUE ' AS                         ' PIC X(33).
  1779             05 VALUE ' ASCENDING                  ' PIC X(33).
  1780             05 VALUE ' ASCII                      ' PIC X(33).
  1781  GC1213     05 VALUE 'FASIN                       ' PIC X(33).
  1782             05 VALUE ' ASSIGN                     ' PIC X(33).
  1783             05 VALUE ' AT                         ' PIC X(33).
  1784  GC1213     05 VALUE 'FATAN                       ' PIC X(33).
  1785  GC0711     05 VALUE ' ATTRIBUTE                  ' PIC X(33).
  1786             05 VALUE ' AUTHOR                     ' PIC X(33).    OBSOLETE
  1787             05 VALUE ' AUTO                       ' PIC X(33).
  1788             05 VALUE ' AUTO-SKIP                  ' PIC X(33).
  1789             05 VALUE ' AUTOMATIC                  ' PIC X(33).
  1790             05 VALUE ' AUTOTERMINATE              ' PIC X(33).
```

```
1791              05 VALUE ' AWAY-FROM-ZERO               ' PIC X(33).
1792              05 VALUE ' B-AND                        ' PIC X(33).     UNIMPLEMENTED
1793              05 VALUE ' B-NOT                        ' PIC X(33).     UNIMPLEMENTED
1794              05 VALUE ' B-OR                         ' PIC X(33).     UNIMPLEMENTED
1795              05 VALUE ' B-XOR                        ' PIC X(33).     UNIMPLEMENTED
1796              05 VALUE ' BACKGROUND-COLOR             ' PIC X(33).
1797              05 VALUE ' BACKGROUND-COLOUR            ' PIC X(33).
1798              05 VALUE ' BASED                        ' PIC X(33).
1799              05 VALUE ' BEEP                         ' PIC X(33).
1800              05 VALUE ' BEFORE                       ' PIC X(33).
1801              05 VALUE ' BELL                         ' PIC X(33).
1802              05 VALUE ' BINARY                       ' PIC X(33).
1803              05 VALUE ' BINARY-C-LONG                ' PIC X(33).
1804              05 VALUE ' BINARY-CHAR                  ' PIC X(33).
1805              05 VALUE ' BINARY-DOUBLE                ' PIC X(33).
1806              05 VALUE ' BINARY-INT                   ' PIC X(33).
1807              05 VALUE ' BINARY-LONG                  ' PIC X(33).
1808              05 VALUE ' BINARY-LONG-LONG             ' PIC X(33).
1809              05 VALUE ' BINARY-SHORT                 ' PIC X(33).
1810              05 VALUE ' BIT                          ' PIC X(33).     UNIMPLEMENTED
1811              05 VALUE ' BLANK                        ' PIC X(33).
1812              05 VALUE ' BLINK                        ' PIC X(33).
1813              05 VALUE ' BLOCK                        ' PIC X(33).
1814              05 VALUE ' BOOLEAN                      ' PIC X(33).     UNIMPLEMENTED
1815  GC1213      05 VALUE 'FBOOLEAN-OF-INTEGER           ' PIC X(33).     UNIMPLEMENTED
1816              05 VALUE ' BOTTOM                       ' PIC X(33).
1817              05 VALUE 'YBY                           ' PIC X(33).
1818  GC1213      05 VALUE 'FBYTE-LENGTH                  ' PIC X(33).
1819              05 VALUE 'MC01                          ' PIC X(33).
1820              05 VALUE 'MC02                          ' PIC X(33).
1821              05 VALUE 'MC03                          ' PIC X(33).
1822              05 VALUE 'MC04                          ' PIC X(33).
1823              05 VALUE 'MC05                          ' PIC X(33).
1824              05 VALUE 'MC06                          ' PIC X(33).
1825              05 VALUE 'MC07                          ' PIC X(33).
1826              05 VALUE 'MC08                          ' PIC X(33).
1827              05 VALUE 'MC09                          ' PIC X(33).
1828              05 VALUE 'MC10                          ' PIC X(33).
1829              05 VALUE 'MC11                          ' PIC X(33).
1830              05 VALUE 'MC12                          ' PIC X(33).
1831              05 VALUE 'VCALL                         ' PIC X(33).
1832              05 VALUE 'MCALL-CONVENTION              ' PIC X(33).
1833              05 VALUE 'VCANCEL                       ' PIC X(33).
1834              05 VALUE ' CAPACITY                     ' PIC X(33).     UNIMPLEMENTED
1835              05 VALUE ' CD                           ' PIC X(33).     OBSOLETE
1836              05 VALUE ' CENTER                       ' PIC X(33).     UNIMPLEMENTED
1837              05 VALUE ' CF                           ' PIC X(33).
1838              05 VALUE ' CH                           ' PIC X(33).
1839              05 VALUE ' CHAIN                        ' PIC X(33).     UNIMPLEMENTED
1840              05 VALUE ' CHAINING                     ' PIC X(33).
1841  GC1213      05 VALUE 'FCHAR                         ' PIC X(33).
1842  GC1213      05 VALUE 'FCHAR-NATIONAL                ' PIC X(33).     UNIMPLEMENTED
1843              05 VALUE ' CHARACTER                    ' PIC X(33).
1844              05 VALUE ' CHARACTERS                   ' PIC X(33).
```

```
ACS Cobol Xref v2.02.04      Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:01    Page   60

 1845            05 VALUE ' CLASS                ' PIC X(33).
 1846            05 VALUE ' CLASS-ID             ' PIC X(33).      UNIMPLEMENTED
 1847  GC0711    05 VALUE ' CLASSIFICATION       ' PIC X(33).
 1848            05 VALUE 'VCLOSE                ' PIC X(33).
 1849  GC1213    05 VALUE 'FCOB-CRT-STATUS       ' PIC X(33).
 1850            05 VALUE ' CODE                 ' PIC X(33).
 1851            05 VALUE ' CODE-SET             ' PIC X(33).
 1852            05 VALUE ' COL                  ' PIC X(33).
 1853            05 VALUE ' COLLATING            ' PIC X(33).
 1854            05 VALUE ' COLS                 ' PIC X(33).
 1855            05 VALUE ' COLUMN               ' PIC X(33).
 1856            05 VALUE ' COLUMNS              ' PIC X(33).
 1857  GC1213    05 VALUE 'FCOMBINED-DATETIME    ' PIC X(33).
 1858            05 VALUE ' COMMA                ' PIC X(33).
 1859            05 VALUE ' COMMAND-LINE         ' PIC X(33).
 1860            05 VALUE 'VCOMMIT               ' PIC X(33).
 1861            05 VALUE ' COMMON               ' PIC X(33).
 1862            05 VALUE ' COMMUNICATION        ' PIC X(33).      OBSOLETE
 1863            05 VALUE ' COMP                 ' PIC X(33).
 1864            05 VALUE ' COMP-1               ' PIC X(33).
 1865            05 VALUE ' COMP-2               ' PIC X(33).
 1866            05 VALUE ' COMP-3               ' PIC X(33).
 1867            05 VALUE ' COMP-4               ' PIC X(33).
 1868            05 VALUE ' COMP-5               ' PIC X(33).
 1869            05 VALUE ' COMP-6               ' PIC X(33).
 1870            05 VALUE ' COMP-X               ' PIC X(33).
 1871            05 VALUE ' COMPUTATIONAL        ' PIC X(33).
 1872            05 VALUE ' COMPUTATIONAL-1      ' PIC X(33).
 1873            05 VALUE ' COMPUTATIONAL-2      ' PIC X(33).
 1874            05 VALUE ' COMPUTATIONAL-3      ' PIC X(33).
 1875            05 VALUE ' COMPUTATIONAL-4      ' PIC X(33).
 1876            05 VALUE ' COMPUTATIONAL-5      ' PIC X(33).
 1877            05 VALUE ' COMPUTATIONAL-X      ' PIC X(33).
 1878            05 VALUE 'VCOMPUTE              ' PIC X(33).
 1879  GC1213    05 VALUE 'FCONCATENATE          ' PIC X(33).
 1880  GC0712    05 VALUE ' CONDITION            ' PIC X(33).
 1881            05 VALUE 'KCONFIGURATION        ' PIC X(33).
 1882            05 VALUE 'MCONSOLE              ' PIC X(33).
 1883            05 VALUE ' CONSTANT             ' PIC X(33).
 1884            05 VALUE ' CONTAINS             ' PIC X(33).
 1885  GC0712    05 VALUE 'ACONTENT              ' PIC X(33).
 1886            05 VALUE 'VCONTINUE             ' PIC X(33).
 1887            05 VALUE ' CONTROL              ' PIC X(33).
 1888            05 VALUE ' CONTROLS             ' PIC X(33).
 1889  GC0711    05 VALUE ' CONVERSION           ' PIC X(33).
 1890            05 VALUE 'KCONVERTING           ' PIC X(33).
 1891      *     05 VALUE ' COPY                 ' PIC X(33).
 1892            05 VALUE ' CORR                 ' PIC X(33).
 1893            05 VALUE ' CORRESPONDING        ' PIC X(33).
 1894  GC1213    05 VALUE 'FCOS                  ' PIC X(33).
 1895            05 VALUE 'KCOUNT                ' PIC X(33).
 1896            05 VALUE ' CRT                  ' PIC X(33).
 1897            05 VALUE ' CRT-UNDER            ' PIC X(33).
 1898            05 VALUE 'MCSP                  ' PIC X(33).
```

```
1899            05 VALUE ' CURRENCY              ' PIC X(33).
1900  GC1213    05 VALUE 'FCURRENCY-SYMBOL       ' PIC X(33).
1901  GC1213    05 VALUE 'FCURRENT-DATE          ' PIC X(33).
1902            05 VALUE ' CURSOR                ' PIC X(33).
1903            05 VALUE ' CYCLE                 ' PIC X(33).
1904            05 VALUE 'KDATA                  ' PIC X(33).
1905            05 VALUE ' DATA-POINTER          ' PIC X(33).     UNIMPLEMENTED
1906            05 VALUE ' DATE                  ' PIC X(33).
1907            05 VALUE ' DATE-COMPILED         ' PIC X(33).     OBSOLETE
1908            05 VALUE ' DATE-MODIFIED         ' PIC X(33).     OBSOLETE
1909  GC1213    05 VALUE 'FDATE-OF-INTEGER       ' PIC X(33).
1910  GC1213    05 VALUE 'FDATE-TO-YYYYMMDD      ' PIC X(33).
1911            05 VALUE ' DATE-WRITTEN          ' PIC X(33).     OBSOLETE
1912            05 VALUE ' DAY                   ' PIC X(33).
1913  GC1213    05 VALUE 'FDAY-OF-INTEGER        ' PIC X(33).
1914            05 VALUE ' DAY-OF-WEEK           ' PIC X(33).
1915  GC1213    05 VALUE 'IDAY-TO-YYYYDDD        ' PIC X(33).
1916            05 VALUE ' DE                    ' PIC X(33).
1917  GC0712    05 VALUE 'IDEBUG-CONTENTS        ' PIC X(33).
1918  GC0712    05 VALUE 'IDEBUG-ITEM            ' PIC X(33).
1919  GC0712    05 VALUE 'IDEBUG-LINE            ' PIC X(33).
1920  GC0712    05 VALUE 'IDEBUG-NAME            ' PIC X(33).
1921  GC0712    05 VALUE 'IDEBUG-SUB-1           ' PIC X(33).
1922  GC0712    05 VALUE 'IDEBUG-SUB-2           ' PIC X(33).
1923  GC0712    05 VALUE 'IDEBUG-SUB-3           ' PIC X(33).
1924            05 VALUE ' DEBUGGING             ' PIC X(33).
1925            05 VALUE ' DECIMAL-POINT         ' PIC X(33).
1926            05 VALUE ' DECLARATIVES          ' PIC X(33).
1927            05 VALUE ' DEFAULT               ' PIC X(33).
1928            05 VALUE 'VDELETE                ' PIC X(33).
1929            05 VALUE ' DELIMITED             ' PIC X(33).
1930            05 VALUE 'KDELIMITER             ' PIC X(33).
1931            05 VALUE ' DEPENDING             ' PIC X(33).
1932            05 VALUE ' DESCENDING            ' PIC X(33).
1933            05 VALUE ' DESTINATION           ' PIC X(33).     UNIMPLEMENTED
1934            05 VALUE ' DETAIL                ' PIC X(33).
1935  GC0711    05 VALUE ' DISC                  ' PIC X(33).
1936            05 VALUE ' DISK                  ' PIC X(33).
1937            05 VALUE 'VDISPLAY               ' PIC X(33).
1938  GC1213    05 VALUE 'FDISPLAY-OF            ' PIC X(33).     UNIMPLEMENTED
1939            05 VALUE 'VDIVIDE                ' PIC X(33).
1940            05 VALUE 'KDIVISION              ' PIC X(33).
1941            05 VALUE 'KDOWN                  ' PIC X(33).
1942            05 VALUE ' DUPLICATES            ' PIC X(33).
1943            05 VALUE ' DYNAMIC               ' PIC X(33).
1944  GC1213    05 VALUE 'FE                     ' PIC X(33).
1945            05 VALUE ' EBCDIC                ' PIC X(33).
1946  GC0712    05 VALUE ' EC                    ' PIC X(33).
1947            05 VALUE ' EGI                   ' PIC X(33).     OBSOLETE
1948            05 VALUE 'VELSE                  ' PIC X(33).
1949            05 VALUE ' EMI                   ' PIC X(33).     OBSOLETE
1950            05 VALUE ' EMPTY-CHECK           ' PIC X(33).
1951            05 VALUE 'VENABLE                ' PIC X(33).     OBSOLETE
1952  GC0710    05 VALUE 'KEND                   ' PIC X(33).
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:01     Page   62

   1953              05 VALUE ' END-ACCEPT                 ' PIC X(33).
   1954              05 VALUE ' END-ADD                    ' PIC X(33).
   1955              05 VALUE ' END-CALL                   ' PIC X(33).
   1956              05 VALUE ' END-CHAIN                  ' PIC X(33).     UNIMPLEMENTED
   1957              05 VALUE ' END-COMPUTE                ' PIC X(33).
   1958              05 VALUE ' END-DELETE                 ' PIC X(33).
   1959              05 VALUE ' END-DISPLAY                ' PIC X(33).
   1960              05 VALUE ' END-DIVIDE                 ' PIC X(33).
   1961              05 VALUE ' END-EVALUATE               ' PIC X(33).
   1962              05 VALUE ' END-IF                     ' PIC X(33).
   1963              05 VALUE ' END-MULTIPLY               ' PIC X(33).
   1964              05 VALUE ' END-OF-PAGE                ' PIC X(33).
   1965              05 VALUE ' END-PERFORM                ' PIC X(33).
   1966              05 VALUE ' END-READ                   ' PIC X(33).
   1967              05 VALUE ' END-RECEIVE                ' PIC X(33).     OBSOLETE
   1968              05 VALUE ' END-RETURN                 ' PIC X(33).
   1969              05 VALUE ' END-REWRITE                ' PIC X(33).
   1970              05 VALUE ' END-SEARCH                 ' PIC X(33).
   1971              05 VALUE ' END-START                  ' PIC X(33).
   1972              05 VALUE ' END-STRING                 ' PIC X(33).
   1973              05 VALUE ' END-SUBTRACT               ' PIC X(33).
   1974              05 VALUE ' END-UNSTRING               ' PIC X(33).
   1975              05 VALUE ' END-WRITE                  ' PIC X(33).
   1976              05 VALUE 'VENTRY                      ' PIC X(33).
   1977              05 VALUE ' ENTRY-CONVENTION           ' PIC X(33).     UNIMPLEMENTED
   1978              05 VALUE 'KENVIRONMENT                ' PIC X(33).
   1979              05 VALUE ' ENVIRONMENT-NAME           ' PIC X(33).
   1980              05 VALUE ' ENVIRONMENT-VALUE          ' PIC X(33).
   1981              05 VALUE ' EO                         ' PIC X(33).     UNIMPLEMENTED
   1982              05 VALUE ' EOL                        ' PIC X(33).
   1983              05 VALUE ' EOP                        ' PIC X(33).
   1984              05 VALUE ' EOS                        ' PIC X(33).
   1985              05 VALUE ' EQUAL                      ' PIC X(33).
   1986              05 VALUE 'KEQUALS                     ' PIC X(33).
   1987              05 VALUE ' ERASE                      ' PIC X(33).
   1988              05 VALUE ' ERROR                      ' PIC X(33).
   1989              05 VALUE ' ESCAPE                     ' PIC X(33).
   1990              05 VALUE ' ESI                        ' PIC X(33).     OBSOLETE
   1991              05 VALUE 'VEVALUATE                   ' PIC X(33).
   1992              05 VALUE ' EXCEPTION                  ' PIC X(33).
   1993  GC1213      05 VALUE 'FEXCEPTION-FILE             ' PIC X(33).
   1994  GC1213      05 VALUE 'FEXCEPTION-FILE-N           ' PIC X(33).     UNIMPLEMENTED
   1995  GC1213      05 VALUE 'FEXCEPTION-LOCATION         ' PIC X(33).
   1996  GC1213      05 VALUE 'FEXCEPTION-LOCATION-N       ' PIC X(33).     UNIMPLEMENTED
   1997              05 VALUE ' EXCEPTION-OBJECT           ' PIC X(33).     UNIMPLEMENTED
   1998  GC1213      05 VALUE 'FEXCEPTION-STATEMENT        ' PIC X(33).
   1999  GC1213      05 VALUE 'FEXCEPTION-STATUS           ' PIC X(33).
   2000              05 VALUE ' EXCLUSIVE                  ' PIC X(33).
   2001              05 VALUE 'VEXIT                       ' PIC X(33).
   2002  GC1213      05 VALUE 'FEXP                        ' PIC X(33).
   2003  GC1213      05 VALUE 'FEXP10                      ' PIC X(33).
   2004              05 VALUE ' EXPANDS                    ' PIC X(33).     UNIMPLEMENTED
   2005              05 VALUE ' EXTEND                     ' PIC X(33).
   2006              05 VALUE ' EXTERNAL                   ' PIC X(33).
```

```
2007  GC1213     05 VALUE 'FFACTORIAL            ' PIC X(33).
2008             05 VALUE ' FACTORY              ' PIC X(33).      UNIMPLEMENTED
2009             05 VALUE ' FALSE                ' PIC X(33).
2010             05 VALUE 'KFD                   ' PIC X(33).
2011             05 VALUE 'KFILE                 ' PIC X(33).
2012             05 VALUE ' FILE-CONTROL         ' PIC X(33).
2013             05 VALUE ' FILE-ID              ' PIC X(33).
2014  GC1113     05 VALUE ' FILLER               ' PIC X(33).
2015             05 VALUE ' FINAL                ' PIC X(33).
2016             05 VALUE ' FIRST                ' PIC X(33).
2017  GC0712     05 VALUE ' FLOAT-BINARY-128     ' PIC X(33).      UNIMPLEMENTED
2018  GC0712     05 VALUE ' FLOAT-BINARY-32      ' PIC X(33).      UNIMPLEMENTED
2019  GC0712     05 VALUE ' FLOAT-BINARY-64      ' PIC X(33).      UNIMPLEMENTED
2020             05 VALUE ' FLOAT-DECIMAL-16     ' PIC X(33).
2021             05 VALUE ' FLOAT-DECIMAL-34     ' PIC X(33).
2022             05 VALUE ' FLOAT-EXTENDED       ' PIC X(33).      UNIMPLEMENTED
2023  GC0712     05 VALUE ' FLOAT-INFINITY       ' PIC X(33).      UNIMPLEMENTED
2024             05 VALUE ' FLOAT-LONG           ' PIC X(33).
2025  GC0712     05 VALUE ' FLOAT-NOT-A-NUMBER   ' PIC X(33).      UNIMPLEMENTED
2026             05 VALUE ' FLOAT-SHORT          ' PIC X(33).
2027             05 VALUE ' FOOTING              ' PIC X(33).
2028             05 VALUE ' FOR                  ' PIC X(33).
2029             05 VALUE ' FOREGROUND-COLOR     ' PIC X(33).
2030             05 VALUE ' FOREGROUND-COLOUR    ' PIC X(33).
2031  GC0711     05 VALUE ' FOREVER              ' PIC X(33).
2032             05 VALUE ' FORMAT               ' PIC X(33).      UNIMPLEMENTED
2033  GC1213     05 VALUE 'FFORMATTED-CURRENT-DATE ' PIC X(33).    UNIMPLEMENTED
2034  GC1213     05 VALUE 'FFORMATTED-DATE       ' PIC X(33).      UNIMPLEMENTED
2035  GC1213     05 VALUE 'FFORMATTED-DATETIME   ' PIC X(33).      UNIMPLEMENTED
2036  GC1213     05 VALUE 'FFORMATTED-TIME       ' PIC X(33).      UNIMPLEMENTED
2037             05 VALUE 'MFORMFEED             ' PIC X(33).
2038  GC1213     05 VALUE 'FFRACTION-PART        ' PIC X(33).
2039             05 VALUE 'VFREE                 ' PIC X(33).
2040             05 VALUE ' FROM                 ' PIC X(33).
2041             05 VALUE ' FULL                 ' PIC X(33).
2042             05 VALUE ' FUNCTION             ' PIC X(33).
2043  GC0712     05 VALUE 'KFUNCTION-ID          ' PIC X(33).
2044             05 VALUE ' FUNCTION-POINTER     ' PIC X(33).      UNIMPLEMENTED
2045             05 VALUE 'VGENERATE             ' PIC X(33).
2046             05 VALUE ' GET                  ' PIC X(33).      UNIMPLEMENTED
2047             05 VALUE 'KGIVING               ' PIC X(33).
2048             05 VALUE ' GLOBAL               ' PIC X(33).
2049             05 VALUE 'VGO                   ' PIC X(33).
2050             05 VALUE 'VGOBACK               ' PIC X(33).
2051             05 VALUE ' GREATER              ' PIC X(33).
2052             05 VALUE ' GROUP                ' PIC X(33).
2053             05 VALUE ' GROUP-USAGE          ' PIC X(33).      UNIMPLEMENTED
2054             05 VALUE ' HEADING              ' PIC X(33).
2055             05 VALUE ' HIGH-VALUE           ' PIC X(33).
2056             05 VALUE ' HIGH-VALUES          ' PIC X(33).
2057  GC1213     05 VALUE 'FHIGHEST-ALGEBRAIC    ' PIC X(33).
2058             05 VALUE ' HIGHLIGHT            ' PIC X(33).
2059             05 VALUE ' I-O                  ' PIC X(33).
2060             05 VALUE ' I-O-CONTROL          ' PIC X(33).
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:01     Page    64

  2061            05 VALUE 'KID                      ' PIC X(33).
  2062            05 VALUE 'KIDENTIFICATION          ' PIC X(33).
  2063            05 VALUE 'VIF                      ' PIC X(33).
  2064            05 VALUE ' IGNORE                  ' PIC X(33).
  2065            05 VALUE ' IGNORING                ' PIC X(33).
  2066            05 VALUE ' IMPLEMENTS              ' PIC X(33).    UNIMPLEMENTED
  2067            05 VALUE ' IN                      ' PIC X(33).
  2068            05 VALUE ' INDEX                   ' PIC X(33).
  2069            05 VALUE 'KINDEXED                 ' PIC X(33).
  2070            05 VALUE ' INDICATE                ' PIC X(33).
  2071            05 VALUE ' INDIRECT                ' PIC X(33).    UNIMPLEMENTED
  2072            05 VALUE ' INHERITS                ' PIC X(33).    UNIMPLEMENTED
  2073            05 VALUE ' INITIAL                 ' PIC X(33).
  2074            05 VALUE 'VINITIALISE              ' PIC X(33).
  2075            05 VALUE ' INITIALISED             ' PIC X(33).
  2076            05 VALUE 'VINITIALIZE              ' PIC X(33).
  2077            05 VALUE ' INITIALIZED             ' PIC X(33).
  2078            05 VALUE 'VINITIATE                ' PIC X(33).
  2079            05 VALUE ' INPUT                   ' PIC X(33).
  2080            05 VALUE 'KINPUT-OUTPUT            ' PIC X(33).
  2081            05 VALUE 'VINSPECT                 ' PIC X(33).
  2082            05 VALUE ' INSTALLATION            ' PIC X(33).    OBSOLETE
  2083  GC1213    05 VALUE 'FINTEGER                 ' PIC X(33).
  2084  GC1213    05 VALUE 'FINTEGER-OF-BOOLEAN      ' PIC X(33).    UNIMPLEMENTED
  2085  GC1213    05 VALUE 'FINTEGER-OF-DATE         ' PIC X(33).
  2086  GC1213    05 VALUE 'FINTEGER-OF-DAY          ' PIC X(33).
  2087  GC1213    05 VALUE 'FINTEGER-OF-FORMATTED-DATE ' PIC X(33).  UNIMPLEMENTED
  2088  GC1213    05 VALUE 'FINTEGER-PART            ' PIC X(33).
  2089            05 VALUE ' INTERFACE               ' PIC X(33).    UNIMPLEMENTED
  2090            05 VALUE ' INTERFACE-ID            ' PIC X(33).    UNIMPLEMENTED
  2091            05 VALUE ' INTERMEDIATE            ' PIC X(33).    UNIMPLEMENTED
  2092            05 VALUE 'KINTO                    ' PIC X(33).
  2093            05 VALUE ' INTRINSIC               ' PIC X(33).
  2094            05 VALUE ' INVALID                 ' PIC X(33).
  2095            05 VALUE ' INVOKE                  ' PIC X(33).    UNIMPLEMENTED
  2096            05 VALUE ' IS                      ' PIC X(33).
  2097            05 VALUE ' JUST                    ' PIC X(33).
  2098            05 VALUE ' JUSTIFIED               ' PIC X(33).
  2099            05 VALUE ' KEPT                    ' PIC X(33).
  2100            05 VALUE ' KEY                     ' PIC X(33).
  2101            05 VALUE ' KEYBOARD                ' PIC X(33).
  2102            05 VALUE ' LABEL                   ' PIC X(33).
  2103            05 VALUE ' LAST                    ' PIC X(33).
  2104            05 VALUE ' LC_ALL                  ' PIC X(33).    UNIMPLEMENTED
  2105            05 VALUE ' LC_COLLATE              ' PIC X(33).    UNIMPLEMENTED
  2106            05 VALUE ' LC_CTYPE                ' PIC X(33).    UNIMPLEMENTED
  2107            05 VALUE ' LC_MESSAGES             ' PIC X(33).    UNIMPLEMENTED
  2108            05 VALUE ' LC_MONETARY             ' PIC X(33).    UNIMPLEMENTED
  2109            05 VALUE ' LC_NUMERIC              ' PIC X(33).    UNIMPLEMENTED
  2110            05 VALUE ' LC_TIME                 ' PIC X(33).    UNIMPLEMENTED
  2111            05 VALUE ' LEADING                 ' PIC X(33).
  2112            05 VALUE ' LEFT                    ' PIC X(33).
  2113            05 VALUE ' LEFT-JUSTIFY            ' PIC X(33).    UNIMPLEMENTED
  2114            05 VALUE ' LEFTLINE                ' PIC X(33).
```

```
2115  GC1213    05 VALUE 'FLENGTH                     ' PIC X(33).
2116  GC1213    05 VALUE 'FLENGTH-AN                  ' PIC X(33).
2117            05 VALUE ' LENGTH-CHECK               ' PIC X(33).
2118            05 VALUE ' LESS                       ' PIC X(33).
2119            05 VALUE ' LIMIT                      ' PIC X(33).
2120            05 VALUE ' LIMITS                     ' PIC X(33).
2121            05 VALUE ' LINAGE                     ' PIC X(33).
2122            05 VALUE 'ILINAGE-COUNTER             ' PIC X(33).
2123            05 VALUE ' LINE                       ' PIC X(33).
2124  GC1213    05 VALUE 'ILINE-COUNTER               ' PIC X(33).
2125            05 VALUE ' LINES                      ' PIC X(33).
2126            05 VALUE 'KLINKAGE                    ' PIC X(33).
2127            05 VALUE 'KLOCAL-STORAGE              ' PIC X(33).
2128            05 VALUE ' LOCALE                     ' PIC X(33).
2129  GC1213    05 VALUE 'FLOCALE-COMPARE             ' PIC X(33).
2130  GC1213    05 VALUE 'FLOCALE-DATE                ' PIC X(33).
2131  GC1213    05 VALUE 'FLOCALE-TIME                ' PIC X(33).
2132  GC1213    05 VALUE 'FLOCALE-TIME-FROM-SECONDS   ' PIC X(33).
2133            05 VALUE ' LOCK                       ' PIC X(33).
2134  GC1213    05 VALUE 'FLOG                        ' PIC X(33).
2135  GC1213    05 VALUE 'FLOG10                      ' PIC X(33).
2136            05 VALUE ' LOW-VALUE                  ' PIC X(33).
2137            05 VALUE ' LOW-VALUES                 ' PIC X(33).
2138            05 VALUE ' LOWER                      ' PIC X(33).
2139  GC1213    05 VALUE 'FLOWER-CASE                 ' PIC X(33).
2140  GC1213    05 VALUE 'FLOWEST-ALGEBRAIC           ' PIC X(33).
2141            05 VALUE ' LOWLIGHT                   ' PIC X(33).
2142            05 VALUE ' MANUAL                     ' PIC X(33).
2143  GC1213    05 VALUE 'FMAX                        ' PIC X(33).
2144  GC1213    05 VALUE 'FMEAN                       ' PIC X(33).
2145  GC1213    05 VALUE 'FMEDIAN                     ' PIC X(33).
2146            05 VALUE ' MEMORY                     ' PIC X(33).
2147            05 VALUE 'VMERGE                      ' PIC X(33).
2148            05 VALUE ' MESSAGE                    ' PIC X(33).    OBSOLETE
2149            05 VALUE ' METHOD                     ' PIC X(33).    UNIMPLEMENTED
2150            05 VALUE ' METHOD-ID                  ' PIC X(33).    UNIMPLEMENTED
2151  GC1213    05 VALUE 'FMIDRANGE                   ' PIC X(33).
2152  GC1213    05 VALUE 'FMIN                        ' PIC X(33).
2153            05 VALUE ' MINUS                      ' PIC X(33).
2154  GC1213    05 VALUE 'FMOD                        ' PIC X(33).
2155            05 VALUE ' MODE                       ' PIC X(33).
2156  GC1213    05 VALUE 'FMODULE-CALLER-ID           ' PIC X(33).
2157  GC1213    05 VALUE 'FMODULE-DATE                ' PIC X(33).
2158  GC1213    05 VALUE 'FMODULE-FORMATTED-DATE      ' PIC X(33).
2159  GC1213    05 VALUE 'FMODULE-ID                  ' PIC X(33).
2160  GC1213    05 VALUE 'FMODULE-PATH                ' PIC X(33).
2161  GC1213    05 VALUE 'FMODULE-SOURCE              ' PIC X(33).
2162  GC1213    05 VALUE 'FMODULE-TIME                ' PIC X(33).
2163  GC1213    05 VALUE 'FMONETARY-DECIMAL-POINT     ' PIC X(33).
2164  GC1213    05 VALUE 'FMONETARY-THOUSANDS-SEPARATOR ' PIC X(33).
2165            05 VALUE 'VMOVE                       ' PIC X(33).
2166            05 VALUE ' MULTIPLE                   ' PIC X(33).
2167            05 VALUE 'VMULTIPLY                   ' PIC X(33).
2168  GC0711    05 VALUE ' NAME                       ' PIC X(33).
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:02    Page   66

 2169              05 VALUE ' NATIONAL                  ' PIC X(33).
 2170              05 VALUE ' NATIONAL-EDITED           ' PIC X(33).
 2171  GC1213      05 VALUE 'FNATIONAL-OF               ' PIC X(33).      UNIMPLEMENTED
 2172              05 VALUE ' NATIVE                    ' PIC X(33).
 2173              05 VALUE ' NEAREST-AWAY-FROM-ZERO    ' PIC X(33).
 2174              05 VALUE ' NEAREST-EVEN              ' PIC X(33).
 2175              05 VALUE ' NEAREST-TOWARD-ZERO       ' PIC X(33).
 2176              05 VALUE ' NEGATIVE                  ' PIC X(33).
 2177              05 VALUE ' NESTED                    ' PIC X(33).      UNIMPLEMENTED
 2178              05 VALUE 'VNEXT                      ' PIC X(33).
 2179              05 VALUE ' NO                        ' PIC X(33).
 2180              05 VALUE ' NO-ECHO                   ' PIC X(33).
 2181              05 VALUE ' NONE                      ' PIC X(33).      UNIMPLEMENTED
 2182              05 VALUE ' NORMAL                    ' PIC X(33).
 2183              05 VALUE ' NOT                       ' PIC X(33).
 2184              05 VALUE ' NULL                      ' PIC X(33).
 2185              05 VALUE ' NULLS                     ' PIC X(33).
 2186              05 VALUE ' NUMBER                    ' PIC X(33).
 2187              05 VALUE 'INUMBER-OF-CALL-PARAMETERS ' PIC X(33).
 2188              05 VALUE ' NUMBERS                   ' PIC X(33).
 2189              05 VALUE ' NUMERIC                   ' PIC X(33).
 2190  GC1213      05 VALUE 'FNUMERIC-DECIMAL-POINT     ' PIC X(33).
 2191              05 VALUE ' NUMERIC-EDITED            ' PIC X(33).
 2192  GC1213      05 VALUE 'FNUMERIC-THOUSANDS-SEPARATOR ' PIC X(33).
 2193  GC1213      05 VALUE 'FNUMVAL                    ' PIC X(33).
 2194  GC1213      05 VALUE 'FNUMVAL-C                  ' PIC X(33).
 2195  GC1213      05 VALUE 'FNUMVAL-F                  ' PIC X(33).
 2196              05 VALUE ' OBJECT                    ' PIC X(33).      UNIMPLEMENTED
 2197              05 VALUE ' OBJECT-COMPUTER           ' PIC X(33).
 2198              05 VALUE ' OBJECT-REFERENCE          ' PIC X(33).      UNIMPLEMENTED
 2199              05 VALUE ' OCCURS                    ' PIC X(33).
 2200              05 VALUE ' OF                        ' PIC X(33).
 2201              05 VALUE ' OFF                       ' PIC X(33).
 2202              05 VALUE ' OMITTED                   ' PIC X(33).
 2203              05 VALUE ' ON                        ' PIC X(33).
 2204              05 VALUE ' ONLY                      ' PIC X(33).
 2205              05 VALUE 'VOPEN                      ' PIC X(33).
 2206              05 VALUE ' OPTIONAL                  ' PIC X(33).
 2207              05 VALUE ' OPTIONS                   ' PIC X(33).      UNIMPLEMENTED
 2208              05 VALUE ' OR                        ' PIC X(33).
 2209  GC1213      05 VALUE 'FORD                       ' PIC X(33).
 2210  GC1213      05 VALUE 'FORD-MAX                   ' PIC X(33).
 2211  GC1213      05 VALUE 'FORD-MIN                   ' PIC X(33).
 2212              05 VALUE ' ORDER                     ' PIC X(33).
 2213              05 VALUE ' ORGANISATION              ' PIC X(33).
 2214              05 VALUE ' ORGANIZATION              ' PIC X(33).
 2215              05 VALUE ' OTHER                     ' PIC X(33).
 2216              05 VALUE ' OUTPUT                    ' PIC X(33).
 2217              05 VALUE ' OVERFLOW                  ' PIC X(33).
 2218              05 VALUE ' OVERLINE                  ' PIC X(33).
 2219              05 VALUE ' OVERRIDE                  ' PIC X(33).
 2220              05 VALUE ' PACKED-DECIMAL            ' PIC X(33).
 2221              05 VALUE ' PADDING                   ' PIC X(33).
 2222              05 VALUE ' PAGE                      ' PIC X(33).
```

```
2223  GC1213    05 VALUE 'IPAGE-COUNTER              ' PIC X(33).
2224            05 VALUE ' PARAGRAPH                 ' PIC X(33).
2225            05 VALUE 'VPERFORM                   ' PIC X(33).
2226            05 VALUE ' PF                        ' PIC X(33).
2227            05 VALUE ' PH                        ' PIC X(33).
2228  GC1213    05 VALUE 'FPI                        ' PIC X(33).
2229            05 VALUE 'KPIC                       ' PIC X(33).
2230            05 VALUE 'KPICTURE                   ' PIC X(33).
2231            05 VALUE ' PLUS                      ' PIC X(33).
2232            05 VALUE 'KPOINTER                   ' PIC X(33).
2233            05 VALUE ' POSITION                  ' PIC X(33).
2234            05 VALUE ' POSITIVE                  ' PIC X(33).
2235            05 VALUE ' PREFIXED                  ' PIC X(33).     UNIMPLEMENTED
2236            05 VALUE ' PRESENT                   ' PIC X(33).
2237  GC1213    05 VALUE 'FPRESENT-VALUE             ' PIC X(33).
2238            05 VALUE ' PREVIOUS                  ' PIC X(33).
2239            05 VALUE 'MPRINTER                   ' PIC X(33).
2240            05 VALUE ' PRINTING                  ' PIC X(33).
2241            05 VALUE 'KPROCEDURE                 ' PIC X(33).
2242            05 VALUE ' PROCEDURE-POINTER         ' PIC X(33).
2243            05 VALUE ' PROCEDURES                ' PIC X(33).
2244            05 VALUE ' PROCEED                   ' PIC X(33).
2245            05 VALUE ' PROGRAM                   ' PIC X(33).
2246            05 VALUE 'KPROGRAM-ID                ' PIC X(33).
2247            05 VALUE ' PROGRAM-POINTER           ' PIC X(33).
2248            05 VALUE ' PROHIBITED                ' PIC X(33).
2249            05 VALUE ' PROMPT                    ' PIC X(33).
2250            05 VALUE ' PROPERTY                  ' PIC X(33).     UNIMPLEMENTED
2251            05 VALUE ' PROTOTYPE                 ' PIC X(33).     UNIMPLEMENTED
2252            05 VALUE ' PURGE                     ' PIC X(33).     OBSOLETE
2253            05 VALUE ' QUEUE                     ' PIC X(33).     OBSOLETE
2254            05 VALUE ' QUOTE                     ' PIC X(33).
2255            05 VALUE ' QUOTES                    ' PIC X(33).
2256            05 VALUE ' RAISE                     ' PIC X(33).     UNIMPLEMENTED
2257            05 VALUE ' RAISING                   ' PIC X(33).     UNIMPLEMENTED
2258  GC1213    05 VALUE 'FRANDOM                    ' PIC X(33).
2259  GC1213    05 VALUE 'FRANGE                     ' PIC X(33).
2260  GC1213    05 VALUE 'KRD                        ' PIC X(33).
2261            05 VALUE 'VREAD                      ' PIC X(33).
2262            05 VALUE 'VREADY                     ' PIC X(33).
2263            05 VALUE 'VRECEIVE                   ' PIC X(33).     OBSOLETE
2264            05 VALUE ' RECORD                    ' PIC X(33).
2265            05 VALUE ' RECORDING                 ' PIC X(33).
2266            05 VALUE ' RECORDS                   ' PIC X(33).
2267            05 VALUE ' RECURSIVE                 ' PIC X(33).
2268            05 VALUE 'KREDEFINES                 ' PIC X(33).
2269            05 VALUE ' REEL                      ' PIC X(33).
2270  GC0712    05 VALUE 'AREFERENCE                 ' PIC X(33).
2271            05 VALUE ' REFERENCES                ' PIC X(33).
2272            05 VALUE ' RELATION                  ' PIC X(33).     UNIMPLEMENTED
2273            05 VALUE ' RELATIVE                  ' PIC X(33).
2274            05 VALUE 'VRELEASE                   ' PIC X(33).
2275  GC1213    05 VALUE 'FREM                       ' PIC X(33).
2276            05 VALUE ' REMAINDER                 ' PIC X(33).
```

```
ACS Cobol Xref v2.02.04      Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:02    Page   68
  2277              05 VALUE ' REMARKS             ' PIC X(33).    OBSOLETE
  2278              05 VALUE ' REMOVAL             ' PIC X(33).
  2279              05 VALUE 'KRENAMES             ' PIC X(33).
  2280              05 VALUE ' REPLACE             ' PIC X(33).
  2281              05 VALUE 'KREPLACING           ' PIC X(33).
  2282              05 VALUE 'KREPORT              ' PIC X(33).
  2283              05 VALUE ' REPORTING           ' PIC X(33).
  2284              05 VALUE ' REPORTS             ' PIC X(33).
  2285              05 VALUE ' REPOSITORY          ' PIC X(33).
  2286              05 VALUE ' REQUIRED            ' PIC X(33).
  2287              05 VALUE ' RESERVE             ' PIC X(33).
  2288              05 VALUE 'VRESET               ' PIC X(33).
  2289              05 VALUE ' RESUME              ' PIC X(33).    UNIMPLEMENTED
  2290              05 VALUE ' RETRY               ' PIC X(33).    UNIMPLEMENTED
  2291              05 VALUE 'VRETURN              ' PIC X(33).
  2292              05 VALUE 'IRETURN-CODE         ' PIC X(33).
  2293              05 VALUE 'KRETURNING           ' PIC X(33).
  2294  GC1213      05 VALUE 'FREVERSE             ' PIC X(33).
  2295              05 VALUE ' REVERSE-VIDEO       ' PIC X(33).
  2296              05 VALUE ' REVERSED            ' PIC X(33).
  2297              05 VALUE ' REWIND              ' PIC X(33).
  2298              05 VALUE 'VREWRITE             ' PIC X(33).
  2299              05 VALUE ' RF                  ' PIC X(33).
  2300              05 VALUE ' RH                  ' PIC X(33).
  2301              05 VALUE ' RIGHT               ' PIC X(33).
  2302              05 VALUE ' RIGHT-JUSTIFY       ' PIC X(33).    UNIMPLEMENTED
  2303              05 VALUE 'VROLLBACK            ' PIC X(33).
  2304              05 VALUE ' ROUNDED             ' PIC X(33).
  2305              05 VALUE ' ROUNDING            ' PIC X(33).    UNIMPLEMENTED
  2306              05 VALUE ' RUN                 ' PIC X(33).
  2307              05 VALUE ' SAME                ' PIC X(33).
  2308              05 VALUE 'KSCREEN              ' PIC X(33).
  2309              05 VALUE ' SCROLL              ' PIC X(33).
  2310              05 VALUE 'KSD                  ' PIC X(33).
  2311              05 VALUE 'VSEARCH              ' PIC X(33).
  2312              05 VALUE ' SECONDS             ' PIC X(33).    UNIMPLEMENTED
  2313  GC1213      05 VALUE 'FSECONDS-FROM-FORMATTED-TIME ' PIC X(33).
  2314  GC1213      05 VALUE 'FSECONDS-PAST-MIDNIGHT ' PIC X(33).
  2315              05 VALUE 'KSECTION             ' PIC X(33).
  2316              05 VALUE ' SECURE              ' PIC X(33).
  2317              05 VALUE ' SECURITY            ' PIC X(33).    OBSOLETE
  2318              05 VALUE ' SEGMENT             ' PIC X(33).    OBSOLETE
  2319              05 VALUE ' SEGMENT-LIMIT       ' PIC X(33).
  2320              05 VALUE ' SELECT              ' PIC X(33).
  2321              05 VALUE ' SELF                ' PIC X(33).    UNIMPLEMENTED
  2322              05 VALUE 'VSEND                ' PIC X(33).    OBSOLETE
  2323              05 VALUE ' SENTENCE            ' PIC X(33).
  2324              05 VALUE ' SEPARATE            ' PIC X(33).
  2325              05 VALUE ' SEQUENCE            ' PIC X(33).
  2326              05 VALUE ' SEQUENTIAL          ' PIC X(33).
  2327              05 VALUE 'VSET                 ' PIC X(33).
  2328              05 VALUE ' SHARING             ' PIC X(33).
  2329  GC1213      05 VALUE 'FSIGN                ' PIC X(33).
  2330              05 VALUE ' SIGNED              ' PIC X(33).
```

```
2331            05 VALUE ' SIGNED-INT                ' PIC X(33).
2332            05 VALUE ' SIGNED-LONG               ' PIC X(33).
2333            05 VALUE ' SIGNED-SHORT              ' PIC X(33).
2334  GC1213    05 VALUE 'FSIN                       ' PIC X(33).
2335            05 VALUE ' SIZE                      ' PIC X(33).
2336            05 VALUE 'VSORT                      ' PIC X(33).
2337            05 VALUE ' SORT-MERGE                ' PIC X(33).
2338            05 VALUE 'ISORT-RETURN               ' PIC X(33).
2339            05 VALUE ' SOURCE                    ' PIC X(33).
2340            05 VALUE ' SOURCE-COMPUTER           ' PIC X(33).
2341            05 VALUE ' SOURCES                   ' PIC X(33).    UNIMPLEMENTED
2342            05 VALUE ' SPACE                     ' PIC X(33).
2343            05 VALUE ' SPACE-FILL                ' PIC X(33).    UNIMPLEMENTED
2344            05 VALUE ' SPACES                    ' PIC X(33).
2345            05 VALUE ' SPECIAL-NAMES             ' PIC X(33).
2346  GC1213    05 VALUE 'FSQRT                      ' PIC X(33).
2347            05 VALUE ' STANDARD                  ' PIC X(33).
2348            05 VALUE ' STANDARD-1                ' PIC X(33).
2349            05 VALUE ' STANDARD-2                ' PIC X(33).
2350            05 VALUE ' STANDARD-BINARY           ' PIC X(33).    UNIMPLEMENTED
2351  GC1213    05 VALUE 'FSTANDARD-COMPARE          ' PIC X(33).    UNIMPLEMENTED
2352            05 VALUE ' STANDARD-DECIMAL          ' PIC X(33).    UNIMPLEMENTED
2353  GC1213    05 VALUE 'FSTANDARD-DEVIATION        ' PIC X(33).
2354            05 VALUE 'VSTART                     ' PIC X(33).
2355            05 VALUE ' STATEMENT                 ' PIC X(33).    UNIMPLEMENTED
2356            05 VALUE ' STATIC                    ' PIC X(33).
2357            05 VALUE ' STATUS                    ' PIC X(33).
2358            05 VALUE ' STDCALL                   ' PIC X(33).
2359            05 VALUE 'MSTDERR                    ' PIC X(33).
2360            05 VALUE 'MSTDIN                     ' PIC X(33).
2361            05 VALUE 'MSTDOUT                    ' PIC X(33).
2362            05 VALUE ' STEP                      ' PIC X(33).
2363            05 VALUE 'VSTOP                      ' PIC X(33).
2364  GC1213    05 VALUE 'FSTORED-CHAR-LENGTH        ' PIC X(33).
2365            05 VALUE 'VSTRING                    ' PIC X(33).
2366            05 VALUE ' STRONG                    ' PIC X(33).    UNIMPLEMENTED
2367            05 VALUE ' SUB-QUEUE-1               ' PIC X(33).    OBSOLETE
2368            05 VALUE ' SUB-QUEUE-2               ' PIC X(33).    OBSOLETE
2369            05 VALUE ' SUB-QUEUE-3               ' PIC X(33).    OBSOLETE
2370  GC1213    05 VALUE 'FSUBSTITUTE                ' PIC X(33).
2371  GC1213    05 VALUE 'FSUBSTITUTE-CASE           ' PIC X(33).
2372            05 VALUE 'VSUBTRACT                  ' PIC X(33).
2373  GC1213    05 VALUE 'FSUM                       ' PIC X(33).
2374            05 VALUE ' SUPER                     ' PIC X(33).    UNIMPLEMENTED
2375            05 VALUE 'VSUPPRESS                  ' PIC X(33).
2376            05 VALUE 'MSW0                       ' PIC X(33).
2377            05 VALUE 'MSW1                       ' PIC X(33).
2378            05 VALUE 'MSW10                      ' PIC X(33).
2379            05 VALUE 'MSW11                      ' PIC X(33).
2380            05 VALUE 'MSW12                      ' PIC X(33).
2381            05 VALUE 'MSW13                      ' PIC X(33).
2382            05 VALUE 'MSW14                      ' PIC X(33).
2383            05 VALUE 'MSW15                      ' PIC X(33).
2384            05 VALUE 'MSW2                       ' PIC X(33).
```

```
2385              05 VALUE 'MSW3                       ' PIC X(33).
2386              05 VALUE 'MSW4                       ' PIC X(33).
2387              05 VALUE 'MSW5                       ' PIC X(33).
2388              05 VALUE 'MSW6                       ' PIC X(33).
2389              05 VALUE 'MSW7                       ' PIC X(33).
2390              05 VALUE 'MSW8                       ' PIC X(33).
2391              05 VALUE 'MSW9                       ' PIC X(33).
2392              05 VALUE 'MSWITCH-0                  ' PIC X(33).
2393              05 VALUE 'MSWITCH-1                  ' PIC X(33).
2394              05 VALUE 'MSWITCH-10                 ' PIC X(33).
2395              05 VALUE 'MSWITCH-11                 ' PIC X(33).
2396              05 VALUE 'MSWITCH-12                 ' PIC X(33).
2397              05 VALUE 'MSWITCH-13                 ' PIC X(33).
2398              05 VALUE 'MSWITCH-14                 ' PIC X(33).
2399              05 VALUE 'MSWITCH-15                 ' PIC X(33).
2400              05 VALUE 'MSWITCH-2                  ' PIC X(33).
2401              05 VALUE 'MSWITCH-3                  ' PIC X(33).
2402              05 VALUE 'MSWITCH-4                  ' PIC X(33).
2403              05 VALUE 'MSWITCH-5                  ' PIC X(33).
2404              05 VALUE 'MSWITCH-6                  ' PIC X(33).
2405              05 VALUE 'MSWITCH-7                  ' PIC X(33).
2406              05 VALUE 'MSWITCH-8                  ' PIC X(33).
2407              05 VALUE 'MSWITCH-9                  ' PIC X(33).
2408              05 VALUE ' SYMBOL                    ' PIC X(33).     UNIMPLEMENTED
2409              05 VALUE ' SYMBOLIC                  ' PIC X(33).
2410              05 VALUE ' SYNC                      ' PIC X(33).
2411              05 VALUE ' SYNCHRONISED              ' PIC X(33).
2412              05 VALUE ' SYNCHRONIZED              ' PIC X(33).
2413              05 VALUE 'MSYSERR                    ' PIC X(33).
2414              05 VALUE 'MSYSIN                     ' PIC X(33).
2415              05 VALUE 'MSYSIPT                    ' PIC X(33).
2416              05 VALUE 'MSYSLIST                   ' PIC X(33).
2417              05 VALUE 'MSYSLST                    ' PIC X(33).
2418              05 VALUE 'MSYSOUT                    ' PIC X(33).
2419              05 VALUE ' SYSTEM-DEFAULT            ' PIC X(33).
2420              05 VALUE ' TABLE                     ' PIC X(33).     UNIMPLEMENTED
2421              05 VALUE 'KTALLYING                  ' PIC X(33).
2422  GC1213      05 VALUE 'FTAN                       ' PIC X(33).
2423              05 VALUE ' TAPE                      ' PIC X(33).
2424              05 VALUE ' TERMINAL                  ' PIC X(33).     OBSOLETE
2425              05 VALUE 'VTERMINATE                 ' PIC X(33).
2426              05 VALUE ' TEST                      ' PIC X(33).
2427  GC1213      05 VALUE 'FTEST-DATE-YYYYMMDD        ' PIC X(33).
2428  GC1213      05 VALUE 'FTEST-DAY-YYYYDDD          ' PIC X(33).
2429  GC1213      05 VALUE 'FTEST-FORMATTED-DATETIME   ' PIC X(33).     UNIMPLEMENTED
2430  GC1213      05 VALUE 'FTEST-NUMVAL               ' PIC X(33).
2431  GC1213      05 VALUE 'FTEST-NUMVAL-C             ' PIC X(33).
2432  GC1213      05 VALUE 'FTEST-NUMVAL-F             ' PIC X(33).
2433              05 VALUE ' TEXT                      ' PIC X(33).     OBSOLETE
2434              05 VALUE ' THAN                      ' PIC X(33).
2435              05 VALUE ' THEN                      ' PIC X(33).
2436              05 VALUE ' THROUGH                   ' PIC X(33).
2437              05 VALUE ' THRU                      ' PIC X(33).
2438              05 VALUE ' TIME                      ' PIC X(33).
```

```
2439  GC0711    05 VALUE ' TIME-OUT                    ' PIC X(33).
2440  GC0711    05 VALUE ' TIMEOUT                     ' PIC X(33).
2441            05 VALUE ' TIMES                       ' PIC X(33).
2442            05 VALUE 'KTO                          ' PIC X(33).
2443            05 VALUE ' TOP                         ' PIC X(33).
2444            05 VALUE ' TOWARD-GREATER              ' PIC X(33).
2445            05 VALUE ' TOWARD-LESSER               ' PIC X(33).
2446            05 VALUE ' TRAILING                    ' PIC X(33).
2447            05 VALUE ' TRAILING-SIGN               ' PIC X(33).    UNIMPLEMENTED
2448            05 VALUE 'VTRANSFORM                   ' PIC X(33).
2449  GC1213    05 VALUE 'FTRIM                        ' PIC X(33).
2450            05 VALUE ' TRUE                        ' PIC X(33).
2451            05 VALUE ' TRUNCATION                  ' PIC X(33).
2452            05 VALUE ' TYPE                        ' PIC X(33).
2453            05 VALUE ' TYPEDEF                     ' PIC X(33).    UNIMPLEMENTED
2454            05 VALUE ' UCS-4                       ' PIC X(33).    UNIMPLEMENTED
2455            05 VALUE ' UNDERLINE                   ' PIC X(33).
2456            05 VALUE ' UNIT                        ' PIC X(33).
2457            05 VALUE ' UNIVERSAL                   ' PIC X(33).    UNIMPLEMENTED
2458            05 VALUE 'VUNLOCK                      ' PIC X(33).
2459            05 VALUE ' UNSIGNED                    ' PIC X(33).
2460            05 VALUE ' UNSIGNED-INT                ' PIC X(33).
2461            05 VALUE ' UNSIGNED-LONG               ' PIC X(33).
2462            05 VALUE ' UNSIGNED-SHORT              ' PIC X(33).
2463            05 VALUE 'VUNSTRING                    ' PIC X(33).
2464            05 VALUE ' UNTIL                       ' PIC X(33).
2465            05 VALUE 'KUP                          ' PIC X(33).
2466            05 VALUE ' UPDATE                      ' PIC X(33).
2467            05 VALUE ' UPON                        ' PIC X(33).
2468            05 VALUE ' UPPER                       ' PIC X(33).
2469  GC1213    05 VALUE 'FUPPER-CASE                  ' PIC X(33).
2470            05 VALUE ' USAGE                       ' PIC X(33).
2471            05 VALUE 'VUSE                         ' PIC X(33).
2472  GC0711    05 VALUE ' USER                        ' PIC X(33).
2473            05 VALUE ' USER-DEFAULT                ' PIC X(33).
2474            05 VALUE 'KUSING                       ' PIC X(33).
2475            05 VALUE ' UTF-16                      ' PIC X(33).    UNIMPLEMENTED
2476            05 VALUE ' UTF-8                       ' PIC X(33).    UNIMPLEMENTED
2477            05 VALUE ' VAL-STATUS                  ' PIC X(33).    UNIMPLEMENTED
2478            05 VALUE ' VALID                       ' PIC X(33).    UNIMPLEMENTED
2479            05 VALUE ' VALIDATE                    ' PIC X(33).    UNIMPLEMENTED
2480            05 VALUE ' VALIDATE-STATUS             ' PIC X(33).    UNIMPLEMENTED
2481  GC0712    05 VALUE 'AVALUE                       ' PIC X(33).
2482            05 VALUE ' VALUES                      ' PIC X(33).
2483  GC1213    05 VALUE 'FVARIANCE                    ' PIC X(33).
2484            05 VALUE 'KVARYING                     ' PIC X(33).
2485            05 VALUE ' VDISABLE                    ' PIC X(33).    UNIMPLEMENTED
2486            05 VALUE ' WAIT                        ' PIC X(33).
2487            05 VALUE 'VWHEN                        ' PIC X(33).
2488  GC1213    05 VALUE 'FWHEN-COMPILED               ' PIC X(33).
2489            05 VALUE ' WITH                        ' PIC X(33).
2490            05 VALUE ' WORDS                       ' PIC X(33).
2491            05 VALUE 'KWORKING-STORAGE             ' PIC X(33).
2492            05 VALUE 'VWRITE                       ' PIC X(33).
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:03    Page   72

2493  GC1213     05 VALUE 'FYEAR-TO-YYYY                  ' PIC X(33).
2494             05 VALUE ' YYYYDDD                       ' PIC X(33).
2495             05 VALUE ' YYYYMMDD                      ' PIC X(33).
2496             05 VALUE ' ZERO                          ' PIC X(33).
2497             05 VALUE ' ZERO-FILL                     ' PIC X(33).     UNIMPLEMENTED
2498             05 VALUE ' ZEROES                        ' PIC X(33).
2499             05 VALUE ' ZEROS                         ' PIC X(33).
2500         01  WS-Reserved-Word-Table-TXT REDEFINES WS-Reserved-Words-TXT.
2501  GC1113     05 WS-Reserved-Word-TXT      OCCURS 754 TIMES
2502                                          ASCENDING KEY
2503                                              WS-RW-Word-TXT
2504                                          INDEXED WS-RW-IDX.
2505                10 WS-RW-Type-CD          PIC X(1).
2506                10 WS-RW-Word-TXT         PIC X(32).
2507
2508         01  WS-Runtime-Switches.
2509  GC0710     05 WS-RS-Duplicate-CHR         PIC X(1).
2510             05 WS-RS-In-Which-Pgm-CHR      PIC X(1).
2511                88 WS-RS-In-Main-Module-BOOL    VALUE 'M'.
2512                88 WS-RS-In-Copybook-BOOL       VALUE 'C'.
2513             05 WS-RS-Last-Token-Ended-Sent-CHR PIC X(1).
2514             05 WS-RS-Processing-PICTURE-CHR    PIC X(1).
2515             05 WS-RS-Token-Ended-Sentence-CHR  PIC X(1).
2516  GC0710     05 WS-RS-Verb-Has-Been-Found-CHR   PIC X(1).
2517
2518         01  WS-Saved-Section-TXT          PIC X(15).
2519
2520  GC1213 01  WS-Src-Dashes-TXT.
2521  GC0712     05 VALUE '======'             PIC X(7).
2522  GC0712     05 VALUE ALL '='              PIC X(128).
2523
2524         01  WS-Src-Detail-Line-TXT.
2525             05 WS-SDL-Line-NUM            PIC ZZZZZ9.
2526             05 FILLER                     PIC X(1).
2527             05 WS-SDL-Statement-TXT       PIC X(256).
2528
2529  GC1213 01  WS-Src-Hold-TXT               PIC X(256).
2530
2531         01  WS-Src-Line-NUM               PIC 9(6).
2532
2533  GC1213 01  WS-Src-Lines-NUM              USAGE BINARY-LONG.
2534
2535         01  WS-Src-SUB                    USAGE BINARY-LONG.
2536
2537         01  WS-Tally-QTY                  USAGE BINARY-LONG.
2538
2539         01  WS-Temp-10-Chars-TXT          PIC X(10).
2540
2541         01  WS-Temp-32-Chars-1-TXT        PIC X(32).
2542
2543  GC0711 01  WS-Temp-32-Chars-2-TXT        PIC X(32).
2544
2545  GC0711 01  WS-Temp-32-Chars-3-TXT        PIC X(32).
2546
```

```
ACS Cobol Xref v2.02.04         Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:03    Page   73

 2547  GC0712 01  WS-Temp-65-Chars-TXT                PIC X(65).
 2548
 2549         01  WS-Temp-256-Chars-TXT               PIC X(256).
 2550
 2551         01  WS-Today-DT                         PIC 9(8).
 2552
 2553         01  WS-Token-Curr-TXT                   PIC X(32).
 2554
 2555         01  WS-Token-Curr-Uc-TXT                PIC X(32).
 2556
 2557         01  WS-Token-Prev-TXT                   PIC X(32).
 2558
 2559         01  WS-Token-Search-TXT                 PIC X(32).
 2560
 2561         01  WS-Token-Type-CD                    PIC X(1).
 2562  GC0712     88 WS-TT-Token-Is-Argtype-BOOL      VALUE 'A'.
 2563             88 WS-TT-Token-Is-EOF-BOOL          VALUE HIGH-VALUES.
 2564  GC1213     88 WS-TT-Token-Is-Function-BOOL     VALUE 'F'.
 2565             88 WS-TT-Token-Is-Identifier-BOOL   VALUE 'I'.
 2566  GC0712     88 WS-TT-Token-Is-Keyword-BOOL      VALUE 'K', 'V', 'A'.
 2567             88 WS-TT-Token-Is-Lit-Alpha-BOOL    VALUE 'L'.
 2568             88 WS-TT-Token-Is-Lit-Number-BOOL   VALUE 'N'.
 2569             88 WS-TT-Token-Is-Verb-BOOL         VALUE 'V'.
 2570  GC1213     88 WS-TT-Token-Is-Reserved-Wd-BOOL  VALUE ' ', 'F'.
 2571
 2572         01  WS-Usernames-QTY                    USAGE BINARY-LONG.
 2573
 2574         01  WS-Version-TXT                      PIC X(23).
 2575
 2576         01  WS-Xref-Detail-Line-TXT.
 2577             05 WS-XDL-Prog-ID-TXT               PIC X(15).
 2578             05 FILLER                           PIC X(1).
 2579             05 WS-XDL-Token-TXT                 PIC X(32).
 2580             05 FILLER                           PIC X(1).
 2581             05 WS-XDL-Def-Line-NUM              PIC ZZZZZ9.
 2582             05 FILLER                           PIC X(1).
 2583             05 WS-XDL-Section-TXT               PIC X(15).
 2584             05 FILLER                           PIC X(1).
 2585             05 WS-XDL-Reference-TXT             OCCURS 8 TIMES.
 2586                10 WS-XDL-Ref-Line-NUM           PIC ZZZZZ9.
 2587                10 WS-XDL-Ref-Flag-CHR           PIC X(1).
 2588                10 FILLER                        PIC X(1).
 2589
 2590  GC1213 01  WS-Xref-Lines-Per-Rec-NUM           PIC 9(1).
 2591
 2592         LINKAGE SECTION.
 2593  GC0712 01  L-Listing-Fn-TXT                    PIC X(256).
 2594
 2595         01  L-Src-Fn-TXT                        PIC X(256).
 2596
 2597  GC0712 01  L-OS-Type-CD                        PIC 9(1).
 2598
 2599  GC1213 01  L-LPP-NUM                           USAGE BINARY-LONG.
 2600
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:03    Page   74

 2601  GC1213 01  L-LPP-Port-NUM                         USAGE BINARY-LONG.
 2602
 2603  GC1213 01  L-Listing-CD                           PIC 9(1).
 2604       /
 2605  GC0712 PROCEDURE DIVISION USING L-Listing-Fn-TXT
 2606  GC0712                          L-Src-Fn-TXT
 2607  GC0712                          L-OS-Type-CD
 2608  GC1213                          L-LPP-NUM
 2609  GC1213                          L-LPP-Port-NUM
 2610  GC1213                          L-Listing-CD.
 2611       000-Main SECTION.
 2612           PERFORM 100-Initialization
 2613  GC0712    OPEN OUTPUT F-Listing-FILE
 2614  GC0712    PERFORM 500-Produce-Source-Listing
 2615  GC0712    SORT F-Sort-Work-FILE
 2616  GC0712        ASCENDING KEY   F-SW-Prog-ID-TXT
 2617  GC0712                        F-SW-Token-Uc-TXT
 2618  GC0712                        F-SW-Ref-Line-NUM
 2619  GC0712        INPUT PROCEDURE  300-Tokenize-Source
 2620  GC0712        OUTPUT PROCEDURE 400-Produce-Xref-Listing
 2621  GC0712    CLOSE F-Listing-FILE
 2622           GOBACK
 2623           .
 2624       /
 2625       *>************************************************************
 2626       *> Perform all program-wide initialization operations       **
 2627       *>************************************************************
 2628       100-Initialization SECTION.
 2629  GC1213    MOVE 0 TO WS-Page-NUM
 2630  GC1213    MOVE 'N' TO WS-Suppress-FF-CHR
 2631  GC1213    MOVE SPACES TO WS-Copyright-TXT
 2632  GC1213    STRING 'GCic for '                  DELIMITED SIZE
 2633  GC1213           WS-OS-Type-TXT(L-OS-Type-CD) DELIMITED SPACE
 2634  VC0820           ' Copyright (C) 2009-'       DELIMITED SIZE
 2635  VC0322           COMP-YEAR                    DELIMITED SIZE
 2636  VC0322           ', Gary L. Cutler, GPL'      DELIMITED SIZE
 2637  GC1213           INTO WS-Copyright-TXT
 2638  VC0811*>  See const-set-1.cpy for constants used
 2639  VC0811*>    MOVE 'GNUCOBOL 3.1.2 06MAR2022' TO WS-Version-TXT
 2640       *>
 2641  VC0811    move    Comp-Vers to    WS-Version-TXT.
 2642           MOVE TRIM(L-Src-Fn-TXT,Leading) TO L-Src-Fn-TXT
 2643  GC1010    PERFORM VARYING WS-I-SUB FROM LENGTH(L-Src-Fn-TXT) BY -1
 2644       *> Locate last directory delimiter character so that the filename can be extracted
 2645  GC1010          UNTIL L-Src-Fn-TXT(WS-I-SUB:1) = '/' OR '\'
 2646  GC1010             OR WS-I-SUB = 0
 2647  VC0322          continue
 2648  GC1010    END-PERFORM
 2649  GC1010    IF WS-I-SUB = 0
 2650  GC1010        MOVE UPPER-CASE(L-Src-Fn-TXT) TO WS-Main-Module-Name-TXT
 2651       *> No directory delimiter, whole thing is filename
 2652  GC1010    ELSE
 2653  GC1010        ADD 1 TO WS-I-SUB
 2654  GC1010        MOVE UPPER-CASE(L-Src-Fn-TXT(WS-I-SUB:))
```

```
2655  GC1010          TO WS-Main-Module-Name-TXT *> Extract filename
2656  GC1010     END-IF
2657  GC1213     IF L-Listing-CD = 1 *> LANDSCAPE
2658  GC1213         MOVE 8 TO WS-Xref-Lines-Per-Rec-NUM
2659  GC1213         ACCEPT WS-Lines-Per-Page-Env-TXT
2660  GC1213             FROM ENVIRONMENT 'GCXREF_LINES'
2661  GC1213     ELSE *> PORTRAIT
2662  GC1213         MOVE 3 TO WS-Xref-Lines-Per-Rec-NUM
2663  GC1213         ACCEPT WS-Lines-Per-Page-Env-TXT
2664  GC1213             FROM ENVIRONMENT 'GCXREF_LINES_PORT'
2665  GC1213     END-IF
2666             INSPECT L-Src-Fn-TXT REPLACING ALL '\' BY '/'
2667             MOVE L-Src-Fn-TXT TO WS-Program-Path-TXT
2668             CALL 'C$JUSTIFY' USING WS-Program-Path-TXT, 'Right'
2669             MOVE LENGTH(TRIM(L-Src-Fn-TXT,Trailing)) TO WS-I-SUB
2670             MOVE 0 TO WS-J-SUB
2671             PERFORM UNTIL L-Src-Fn-TXT(WS-I-SUB:1) = '/'
2672                     OR WS-I-SUB = 0
2673                 SUBTRACT 1 FROM WS-I-SUB
2674                 ADD     1 TO   WS-J-SUB
2675             END-PERFORM
2676             UNSTRING L-Src-Fn-TXT((WS-I-SUB + 1):WS-J-SUB)
2677                 DELIMITED BY '.'
2678                 INTO WS-Filename-TXT
2679                     WS-Dummy-TXT
2680  GC1010     STRING
2681  GC1010         TRIM(WS-Filename-TXT,Trailing)
2682  GC1010         '.i'
2683  GC1010         DELIMITED SIZE
2684  GC1010         INTO WS-Expanded-Src-Fn-TXT
2685  GC1010     CALL 'CBL_CHECK_FILE_EXIST' USING WS-Expanded-Src-Fn-TXT
2686  GC1010                                       WS-Temp-256-Chars-TXT
2687  GC1010     IF RETURN-CODE NOT = 0
2688  GC1010         GOBACK
2689  GC1010     END-IF
2690             IF WS-Lines-Per-Page-Env-TXT NOT = SPACES
2691                 MOVE NUMVAL(WS-Lines-Per-Page-Env-TXT)
2692                   TO WS-Lines-Per-Page-NUM
2693             ELSE
2694  GC1213         IF L-LISTING-CD = 1 *> LANDSCAPE
2695  GC1213             MOVE L-LPP-NUM TO WS-Lines-Per-Page-NUM
2696  GC1213         ELSE               *> PORTRAIT
2697  GC1213             MOVE L-LPP-Port-NUM TO WS-Lines-Per-Page-NUM
2698  GC1213         END-IF
2699             END-IF
2700  GC1213     SUBTRACT 3 FROM WS-Lines-Per-Page-NUM *> FOR PAGE FOOTER
2701             ACCEPT WS-Today-DT FROM DATE YYYYMMDD
2702  GC1213     MOVE WS-Today-DT TO WS-Formatted-DT
2703             MOVE '????????????...' TO WS-Curr-Prog-ID-TXT
2704             MOVE SPACES          TO WS-Curr-Verb-TXT
2705                                     WS-Held-Reference-TXT
2706             .
2707        /
2708        300-Tokenize-Source SECTION.
```

```
2709              OPEN INPUT F-Expanded-Src-FILE
2710              MOVE SPACES TO F-Expanded-Src-REC
2711              MOVE 256 TO WS-Src-SUB
2712              MOVE 0 TO WS-Usernames-QTY
2713                      WS-Curr-Line-NUM
2714              MOVE '?' TO WS-Curr-Division-TXT
2715   GC0710     MOVE 'N' TO WS-RS-Verb-Has-Been-Found-CHR
2716              PERFORM FOREVER
2717                  PERFORM 310-Get-Token
2718                  IF WS-TT-Token-Is-EOF-BOOL
2719                      EXIT PERFORM
2720                  END-IF
2721                  MOVE UPPER-CASE(WS-Token-Curr-TXT)
2722                    TO WS-Token-Curr-Uc-TXT
2723   GC1010       IF WS-TT-Token-Is-Keyword-BOOL
2724   GC1010       OR WS-TT-Token-Is-Reserved-Wd-BOOL
2725   GC1010           MOVE WS-Token-Curr-Uc-TXT TO WS-Token-Curr-TXT
2726   GC1010       END-IF
2727                  IF WS-TT-Token-Is-Verb-BOOL
2728                      MOVE WS-Token-Curr-Uc-TXT TO WS-Curr-Verb-TXT
2729                                                   WS-Token-Prev-TXT
2730                      IF WS-Held-Reference-TXT NOT = SPACES
2731                          MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
2732                          MOVE SPACES        TO WS-Held-Reference-TXT
2733                          RELEASE F-Sort-Work-REC
2734                      END-IF
2735                  END-IF
2736                  EVALUATE TRUE
2737                  WHEN WS-CD-In-IDENT-DIV-BOOL
2738                      PERFORM 320-IDENTIFICATION-DIVISION
2739                  WHEN WS-CD-In-ENV-DIV-BOOL
2740                      PERFORM 330-ENVIRONMENT-DIVISION
2741                  WHEN WS-CD-In-DATA-DIV-BOOL
2742                      PERFORM 340-DATA-DIVISION
2743                  WHEN WS-CD-In-PROC-DIV-BOOL
2744                      PERFORM 350-PROCEDURE-DIVISION
2745                  END-EVALUATE
2746                  IF WS-TT-Token-Is-Keyword-BOOL
2747                      MOVE WS-Token-Curr-Uc-TXT TO WS-Token-Prev-TXT
2748                  END-IF
2749                  IF WS-RS-Token-Ended-Sentence-CHR = 'Y'
2750                  AND WS-Curr-Division-TXT NOT = 'I'
2751                      MOVE SPACES TO WS-Token-Prev-TXT
2752                                     WS-Curr-Verb-TXT
2753                  END-IF
2754
2755              END-PERFORM
2756              CLOSE F-Expanded-Src-FILE
2757              .
2758        /
2759        310-Get-Token SECTION.
2760       *>-- Position to 1st non-blank character
2761              MOVE WS-RS-Token-Ended-Sentence-CHR
2762                TO WS-RS-Last-Token-Ended-Sent-CHR
```

```
2763                MOVE 'N' TO WS-RS-Token-Ended-Sentence-CHR
2764                PERFORM UNTIL F-Expanded-Src-REC(WS-Src-SUB : 1) NOT = SPACE
2765                    IF WS-Src-SUB > 255
2766                        READ F-Expanded-Src-FILE AT END
2767                            IF WS-Held-Reference-TXT NOT = SPACES
2768                                MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
2769                                MOVE SPACES          TO WS-Held-Reference-TXT
2770                                RELEASE F-Sort-Work-REC
2771                            END-IF
2772                            SET WS-TT-Token-Is-EOF-BOOL TO TRUE
2773                            MOVE 0 TO WS-Curr-Line-NUM
2774                            EXIT SECTION
2775                        END-READ
2776  GC0712                IF F-ES-1-7-TXT NOT = '#DEFLIT'
2777  GC0712                    IF F-ES-1-CHR = '#'
2778  GC0712                        PERFORM 311-Control-Record
2779  GC0712                    ELSE
2780  GC0712                        PERFORM 312-Expanded-Src-Record
2781  GC0712                    END-IF
2782  GC0712                END-IF
2783                    ELSE
2784                        ADD 1 TO WS-Src-SUB
2785                    END-IF
2786                END-PERFORM
2787         *>-- Extract token string
2788                MOVE F-Expanded-Src-REC(WS-Src-SUB : 1)
2789                  TO WS-Curr-CHR
2790                MOVE F-Expanded-Src-REC(WS-Src-SUB + 1: 1)
2791                  TO WS-Next-CHR
2792                IF WS-Curr-CHR = '.'
2793                    ADD 1 TO WS-Src-SUB
2794                    MOVE WS-Curr-CHR TO WS-Token-Curr-TXT
2795                    MOVE SPACE TO WS-Token-Type-CD
2796                    MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
2797                    EXIT SECTION
2798                END-IF
2799                IF WS-Curr-Char-Is-Punct-BOOL
2800                AND WS-Curr-CHR = '='
2801                AND WS-Curr-Division-TXT = 'P'
2802                    ADD 1 TO WS-Src-SUB
2803                    MOVE 'EQUALS' TO WS-Token-Curr-TXT
2804                    MOVE 'K'      TO WS-Token-Type-CD
2805                    EXIT SECTION
2806                END-IF
2807                IF WS-Curr-Char-Is-Punct-BOOL *> So subscripts don't get flagged w/ '*'
2808                AND WS-Curr-CHR = '('
2809                AND WS-Curr-Division-TXT = 'P'
2810                    MOVE SPACES TO WS-Token-Prev-TXT
2811                END-IF
2812                IF WS-Curr-Char-Is-Punct-BOOL
2813                    ADD 1 TO WS-Src-SUB
2814                    MOVE WS-Curr-CHR TO WS-Token-Curr-TXT
2815                    MOVE SPACE TO WS-Token-Type-CD
2816                    EXIT SECTION
```

```
2817            END-IF
2818            IF WS-Curr-Char-Is-Quote-BOOL
2819                ADD 1 TO WS-Src-SUB
2820                UNSTRING F-Expanded-Src-REC
2821                    DELIMITED BY WS-Curr-CHR
2822                    INTO WS-Token-Curr-TXT
2823                    WITH POINTER WS-Src-SUB
2824                IF F-Expanded-Src-REC(WS-Src-SUB : 1) = '.'
2825                    MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
2826                    ADD 1 TO WS-Src-SUB
2827                END-IF
2828                SET WS-TT-Token-Is-Lit-Alpha-BOOL TO TRUE
2829                EXIT SECTION
2830            END-IF
2831            IF WS-Curr-Char-Is-X-BOOL AND WS-Next-Char-Is-Quote-BOOL
2832                ADD 2 TO WS-Src-SUB
2833                UNSTRING F-Expanded-Src-REC
2834                    DELIMITED BY WS-Next-CHR
2835                    INTO WS-Token-Curr-TXT
2836                    WITH POINTER WS-Src-SUB
2837                IF F-Expanded-Src-REC(WS-Src-SUB : 1) = '.'
2838                    MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
2839                    ADD 1 TO WS-Src-SUB
2840                END-IF
2841                SET WS-TT-Token-Is-Lit-Number-BOOL TO TRUE
2842                EXIT SECTION
2843            END-IF
2844            IF WS-Curr-Char-Is-Z-BOOL AND WS-Next-Char-Is-Quote-BOOL
2845                ADD 2 TO WS-Src-SUB
2846                UNSTRING F-Expanded-Src-REC
2847                    DELIMITED BY WS-Next-CHR
2848                    INTO WS-Token-Curr-TXT
2849                    WITH POINTER WS-Src-SUB
2850                IF F-Expanded-Src-REC(WS-Src-SUB : 1) = '.'
2851                    MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
2852                    ADD 1 TO WS-Src-SUB
2853                END-IF
2854                SET WS-TT-Token-Is-Lit-Alpha-BOOL TO TRUE
2855                EXIT SECTION
2856            END-IF
2857            IF WS-RS-Processing-PICTURE-CHR = 'Y'
2858                UNSTRING F-Expanded-Src-REC
2859                    DELIMITED BY '. ' OR ' '
2860                    INTO WS-Token-Curr-TXT
2861                    DELIMITER IN WS-Delim-TXT
2862                    WITH POINTER WS-Src-SUB
2863                IF WS-Delim-TXT = '. '
2864                    MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
2865                    ADD 1 TO WS-Src-SUB
2866                END-IF
2867                IF UPPER-CASE(WS-Token-Curr-TXT) = 'IS'
2868                    MOVE SPACE TO WS-Token-Type-CD
2869                    EXIT SECTION
2870                ELSE
```

```
2871                        MOVE 'N' TO WS-RS-Processing-PICTURE-CHR
2872                        MOVE SPACE TO WS-Token-Type-CD
2873                        EXIT SECTION
2874                    END-IF
2875                END-IF
2876                UNSTRING F-Expanded-Src-REC
2877                    DELIMITED BY '. ' OR ' ' OR '=' OR '(' OR ')' OR '*'
2878                                    OR '/' OR '&' OR ';' OR ',' OR '<'
2879                                    OR '>' OR ':'
2880                    INTO WS-Token-Curr-TXT
2881                    DELIMITER IN WS-Delim-TXT
2882                    WITH POINTER WS-Src-SUB
2883                IF WS-Delim-TXT = '. '
2884                    MOVE 'Y' TO WS-RS-Token-Ended-Sentence-CHR
2885                END-IF
2886                IF WS-Delim-TXT NOT = '. ' AND ' '
2887                    SUBTRACT 1 FROM WS-Src-SUB
2888                END-IF
2889        *>-- Classify Token
2890                MOVE UPPER-CASE(WS-Token-Curr-TXT) TO WS-Token-Search-TXT
2891                IF WS-Token-Search-TXT = 'EQUAL' OR 'EQUALS'
2892                    MOVE 'EQUALS' TO WS-Token-Curr-TXT
2893                    MOVE 'K'     TO WS-Token-Type-CD
2894                    EXIT SECTION
2895                END-IF
2896                SEARCH ALL WS-Reserved-Word-TXT
2897                    WHEN WS-RW-Word-TXT (WS-RW-IDX) = WS-Token-Search-TXT
2898                        MOVE WS-RW-Type-CD (WS-RW-IDX) TO WS-Token-Type-CD
2899 GC0710             IF WS-TT-Token-Is-Verb-BOOL
2900 GC0710                 MOVE 'Y' TO WS-RS-Verb-Has-Been-Found-CHR
2901 GC0710             END-IF
2902                        EXIT SECTION
2903                END-SEARCH
2904        *>-- Not a reserved word, must be a user name
2905                SET WS-TT-Token-Is-Identifier-BOOL TO TRUE
2906                PERFORM 313-Check-For-Numeric-Token
2907                IF WS-TT-Token-Is-Lit-Number-BOOL
2908                    IF  (WS-RS-Last-Token-Ended-Sent-CHR = 'Y')
2909                    AND (WS-Curr-Division-TXT = 'D')
2910                        MOVE 'LEVEL #' TO WS-Token-Curr-TXT
2911                        MOVE 'K'     TO WS-Token-Type-CD
2912                        EXIT SECTION
2913                    ELSE
2914                        EXIT SECTION
2915                    END-IF
2916                END-IF
2917                .
2918        /
2919         311-Control-Record SECTION.
2920                UNSTRING F-ES-2-256-TXT-256
2921                    DELIMITED BY '"'
2922                    INTO WS-Temp-10-Chars-TXT
2923                        WS-Temp-256-Chars-TXT
2924                        WS-Dummy-TXT
```

```
2925              INSPECT WS-Temp-10-Chars-TXT REPLACING ALL '"' BY SPACE
2926  GC0712      IF WS-Temp-10-Chars-TXT(1:4) = 'line'
2927  GC0712          MOVE SPACES TO WS-Temp-10-Chars-TXT(1:4)
2928  GC0712      END-IF
2929              COMPUTE WS-I-SUB = NUMVAL(WS-Temp-10-Chars-TXT) - 1
2930  GC1010      IF UPPER-CASE(TRIM(WS-Temp-256-Chars-TXT,Trailing)) =
2931  GC1010         TRIM(WS-Main-Module-Name-TXT)
2932                 MOVE WS-I-SUB TO WS-Curr-Line-NUM
2933                 SET WS-RS-In-Main-Module-BOOL TO TRUE
2934                 IF WS-Saved-Section-TXT NOT = SPACES
2935                     MOVE WS-Saved-Section-TXT TO WS-Curr-Section-TXT
2936                 END-IF
2937              ELSE
2938                 SET WS-RS-In-Copybook-BOOL TO TRUE
2939                 IF WS-Saved-Section-TXT = SPACES
2940                     MOVE WS-Curr-Section-TXT TO WS-Saved-Section-TXT
2941                 END-IF
2942                 MOVE LENGTH(TRIM(WS-Temp-256-Chars-TXT,Trailing))
2943                   TO WS-I-SUB
2944                 MOVE 0 TO WS-J-SUB
2945                 PERFORM UNTIL WS-Temp-256-Chars-TXT(WS-I-SUB:1) = '/'
2946                         OR WS-I-SUB = 0
2947                     SUBTRACT 1 FROM WS-I-SUB
2948                     ADD     1 TO   WS-J-SUB
2949                 END-PERFORM
2950                 UNSTRING WS-Temp-256-Chars-TXT((WS-I-SUB + 1):WS-J-SUB)
2951                     DELIMITED BY '.'
2952                     INTO WS-Filename-TXT
2953                         WS-Dummy-TXT
2954                 MOVE '['     TO WS-CS-1-CHR
2955                 MOVE WS-Filename-TXT TO WS-CS-2-14-TXT
2956                 IF WS-CS-11-14-TXT NOT = SPACES
2957                     MOVE '...' TO WS-CS-11-14-TXT
2958                 END-IF
2959                 MOVE ']'     TO WS-CS-15-CHR
2960              END-IF
2961              MOVE SPACES TO F-Expanded-Src-REC *> Force another READ
2962              MOVE 256    TO WS-Src-SUB
2963              .
2964        /
2965          312-Expanded-Src-Record SECTION.
2966  GC0314      IF F-Expanded-Src-REC(1:1) = SPACE
2967  GC0314          MOVE 2 TO WS-Src-SUB
2968  GC0314      ELSE
2969  GC0314          MOVE 1 TO WS-Src-SUB
2970  GC0314      END-IF
2971              IF WS-RS-In-Main-Module-BOOL
2972                  ADD 1 To WS-Curr-Line-NUM
2973              END-IF
2974              .
2975        /
2976          313-Check-For-Numeric-Token SECTION.
2977              MOVE WS-Token-Curr-TXT TO WS-Temp-32-Chars-1-TXT
2978              INSPECT WS-Temp-32-Chars-1-TXT
```

```
2979  GC0711          CONVERTING '0123456789' TO SPACES
2980  GC0711      IF WS-Temp-32-Chars-1-TXT = SPACES                     *> Simple Unsigned Integer
2981                  SET WS-TT-Token-Is-Lit-Number-BOOL TO TRUE
2982                  EXIT SECTION
2983              END-IF
2984  GC0711      MOVE SPACES TO WS-Temp-32-Chars-2-TXT
2985  GC0711                      WS-Temp-32-Chars-3-TXT
2986  GC0711                      WS-Dummy-TXT
2987  GC0711      UNSTRING WS-Temp-32-Chars-1-TXT
2988  GC0711          DELIMITED BY 'e' OR 'E'
2989  GC0711          INTO WS-Temp-32-Chars-2-TXT
2990  GC0711               WS-Temp-32-Chars-3-TXT
2991  GC0711               WS-Dummy-TXT
2992  GC0711      IF WS-Dummy-TXT NOT = SPACES               *> More than one 'E' - Not Numeric
2993  GC0711          EXIT SECTION
2994  GC0711      END-IF
2995  GC0711      IF WS-Temp-32-Chars-2-TXT(1:1) = '+' OR '-'
2996  GC0711          MOVE SPACE TO WS-Temp-32-Chars-2-TXT(1:1)
2997  GC0711      END-IF
2998  GC0711      IF WS-Temp-32-Chars-3-TXT(1:1) = '+' OR '-'
2999  GC0711          MOVE SPACE TO WS-Temp-32-Chars-3-TXT(1:1)
3000  GC0711      END-IF
3001              MOVE 0 TO WS-Tally-QTY
3002  GC0711      INSPECT WS-Temp-32-Chars-2-TXT
3003                  TALLYING WS-Tally-QTY FOR ALL '.'
3004              IF WS-Tally-QTY = 1
3005  GC0711          INSPECT WS-Temp-32-Chars-2-TXT REPLACING ALL '.' BY SPACE
3006              END-IF
3007  GC0711      INSPECT WS-Temp-32-Chars-3-TXT
3008  GC0711          TALLYING WS-Tally-QTY FOR ALL '.'
3009  GC0711      IF WS-Tally-QTY = 1
3010  GC0711          INSPECT WS-Temp-32-Chars-3-TXT REPLACING ALL '.' BY SPACE
3011  GC0711      END-IF
3012  GC0711      IF WS-Temp-32-Chars-2-TXT = SPACES AND WS-Temp-32-Chars-3-TXT = SPACES
3013                  SET WS-TT-Token-Is-Lit-Number-BOOL TO TRUE
3014                  EXIT SECTION
3015              END-IF
3016              .
3017        /
3018        320-IDENTIFICATION-DIVISION SECTION.
3019  GC0712    IF WS-TT-Token-Is-Argtype-BOOL
3020  GC0712        SET WS-TT-Token-Is-Reserved-Wd-BOOL TO TRUE
3021  GC0712    END-IF
3022  GC0710    MOVE 'N' TO WS-RS-Verb-Has-Been-Found-CHR
3023            IF WS-TT-Token-Is-Keyword-BOOL
3024            AND WS-Token-Curr-TXT = 'DIVISION'
3025                MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
3026                EXIT SECTION
3027            END-IF
3028  GC0712    IF WS-Token-Prev-TXT = 'PROGRAM-ID' OR 'FUNCTION-ID'
3029                MOVE SPACES TO WS-Token-Prev-TXT
3030                MOVE WS-Token-Curr-TXT TO WS-Curr-Prog-ID-TXT
3031  GC0712        IF WS-CPI-16-CHR NOT = SPACES
3032                    MOVE '...' TO WS-CPI-13-15-TXT
```

```
3033                    END-IF
3034                    EXIT SECTION
3035                END-IF
3036                .
3037        /
3038          330-ENVIRONMENT-DIVISION SECTION.
3039  GC0712    IF WS-TT-Token-Is-Argtype-BOOL
3040  GC0712        SET WS-TT-Token-Is-Reserved-Wd-BOOL TO TRUE
3041  GC0712    END-IF
3042            IF WS-TT-Token-Is-Keyword-BOOL
3043            AND WS-Token-Curr-TXT = 'DIVISION'
3044                MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
3045                EXIT SECTION
3046            END-IF
3047            IF WS-TT-Token-Is-Keyword-BOOL
3048            AND WS-Token-Curr-TXT = 'SECTION'
3049                MOVE WS-Token-Prev-TXT TO WS-Curr-Section-TXT
3050                EXIT SECTION
3051            END-IF
3052            IF WS-TT-Token-Is-Identifier-BOOL
3053  GC0712        IF WS-Token-Prev-TXT = 'FUNCTION'
3054  GC0712            PERFORM 360-Release-Def
3055  GC0712        ELSE
3056  GC0712            PERFORM 361-Release-Ref
3057  GC0712        END-IF
3058            END-IF
3059  GC1213    IF WS-TT-Token-Is-Function-BOOL
3060  GC1213        PERFORM 361-Release-Ref
3061  GC1213    END-IF
3062            .
3063        /
3064          340-DATA-DIVISION SECTION.
3065  GC0712    IF WS-TT-Token-Is-Argtype-BOOL
3066  GC0712        SET WS-TT-Token-Is-Reserved-Wd-BOOL TO TRUE
3067  GC0712    END-IF
3068            IF WS-TT-Token-Is-Keyword-BOOL
3069            AND WS-Token-Curr-TXT = 'DIVISION'
3070                MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
3071                EXIT SECTION
3072            END-IF
3073            IF WS-TT-Token-Is-Keyword-BOOL
3074            AND WS-Token-Curr-TXT = 'SECTION'
3075                MOVE WS-Token-Prev-TXT TO WS-Curr-Section-TXT
3076                EXIT SECTION
3077            END-IF
3078            IF  (WS-Token-Curr-TXT = 'PIC' OR 'PICTURE')
3079            AND (WS-TT-Token-Is-Keyword-BOOL)
3080                MOVE 'Y' TO WS-RS-Processing-PICTURE-CHR
3081                EXIT SECTION
3082            END-IF
3083  GC0710    IF WS-TT-Token-Is-Reserved-Wd-BOOL
3084  GC0710    AND WS-Token-Prev-TXT = 'LEVEL #'
3085  GC0710        MOVE SPACES TO WS-Token-Prev-TXT
3086  GC0710        EXIT SECTION
```

```
3087  GC0710     END-IF
3088             IF WS-TT-Token-Is-Identifier-BOOL
3089                 EVALUATE WS-Token-Prev-TXT
3090                 WHEN 'FD'
3091                     PERFORM 360-Release-Def
3092                     MOVE SPACES TO WS-Token-Prev-TXT
3093  GC1213         WHEN 'RD'
3094  GC1213             PERFORM 360-Release-Def
3095  GC1213             MOVE SPACES TO WS-Token-Prev-TXT
3096                 WHEN 'SD'
3097                     PERFORM 360-Release-Def
3098                     MOVE SPACES TO WS-Token-Prev-TXT
3099                 WHEN 'LEVEL #'
3100                     PERFORM 360-Release-Def
3101                     MOVE SPACES TO WS-Token-Prev-TXT
3102                 WHEN 'INDEXED'
3103                     PERFORM 360-Release-Def
3104                     MOVE SPACES TO WS-Token-Prev-TXT
3105                 WHEN 'USING'
3106                     PERFORM 362-Release-Upd
3107                     MOVE SPACES TO WS-Token-Prev-TXT
3108                 WHEN 'INTO'
3109                     PERFORM 362-Release-Upd
3110                     MOVE SPACES TO WS-Token-Prev-TXT
3111                 WHEN OTHER
3112  GC1213             IF WS-Token-Curr-TXT NOT = 'SUM'
3113  GC1213                 PERFORM 361-Release-Ref
3114  GC1213             END-IF
3115                 END-EVALUATE
3116                 EXIT SECTION
3117             END-IF
3118             .
3119      /
3120       350-PROCEDURE-DIVISION SECTION.
3121             IF WS-Curr-Section-TXT NOT = 'PROCEDURE'
3122                 MOVE 'PROCEDURE' TO WS-Curr-Section-TXT
3123             END-IF
3124  GC0710     IF WS-Token-Curr-Uc-TXT = 'PROGRAM'
3125  GC0710     AND WS-Token-Prev-TXT = 'END'
3126  GC0710         MOVE '?' TO WS-Curr-Division-TXT
3127  GC0710         EXIT SECTION
3128  GC0710     END-IF
3129             IF WS-TT-Token-Is-Keyword-BOOL
3130             AND WS-Token-Curr-TXT = 'DIVISION'
3131                 MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
3132                 EXIT SECTION
3133             END-IF
3134  GC0313     IF WS-TT-Token-Is-Identifier-BOOL
3135  GC0313     AND WS-Token-Prev-TXT = SPACES
3136  GC0313     AND WS-Curr-Verb-TXT = SPACES
3137  GC0313*> ----- Definition of a Paragraph or Section
3138  GC0313         PERFORM 360-Release-Def
3139  GC0313         MOVE SPACES TO WS-Token-Prev-TXT
3140  GC0313         EXIT SECTION
```

```
3141  GC0313     END-IF
3142             IF NOT WS-TT-Token-Is-Identifier-BOOL
3143                 EXIT SECTION
3144             END-IF
3145             EVALUATE WS-Curr-Verb-TXT
3146             WHEN 'ACCEPT'
3147                 PERFORM 351-ACCEPT
3148             WHEN 'ADD'
3149                 PERFORM 351-ADD
3150             WHEN 'ALLOCATE'
3151                 PERFORM 351-ALLOCATE
3152             WHEN 'CALL'
3153                 PERFORM 351-CALL
3154             WHEN 'COMPUTE'
3155                 PERFORM 351-COMPUTE
3156             WHEN 'DIVIDE'
3157                 PERFORM 351-DIVIDE
3158             WHEN 'FREE'
3159                 PERFORM 351-FREE
3160  GC1213     WHEN 'GENERATE'
3161  GC1213         PERFORM 351-GENERATE
3162             WHEN 'INITIALIZE'
3163                 PERFORM 351-INITIALIZE
3164  GC1213     WHEN 'INITIATE'
3165  GC1213         PERFORM 351-GENERATE
3166             WHEN 'INSPECT'
3167                 PERFORM 351-INSPECT
3168             WHEN 'MOVE'
3169                 PERFORM 351-MOVE
3170             WHEN 'MULTIPLY'
3171                 PERFORM 351-MULTIPLY
3172             WHEN 'PERFORM'
3173                 PERFORM 351-PERFORM
3174             WHEN 'SET'
3175                 PERFORM 351-SET
3176             WHEN 'STRING'
3177                 PERFORM 351-STRING
3178             WHEN 'SUBTRACT'
3179                 PERFORM 351-SUBTRACT
3180  GC1213     WHEN 'TERMINATE'
3181  GC1213         PERFORM 351-GENERATE
3182             WHEN 'TRANSFORM'
3183                 PERFORM 351-TRANSFORM
3184             WHEN 'UNSTRING'
3185                 PERFORM 351-UNSTRING
3186             WHEN OTHER
3187                 PERFORM 361-Release-Ref
3188             END-EVALUATE
3189             .
3190         /
3191          351-ACCEPT SECTION.
3192             EVALUATE WS-Token-Prev-TXT
3193             WHEN 'ACCEPT'
3194                 PERFORM 362-Release-Upd
```

```
3195                    MOVE SPACES TO WS-Token-Prev-TXT
3196               WHEN OTHER
3197                   PERFORM 361-Release-Ref
3198               END-EVALUATE
3199               .
3200
3201          351-ADD SECTION.
3202               EVALUATE WS-Token-Prev-TXT
3203               WHEN 'GIVING'
3204                   PERFORM 362-Release-Upd
3205               WHEN 'TO'
3206                   PERFORM 362-Release-Upd
3207               WHEN OTHER
3208                   PERFORM 361-Release-Ref
3209               END-EVALUATE
3210               .
3211
3212          351-ALLOCATE SECTION.
3213               EVALUATE WS-Token-Prev-TXT
3214               WHEN 'ALLOCATE'
3215                   PERFORM 362-Release-Upd
3216                   MOVE SPACES TO WS-Token-Prev-TXT
3217               WHEN 'RETURNING'
3218                   PERFORM 362-Release-Upd
3219               WHEN OTHER
3220                   PERFORM 361-Release-Ref
3221               END-EVALUATE
3222               .
3223
3224          351-CALL SECTION.
3225               EVALUATE WS-Token-Prev-TXT
3226               WHEN 'RETURNING'
3227                   PERFORM 362-Release-Upd
3228               WHEN 'GIVING'
3229                   PERFORM 362-Release-Upd
3230               WHEN OTHER
3231  GC1213         PERFORM 365-Release-Arg
3232               END-EVALUATE
3233               .
3234
3235          351-COMPUTE SECTION.
3236               EVALUATE WS-Token-Prev-TXT
3237               WHEN 'COMPUTE'
3238                   PERFORM 362-Release-Upd
3239               WHEN OTHER
3240                   PERFORM 361-Release-Ref
3241               END-EVALUATE
3242               .
3243
3244          351-DIVIDE SECTION.
3245               EVALUATE WS-Token-Prev-TXT
3246               WHEN 'INTO'
3247                   PERFORM 363-Set-Upd
3248                   MOVE F-Sort-Work-REC TO WS-Held-Reference-TXT
```

```
3249              WHEN 'GIVING'
3250                  IF WS-Held-Reference-TXT NOT = SPACES
3251                      MOVE WS-Held-Reference-TXT To F-Sort-Work-REC
3252                      MOVE SPACES        To WS-Held-Reference-TXT
3253                                            F-SW-Ref-Flag-CHR
3254                      RELEASE F-Sort-Work-REC
3255                  END-IF
3256                  PERFORM 362-Release-Upd
3257              WHEN 'REMAINDER'
3258                  PERFORM 362-Release-Upd
3259              WHEN OTHER
3260                  PERFORM 361-Release-Ref
3261              END-EVALUATE
3262              .
3263
3264        351-FREE SECTION.
3265              PERFORM 362-Release-Upd
3266              .
3267
3268  GC1213 351-GENERATE SECTION.
3269  GC1213     PERFORM 362-Release-Upd
3270  GC1213     .
3271
3272        351-INITIALIZE SECTION.
3273              EVALUATE WS-Token-Prev-TXT
3274              WHEN 'INITIALIZE'
3275                  PERFORM 362-Release-Upd
3276              WHEN 'REPLACING'
3277                  PERFORM 361-Release-Ref
3278              END-EVALUATE
3279              .
3280
3281  GC1213 351-INITIATE SECTION.
3282  GC1213     PERFORM 362-Release-Upd
3283  GC1213     .
3284
3285        351-INSPECT SECTION.
3286              EVALUATE WS-Token-Prev-TXT
3287              WHEN 'INSPECT'
3288                  PERFORM 364-Set-Ref
3289                  MOVE SPACES TO WS-Held-Reference-TXT
3290                  MOVE SPACES TO WS-Token-Prev-TXT
3291              WHEN 'TALLYING'
3292                  PERFORM 362-Release-Upd
3293                  MOVE SPACES TO WS-Token-Prev-TXT
3294              WHEN 'REPLACING'
3295                  IF WS-Held-Reference-TXT NOT = SPACES
3296                      MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
3297                      MOVE SPACES        TO WS-Held-Reference-TXT
3298                      MOVE '*'           TO F-SW-Ref-Flag-CHR
3299                      RELEASE F-Sort-Work-REC
3300                  END-IF
3301                  MOVE SPACES TO WS-Token-Prev-TXT
3302              WHEN 'CONVERTING'
```

```
3303                    IF WS-Held-Reference-TXT NOT = SPACES
3304                        MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
3305                        MOVE SPACES          TO WS-Held-Reference-TXT
3306                        MOVE '*'             TO F-SW-Ref-Flag-CHR
3307                        RELEASE F-Sort-Work-REC
3308                    END-IF
3309                    MOVE SPACES TO WS-Token-Prev-TXT
3310               WHEN OTHER
3311                    PERFORM 361-Release-Ref
3312               END-EVALUATE
3313                 .
3314
3315        351-MOVE SECTION.
3316           EVALUATE WS-Token-Prev-TXT
3317           WHEN 'TO'
3318               PERFORM 362-Release-Upd
3319           WHEN OTHER
3320               PERFORM 361-Release-Ref
3321           END-EVALUATE
3322              .
3323
3324        351-MULTIPLY SECTION.
3325           EVALUATE WS-Token-Prev-TXT
3326           WHEN 'BY'
3327               PERFORM 363-Set-Upd
3328               MOVE F-Sort-Work-REC TO WS-Held-Reference-TXT
3329           WHEN 'GIVING'
3330               MOVE WS-Held-Reference-TXT TO F-Sort-Work-REC
3331               MOVE SPACES          TO WS-Held-Reference-TXT
3332                                       F-SW-Ref-Flag-CHR
3333               RELEASE F-Sort-Work-REC
3334               PERFORM 362-Release-Upd
3335           WHEN OTHER
3336               PERFORM 361-Release-Ref
3337           END-EVALUATE
3338              .
3339
3340        351-PERFORM SECTION.
3341           EVALUATE WS-Token-Prev-TXT
3342           WHEN 'VARYING'
3343               PERFORM 362-Release-Upd
3344               MOVE SPACES TO WS-Token-Prev-TXT
3345           WHEN 'AFTER'
3346               PERFORM 362-Release-Upd
3347               MOVE SPACES TO WS-Token-Prev-TXT
3348           WHEN OTHER
3349               PERFORM 361-Release-Ref
3350           END-EVALUATE
3351              .
3352
3353        351-SET SECTION.
3354           EVALUATE WS-Token-Prev-TXT
3355           WHEN 'SET'
3356               PERFORM 362-Release-Upd
```

```
3357              WHEN OTHER
3358                  PERFORM 361-Release-Ref
3359              END-EVALUATE
3360              .
3361
3362         351-STRING SECTION.
3363              EVALUATE WS-Token-Prev-TXT
3364              WHEN 'INTO'
3365                  PERFORM 362-Release-Upd
3366              WHEN 'POINTER'
3367                  PERFORM 362-Release-Upd
3368              WHEN OTHER
3369                  PERFORM 361-Release-Ref
3370              END-EVALUATE
3371              .
3372
3373         351-SUBTRACT SECTION.
3374              EVALUATE WS-Token-Prev-TXT
3375              WHEN 'GIVING'
3376                  PERFORM 362-Release-Upd
3377              WHEN 'FROM'
3378                  PERFORM 362-Release-Upd
3379              WHEN OTHER
3380                  PERFORM 361-Release-Ref
3381              END-EVALUATE
3382              .
3383
3384  GC1213 351-TERMINATE SECTION.
3385  GC1213     PERFORM 362-Release-Upd
3386  GC1213     .
3387
3388         351-TRANSFORM SECTION.
3389              EVALUATE WS-Token-Prev-TXT
3390              WHEN 'TRANSFORM'
3391                  PERFORM 362-Release-Upd
3392                  MOVE SPACES TO WS-Token-Prev-TXT
3393              WHEN OTHER
3394                  PERFORM 361-Release-Ref
3395              END-EVALUATE
3396              .
3397
3398         351-UNSTRING SECTION.
3399              EVALUATE WS-Token-Prev-TXT
3400              WHEN 'INTO'
3401                  PERFORM 362-Release-Upd
3402              WHEN 'DELIMITER'
3403                  PERFORM 362-Release-Upd
3404              WHEN 'COUNT'
3405                  PERFORM 362-Release-Upd
3406              WHEN 'POINTER'
3407                  PERFORM 362-Release-Upd
3408              WHEN 'TALLYING'
3409                  PERFORM 362-Release-Upd
3410              WHEN OTHER
```

```
3411                 PERFORM 361-Release-Ref
3412             END-EVALUATE
3413             .
3414
3415        360-Release-Def SECTION.
3416             MOVE SPACES              TO F-Sort-Work-REC
3417             MOVE WS-Curr-Prog-ID-TXT  TO F-SW-Prog-ID-TXT
3418             MOVE WS-Token-Curr-Uc-TXT  TO F-SW-Token-Uc-TXT
3419             MOVE WS-Token-Curr-TXT   TO F-SW-Token-TXT
3420             MOVE WS-Curr-Section-TXT  TO F-SW-Section-TXT
3421             MOVE WS-Curr-Line-NUM    TO F-SW-Def-Line-NUM
3422             MOVE 0                   TO F-SW-Ref-Line-NUM
3423             RELEASE F-Sort-Work-REC
3424             .
3425
3426        361-Release-Ref SECTION.
3427             PERFORM 364-Set-Ref
3428             RELEASE F-Sort-Work-REC
3429             .
3430
3431        362-Release-Upd SECTION.
3432             PERFORM 363-Set-Upd
3433             RELEASE F-Sort-Work-REC
3434             .
3435
3436        363-Set-Upd SECTION.
3437             MOVE SPACES              TO F-Sort-Work-REC
3438             MOVE WS-Curr-Prog-ID-TXT  TO F-SW-Prog-ID-TXT
3439             MOVE WS-Token-Curr-Uc-TXT  TO F-SW-Token-Uc-TXT
3440             MOVE WS-Token-Curr-TXT   TO F-SW-Token-TXT
3441             MOVE WS-Curr-Section-TXT  TO F-SW-Section-TXT
3442             MOVE WS-Curr-Line-NUM    TO F-SW-Ref-Line-NUM
3443             MOVE '*'                 TO F-SW-Ref-Flag-CHR
3444             .
3445
3446        364-Set-Ref SECTION.
3447             MOVE SPACES              TO F-Sort-Work-REC
3448             MOVE WS-Curr-Prog-ID-TXT  TO F-SW-Prog-ID-TXT
3449             MOVE WS-Token-Curr-Uc-TXT  TO F-SW-Token-Uc-TXT
3450             MOVE WS-Token-Curr-TXT   TO F-SW-Token-TXT
3451             MOVE WS-Curr-Section-TXT  TO F-SW-Section-TXT
3452             MOVE WS-Curr-Line-NUM    TO F-SW-Ref-Line-NUM
3453             .
3454
3455  GC1213 365-Release-Arg SECTION.
3456  GC1213     PERFORM 366-Set-Arg
3457  GC1213     RELEASE F-Sort-Work-REC
3458  GC1213     .
3459
3460  GC1213 366-Set-Arg SECTION.
3461  GC1213     MOVE SPACES              TO F-Sort-Work-REC
3462  GC1213     MOVE WS-Curr-Prog-ID-TXT  TO F-SW-Prog-ID-TXT
3463  GC1213     MOVE WS-Token-Curr-Uc-TXT  TO F-SW-Token-Uc-TXT
3464  GC1213     MOVE WS-Token-Curr-TXT   TO F-SW-Token-TXT
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:05     Page    90

 3465  GC1213     MOVE WS-Curr-Section-TXT    TO F-SW-Section-TXT
 3466  GC1213     MOVE WS-Curr-Line-NUM       TO F-SW-Ref-Line-NUM
 3467  GC1213     MOVE 'C'                    TO F-SW-Ref-Flag-CHR
 3468  GC1213     .
 3469
 3470        /
 3471        400-Produce-Xref-Listing SECTION.
 3472             MOVE SPACES      TO WS-Xref-Detail-Line-TXT
 3473                                 WS-Group-Indicators-TXT
 3474             MOVE 0           TO WS-I-SUB
 3475                                 WS-Lines-Left-NUM
 3476  GC0710     MOVE 'N'         TO WS-RS-Duplicate-CHR
 3477             PERFORM FOREVER
 3478                 RETURN F-Sort-Work-FILE AT END
 3479  GC1213         IF WS-Xref-Detail-Line-TXT NOT = SPACES
 3480  GC1213             PERFORM 410-Generate-Report-Line
 3481  GC1213         END-IF
 3482  GC1213         MOVE SPACES TO WS-Xref-Detail-Line-TXT
 3483  GC1213         PERFORM 410-Generate-Report-Line
 3484  GC1213             UNTIL WS-Lines-Left-NUM = 0
 3485  GC1213         MOVE 'Y' TO WS-Suppress-FF-CHR
 3486  GC1213         PERFORM 420-Generate-Xref-Footer
 3487             EXIT PERFORM
 3488                 END-RETURN
 3489                 IF F-SW-Prog-ID-TXT  NOT = WS-GI-Prog-ID-TXT
 3490                 OR F-SW-Token-Uc-TXT NOT = WS-GI-Token-TXT
 3491  GC0710         MOVE 'N' TO WS-RS-Duplicate-CHR
 3492                 IF WS-Xref-Detail-Line-TXT NOT = SPACES
 3493                     PERFORM 410-Generate-Report-Line
 3494                 END-IF
 3495                 IF F-SW-Prog-ID-TXT NOT = WS-GI-Prog-ID-TXT
 3496  GC1213             MOVE SPACES TO WS-Xref-Detail-Line-TXT
 3497  GC1213             PERFORM 410-Generate-Report-Line
 3498  GC1213                 UNTIL WS-Lines-Left-NUM = 0
 3499                 END-IF
 3500                 MOVE F-SW-Prog-ID-TXT  TO WS-GI-Prog-ID-TXT
 3501                 MOVE F-SW-Token-Uc-TXT TO WS-GI-Token-TXT
 3502             END-IF
 3503  GC0710     IF F-SW-Token-Uc-TXT = WS-GI-Token-TXT
 3504  GC0710     AND F-SW-Def-Line-NUM NOT = SPACES
 3505  GC0710     AND WS-Xref-Detail-Line-TXT NOT = SPACES
 3506  GC0710         MOVE 'Y' TO WS-RS-Duplicate-CHR
 3507  GC0710         PERFORM 410-Generate-Report-Line
 3508  GC0710         MOVE 0 TO WS-I-SUB
 3509  GC0710         MOVE F-SW-Prog-ID-TXT TO WS-XDL-Prog-ID-TXT
 3510  GC0710         MOVE '  (Duplicate Definition)' TO WS-XDL-Token-TXT
 3511  GC0710         MOVE F-SW-Section-TXT TO WS-XDL-Section-TXT
 3512  GC0710         MOVE F-SW-Def-Line-NUM TO WS-XDL-Def-Line-NUM
 3513  GC0710         EXIT PERFORM CYCLE
 3514  GC0710     END-IF
 3515  GC0710     IF F-SW-Token-Uc-TXT = WS-GI-Token-TXT
 3516  GC0710     AND F-SW-Def-Line-NUM = SPACES
 3517  GC0710     AND WS-RS-Duplicate-CHR = 'Y'
 3518  GC0710         MOVE 'N' TO WS-RS-Duplicate-CHR
```

```
ACS Cobol Xref v2.02.04      Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:05    Page   91

  3519  GC0710          PERFORM 410-Generate-Report-Line
  3520  GC0710          MOVE 0 TO WS-I-SUB
  3521  GC0710          MOVE F-SW-Prog-ID-TXT TO WS-XDL-Prog-ID-TXT
  3522  GC0710          MOVE '  (Duplicate References)' TO WS-XDL-Token-TXT
  3523  GC0710        END-IF
  3524              IF WS-Xref-Detail-Line-TXT = SPACES
  3525                  MOVE F-SW-Prog-ID-TXT TO WS-XDL-Prog-ID-TXT
  3526                  MOVE F-SW-Token-TXT TO WS-XDL-Token-TXT
  3527                  MOVE F-SW-Section-TXT TO WS-XDL-Section-TXT
  3528                  IF F-SW-Def-Line-NUM NOT = SPACES
  3529                      MOVE F-SW-Def-Line-NUM TO WS-XDL-Def-Line-NUM
  3530                  END-IF
  3531              END-IF
  3532              IF F-SW-Reference-TXT > '000000'
  3533                  ADD 1 TO WS-I-SUB
  3534                  IF WS-I-SUB > WS-Xref-Lines-Per-Rec-NUM
  3535                      PERFORM 410-Generate-Report-Line
  3536                      MOVE 1 TO WS-I-SUB
  3537                  END-IF
  3538                  MOVE F-SW-Ref-Line-NUM
  3539                    TO WS-XDL-Ref-Line-NUM (WS-I-SUB)
  3540                  MOVE F-SW-Ref-Flag-CHR
  3541                    TO WS-XDL-Ref-Flag-CHR (WS-I-SUB)
  3542              END-IF
  3543          END-PERFORM
  3544          IF WS-Xref-Detail-Line-TXT NOT = SPACES
  3545              PERFORM 410-Generate-Report-Line
  3546          END-IF
  3547          .
  3548      /
  3549        410-Generate-Report-Line SECTION.
  3550          IF WS-Lines-Left-NUM < 1
  3551  GC1213      PERFORM 420-Generate-Xref-Footer
  3552  GC1213      ADD  1        TO WS-Page-NUM
  3553  GC1213      MOVE 'Page:'    TO WS-PN-Literal-TXT
  3554  GC1213      MOVE WS-Page-NUM TO WS-PN-Page-NUM
  3555  GC1213      CALL 'C$JUSTIFY' USING WS-PN-Page-NUM, 'Left'
  3556  GC1213      CALL 'C$JUSTIFY' USING WS-Page-No-TXT, 'Right'
  3557  GC1213      IF L-Listing-CD = 1 *> LANDSCAPE
  3558  GC1213          MOVE WS-Version-TXT
  3559  GC1213            TO F-Listing-135-REC
  3560  GC1213          MOVE 'Cross-Reference Listing'
  3561  GC1213            TO F-Listing-135-REC(25:23)
  3562  GC1213          MOVE WS-Formatted-DT
  3563  GC1213            TO F-Listing-135-REC(126:10)
  3564  GC1213          WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #1
  3565  GC1213          MOVE WS-Program-Path-TXT
  3566  GC1213            TO F-Listing-135-REC
  3567  GC1213          WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #2
  3568  GC1213          MOVE 'PROGRAM-ID     Identifier/Register/Function' &
  3569  GC1213              '   Defn   Where Defined   References'
  3570  GC1213            TO F-Listing-135-REC
  3571  GC1213          MOVE WS-Page-No-TXT
  3572  GC1213            TO F-Listing-135-REC(126:10)
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:05      Page    92

  3573  GC1213              WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #3
  3574  GC1213              MOVE ALL '=' TO F-Listing-135-REC
  3575  GC1213              MOVE SPACE TO F-Listing-135-REC(16:1)
  3576  GC1213                          F-Listing-135-REC(49:1)
  3577  GC1213                          F-Listing-135-REC(56:1)
  3578  GC1213                          F-Listing-135-REC(72:1)
  3579  GC1213              WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #4
  3580  GC1213          ELSE                 *> PORTRAIT
  3581  GC1213              MOVE WS-Version-TXT
  3582  GC1213                TO F-Listing-96-REC
  3583  GC1213              MOVE 'Cross-Reference Listing'
  3584  GC1213                TO F-Listing-96-REC(25:23)
  3585  GC1213              MOVE WS-Formatted-DT
  3586  GC1213                TO F-Listing-96-REC(87:10)
  3587  GC1213              WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #1
  3588  GC1213              MOVE WS-Program-Path-TXT(40:96)
  3589  GC1213                TO F-Listing-96-REC
  3590  GC1213              WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #2
  3591  GC1213              MOVE 'PROGRAM-ID     Identifier/Register/Function' &
  3592  GC1213                   '    Defn   Where Defined   References'
  3593  GC1213                TO F-Listing-96-REC
  3594  GC1213              MOVE WS-Page-No-TXT
  3595  GC1213                TO F-Listing-96-REC(87:10)
  3596  GC1213              WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #3
  3597  GC1213              MOVE ALL '=' TO F-Listing-96-REC
  3598  GC1213              MOVE SPACE TO F-Listing-96-REC(16:1)
  3599  GC1213                          F-Listing-96-REC(49:1)
  3600  GC1213                          F-Listing-96-REC(56:1)
  3601  GC1213                          F-Listing-96-REC(72:1)
  3602  GC1213              WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #4
  3603  GC1213          END-IF
  3604  GC1213          COMPUTE WS-Lines-Left-NUM = WS-Lines-Per-Page-NUM - 4
  3605          END-IF
  3606  GC1213      IF L-Listing-CD = 1 *> LANDSCAPE
  3607  GC1213          WRITE F-Listing-135-REC FROM WS-Xref-Detail-Line-TXT
  3608  GC1213              BEFORE 1
  3609  GC1213      ELSE                *> PORTRAIT
  3610  GC1213          WRITE F-Listing-96-REC FROM WS-Xref-Detail-Line-TXT
  3611  GC1213              BEFORE 1
  3612  GC1213      END-IF
  3613          MOVE SPACES TO WS-Xref-Detail-Line-TXT
  3614          MOVE 0 TO WS-I-SUB
  3615          SUBTRACT 1 FROM WS-Lines-Left-NUM
  3616          .
  3617  GC1213 420-Generate-Xref-Footer SECTION.
  3618  GC1213      IF L-Listing-CD = 1 *> LANDSCAPE
  3619  GC1213          WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Footer Line #1
  3620  GC1213          MOVE ALL '='
  3621  GC1213            TO F-Listing-135-REC
  3622  GC1213          WRITE F-Listing-135-REC BEFORE 1 *> Footer Line #2
  3623  GC1213          MOVE WS-Copyright-TXT
  3624  GC1213            TO F-Listing-135-REC
  3625  GC1213          MOVE WS-Page-No-TXT
  3626  GC1213            TO F-Listing-135-REC(126:10)
```

```
3627  GC1213           IF WS-Suppress-FF-CHR = 'Y'
3628  GC1213               WRITE F-Listing-135-REC BEFORE 1 *> Footer Line #3
3629  GC1213           ELSE
3630  GC1213               WRITE F-Listing-135-REC BEFORE PAGE *> Footer Line #3
3631  GC1213               WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Spaces After FF Character
3632  GC1213           END-IF
3633  GC1213         ELSE                  *> PORTRAIT
3634  GC1213           WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Footer Line #1
3635  GC1213           MOVE ALL '='
3636  GC1213             TO F-Listing-96-REC
3637  GC1213           WRITE F-Listing-96-REC BEFORE 1 *> Footer Line #2
3638  GC1213           MOVE WS-Copyright-TXT
3639  GC1213             TO F-Listing-96-REC
3640  GC1213           MOVE WS-Page-No-TXT
3641  GC1213             TO F-Listing-96-REC(87:10)
3642  GC1213           IF WS-Suppress-FF-CHR = 'Y'
3643  GC1213               WRITE F-Listing-96-REC BEFORE 1 *> Footer Line #3
3644  GC1213           ELSE
3645  GC1213               WRITE F-Listing-96-REC BEFORE PAGE *> Footer Line #3
3646  GC1213               WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Spaces After FF Character
3647  GC1213           END-IF
3648  GC1213         END-IF
3649  GC1213         .
3650        /
3651          500-Produce-Source-Listing SECTION.
3652              OPEN INPUT F-Original-Src-FILE
3653                         F-Expanded-Src-FILE
3654              MOVE 0 TO WS-Src-Line-NUM
3655              PERFORM FOREVER
3656                  READ F-Expanded-Src-FILE AT END
3657  GC1213              MOVE SPACES TO WS-Src-Detail-Line-TXT
3658  GC1213              PERFORM 530-Generate-Source-Line
3659  GC1213                  UNTIL WS-Lines-Left-NUM = 0
3660                      EXIT PERFORM
3661                  END-READ
3662  GC0712          IF F-ES-1-7-TXT NOT = '#DEFLIT'
3663  GC0712              IF F-ES-1-CHR = '#'
3664  GC0712                  PERFORM 510-Control-Record
3665  GC0712              ELSE
3666  GC0712                  PERFORM 520-Expanded-Src-Record
3667  GC0712              END-IF
3668  GC0712          END-IF
3669              END-PERFORM
3670              CLOSE F-Original-Src-FILE
3671                    F-Expanded-Src-FILE
3672              .
3673        /
3674          510-Control-Record SECTION.
3675              UNSTRING F-ES-2-256-TXT-256
3676                  DELIMITED BY '"'
3677                  INTO WS-Temp-10-Chars-TXT
3678                      WS-Temp-256-Chars-TXT
3679                      WS-Dummy-TXT
3680  GC1010      IF UPPER-CASE(TRIM(WS-Temp-256-Chars-TXT,Trailing)) =
```

```
3681  GC1010        TRIM(WS-Main-Module-Name-TXT) *> Main Pgm
3682                    SET WS-RS-In-Main-Module-BOOL TO TRUE
3683                    IF WS-Src-Line-NUM > 0
3684                        READ F-Expanded-Src-FILE END-READ
3685                    END-IF
3686        *    ELSE *> COPY
3687                    SET WS-RS-In-Copybook-BOOL TO TRUE
3688                END-IF
3689                    .
3690         /
3691           520-Expanded-Src-Record SECTION.
3692                IF WS-RS-In-Main-Module-BOOL
3693                    ADD 1 To WS-Curr-Line-NUM
3694  GC0712        READ F-Original-Src-FILE AT END CONTINUE END-READ
3695                    ADD 1 TO WS-Src-Line-NUM
3696                    MOVE SPACES TO WS-Src-Detail-Line-TXT
3697                    MOVE WS-Src-Line-NUM TO WS-SDL-Line-NUM
3698  GC1213        MOVE F-Original-Src-REC TO WS-SDL-Statement-TXT
3699  GC0712        MOVE LOWER-CASE(TRIM(F-OS-8-72-TXT,LEADING))
3700  GC0712          TO WS-Temp-65-Chars-TXT
3701  GC0712        INSPECT WS-Temp-65-Chars-TXT REPLACING ALL '.' BY SPACE
3702  GC0712        EVALUATE TRUE
3703  GC0712            WHEN F-OS-7-CHR = '/'
3704  GC1213                MOVE SPACES TO WS-Src-Detail-Line-TXT
3705  GC1213                PERFORM 530-Generate-Source-Line
3706  GC1213                    UNTIL WS-Lines-Left-NUM = 0
3707  GC0712            WHEN WS-Temp-65-Chars-TXT = "eject"
3708  GC1213                MOVE SPACES TO WS-Src-Detail-Line-TXT
3709  GC1213                PERFORM 530-Generate-Source-Line
3710  GC1213                    UNTIL WS-Lines-Left-NUM = 0
3711  GC0712                EXIT SECTION
3712  GC0712            WHEN WS-Temp-65-Chars-TXT = "skip1"
3713  GC0712                MOVE SPACES TO WS-Src-Detail-Line-TXT
3714  GC0712                PERFORM 530-Generate-Source-Line
3715  GC0712                EXIT SECTION
3716  GC0712            WHEN WS-Temp-65-Chars-TXT = "skip2"
3717  GC0712                MOVE SPACES TO WS-Src-Detail-Line-TXT
3718  GC0712                PERFORM 530-Generate-Source-Line 2 TIMES
3719  GC0712                EXIT SECTION
3720  GC0712            WHEN WS-Temp-65-Chars-TXT = "skip3"
3721  GC0712                MOVE SPACES TO WS-Src-Detail-Line-TXT
3722  GC0712                PERFORM 530-Generate-Source-Line 3 TIMES
3723  GC0712                EXIT SECTION
3724  GC0712        END-EVALUATE
3725                    PERFORM 530-Generate-Source-Line
3726                ELSE
3727                    IF F-Expanded-Src-REC NOT = SPACES
3728                        MOVE SPACES TO WS-Src-Detail-Line-TXT
3729  GC1213            MOVE F-Expanded-Src-REC
3730                        TO WS-SDL-Statement-TXT
3731  GC0712            MOVE LOWER-CASE(TRIM(F-OS-8-72-TXT,LEADING))
3732  GC0712              TO WS-Temp-65-Chars-TXT
3733  GC0712            INSPECT WS-Temp-65-Chars-TXT
3734  GC0712                REPLACING ALL '.' BY SPACE
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:06      Page   95

  3735  GC0712              EVALUATE TRUE
  3736  GC0712                  WHEN WS-Temp-65-Chars-TXT = "eject"
  3737  GC0712                      MOVE 0 TO WS-Lines-Left-NUM
  3738  GC0712                      EXIT SECTION
  3739  GC0712                  WHEN WS-Temp-65-Chars-TXT = "skip1"
  3740  GC0712                      MOVE SPACES TO WS-Src-Detail-Line-TXT
  3741  GC0712                      PERFORM 530-Generate-Source-Line
  3742  GC0712                      EXIT SECTION
  3743  GC0712                  WHEN WS-Temp-65-Chars-TXT = "skip2"
  3744  GC0712                      MOVE SPACES TO WS-Src-Detail-Line-TXT
  3745  GC0712                      PERFORM 530-Generate-Source-Line 2 TIMES
  3746  GC0712                      EXIT SECTION
  3747  GC0712                  WHEN WS-Temp-65-Chars-TXT = "skip3"
  3748  GC0712                      MOVE SPACES TO WS-Src-Detail-Line-TXT
  3749  GC0712                      PERFORM 530-Generate-Source-Line 3 TIMES
  3750  GC0712                      EXIT SECTION
  3751  GC0712              END-EVALUATE
  3752                      PERFORM 530-Generate-Source-Line
  3753                  END-IF
  3754              END-IF
  3755              .
  3756          /
  3757          530-Generate-Source-Line SECTION.
  3758  GC1213      MOVE 1 TO WS-Src-Lines-NUM
  3759  GC1213      IF L-Listing-CD = 1 *> LANDSCAPE
  3760  GC1213          IF WS-SDL-Statement-TXT(129:128) > SPACES
  3761  GC1213              ADD 1 TO WS-Src-Lines-NUM
  3762  GC1213          END-IF
  3763  GC1213      ELSE                 *> PORTRAIT
  3764  GC1213          IF WS-SDL-Statement-TXT(90:167) > SPACES
  3765  GC1213              ADD 1 TO WS-Src-Lines-NUM
  3766  GC1213              IF WS-SDL-Statement-TXT(179:78) > SPACES
  3767  GC1213                  ADD 1 TO WS-Src-Lines-NUM
  3768  GC1213              END-IF
  3769  GC1213          END-IF
  3770  GC1213      END-IF
  3771  GC1213      IF WS-Lines-Left-NUM < WS-Src-Lines-NUM
  3772  GC1213          IF WS-Page-Num > 0 *> Don't print footer before page 1
  3773  GC1213              IF L-Listing-CD = 1 *> LANDSCAPE
  3774  GC1213                  IF WS-Src-Lines-NUM = 2
  3775  GC1213                      WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Blank Line
  3776  GC1213                  END-IF
  3777  GC1213                  WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Footer Line #1
  3778  GC1213                  MOVE ALL '='
  3779  GC1213                    TO F-Listing-135-REC
  3780  GC1213                  WRITE F-Listing-135-REC BEFORE 1 *> Footer Line #2
  3781  GC1213                  MOVE WS-Copyright-TXT
  3782  GC1213                    TO F-Listing-135-REC
  3783  GC1213                  MOVE WS-Page-No-TXT
  3784  GC1213                    TO F-Listing-135-REC(126:10)
  3785  GC1213                  WRITE F-Listing-135-REC BEFORE PAGE *> Footer Line #3
  3786  GC1213                  WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Spaces After FF Character
  3787  GC1213              ELSE                 *> PORTRAIT
  3788  GC1213                  EVALUATE WS-Src-Lines-NUM
```

```
3789  GC1213                    WHEN 1 *> Need no extra blank lines
3790  GC1213                        CONTINUE
3791  GC1213                    WHEN 2 *> Need 1 extra blank line
3792  GC1213                        WRITE F-Listing-96-REC FROM SPACES BEFORE 1
3793  GC1213                    WHEN 3 *> Need 2 extra blank lines
3794  GC1213                        WRITE F-Listing-96-REC FROM SPACES BEFORE 1
3795  GC1213                        WRITE F-Listing-96-REC FROM SPACES BEFORE 1
3796  GC1213                    END-EVALUATE
3797  GC1213                    WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Footer Line #1
3798  GC1213                    MOVE ALL '='
3799  GC1213                      TO F-Listing-96-REC
3800  GC1213                    WRITE F-Listing-96-REC BEFORE 1 *> Footer Line #2
3801  GC1213                    MOVE WS-Copyright-TXT
3802  GC1213                      TO F-Listing-96-REC
3803  GC1213                    MOVE WS-Page-No-TXT
3804  GC1213                      TO F-Listing-96-REC(87:10)
3805  GC1213                    WRITE F-Listing-96-REC BEFORE PAGE *> Footer Line #3
3806  GC1213                    WRITE F-Listing-96-REC FROM SPACES BEFORE 1 *> Spaces After FF Character
3807  GC1213                END-IF
3808  GC1213            END-IF
3809  GC1213            ADD  1        TO WS-Page-NUM
3810  GC1213            MOVE 'Page:'    TO WS-PN-Literal-TXT
3811  GC1213            MOVE WS-Page-NUM TO WS-PN-Page-NUM
3812  GC1213            CALL 'C$JUSTIFY' USING WS-PN-Page-NUM, 'Left'
3813  GC1213            CALL 'C$JUSTIFY' USING WS-Page-No-TXT, 'Right'
3814  GC1213            IF L-Listing-CD = 1 *> LANDSCAPE
3815  GC1213                MOVE WS-Version-TXT
3816  GC1213                  TO F-Listing-135-REC
3817  GC1213                MOVE 'Source Listing'
3818  GC1213                  TO F-Listing-135-REC(25:14)
3819  GC1213                MOVE WS-Formatted-DT
3820  GC1213                  TO F-Listing-135-REC(126:10)
3821  GC1213                WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #1
3822  GC1213                MOVE WS-Program-Path-TXT
3823  GC1213                  TO F-Listing-135-REC
3824  GC1213                WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #2
3825  GC1213                MOVE 'Line   Statement'
3826  GC1213                  TO F-Listing-135-REC
3827  GC1213                MOVE WS-Page-No-TXT
3828  GC1213                  TO F-Listing-135-REC(126:10)
3829  GC1213                WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #3
3830  GC1213                MOVE WS-Src-Dashes-TXT
3831  GC1213                  TO F-Listing-135-REC
3832  GC1213                WRITE F-Listing-135-REC BEFORE 1 *> Page Header Line #4
3833  GC1213            ELSE                *> PORTRAIT
3834  GC1213                MOVE WS-Version-TXT
3835  GC1213                  TO F-Listing-96-REC
3836  GC1213                MOVE 'Source Listing'
3837  GC1213                  TO F-Listing-96-REC(25:14)
3838  GC1213                MOVE WS-Formatted-DT
3839  GC1213                  TO F-Listing-96-REC(87:10)
3840  GC1213                WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #1
3841  GC1213                MOVE WS-Program-Path-TXT(40:96)
3842  GC1213                  TO F-Listing-96-REC
```

```
3843  GC1213             WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #2
3844  GC1213             MOVE 'Line    Statement'
3845  GC1213                TO F-Listing-96-REC
3846  GC1213             MOVE WS-Page-No-TXT
3847  GC1213                TO F-Listing-96-REC(87:10)
3848  GC1213             WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #3
3849  GC1213             MOVE WS-Src-Dashes-TXT
3850  GC1213                TO F-Listing-96-REC
3851  GC1213             WRITE F-Listing-96-REC BEFORE 1 *> Page Header Line #4
3852  GC1213           END-IF
3853  GC1213           COMPUTE WS-Lines-Left-NUM = WS-Lines-Per-Page-NUM - 4
3854  GC1213         END-IF
3855  GC1213         IF L-Listing-CD = 1 *> LANDSCAPE
3856  GC1213             EVALUATE WS-Src-Lines-NUM
3857  GC1213             WHEN 1
3858  GC1213                 MOVE WS-Src-Detail-Line-TXT TO F-Listing-135-REC
3859  GC1213                 WRITE F-Listing-96-REC BEFORE 1
3860  GC1213                 SUBTRACT 1 FROM WS-Lines-Left-NUM
3861  GC1213             WHEN 2
3862  GC1213                 MOVE WS-SDL-Statement-TXT TO WS-Src-Hold-TXT
3863  GC1213                 MOVE WS-Src-Detail-Line-TXT TO F-Listing-135-REC
3864  GC1213                 WRITE F-Listing-135-REC BEFORE 1 *> Prints chars 1-128 of stmnt
3865  GC1213                 MOVE SPACES TO WS-Src-Detail-Line-TXT
3866  GC1213                 MOVE WS-Src-Hold-TXT(129:128) TO WS-SDL-Statement-TXT
3867  GC1213                 MOVE WS-Src-Detail-Line-TXT TO F-Listing-135-REC
3868  GC1213                 WRITE F-Listing-135-REC BEFORE 1 *> Prints chars 129-256 of stmnt
3869  GC1213                 SUBTRACT 2 FROM WS-Lines-Left-NUM
3870  GC1213             END-EVALUATE
3871  GC1213         ELSE                 *> PORTRAIT
3872  GC1213             EVALUATE WS-Src-Lines-NUM
3873  GC1213             WHEN 1 *> Print only chars 1-89 of stmnt
3874  GC1213                 WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
3875  GC1213                     BEFORE 1
3876  GC1213                 SUBTRACT 1 FROM WS-Lines-Left-NUM
3877  GC1213             WHEN 2 *> Print only chars 1-89 and 90-178 of text
3878  GC1213                 MOVE WS-SDL-Statement-TXT TO WS-Src-Hold-TXT
3879  GC1213                 WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
3880  GC1213                     BEFORE 1
3881  GC1213                 MOVE SPACES TO WS-Src-Detail-Line-TXT
3882  GC1213                 MOVE WS-Src-Hold-TXT(90:89) TO WS-SDL-Statement-TXT
3883  GC1213                 WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
3884  GC1213                     BEFORE 1
3885  GC1213                 SUBTRACT 2 FROM WS-Lines-Left-NUM
3886  GC1213             WHEN 3 *> Print chars 1-89, 90-178 and 179-256 of stmnt
3887  GC1213                 MOVE WS-SDL-Statement-TXT TO WS-Src-Hold-TXT
3888  GC1213                 WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
3889  GC1213                     BEFORE 1
3890  GC1213                 MOVE SPACES TO WS-Src-Detail-Line-TXT
3891  GC1213                 MOVE WS-Src-Hold-TXT(90:89) TO WS-SDL-Statement-TXT
3892  GC1213                 WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
3893  GC1213                     BEFORE 1
3894  GC1213                 MOVE SPACES TO WS-Src-Detail-Line-TXT
3895  GC1213                 MOVE WS-Src-Hold-TXT(179:78) TO WS-SDL-Statement-TXT
3896  GC1213                 WRITE F-Listing-96-REC FROM WS-Src-Detail-Line-TXT
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:06    Page   98

 3897  GC1213                 BEFORE 1
 3898  GC1213              SUBTRACT 3 FROM WS-Lines-Left-NUM
 3899  GC1213           END-EVALUATE
 3900  GC1213        END-IF
 3901              MOVE SPACES TO WS-Src-Detail-Line-TXT
 3902              .
 3903
 3904           END PROGRAM LISTING.
 3905          *>>>Info: Total Copy Depth Used = 02;  Caution messages issued =   1
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:07     Page   99
Symbols of Module: GCIC (LISTING)
-------------------------------


Data Section (FILE)              Defn     Locations
-----------------------------+------------------------------------------------------------------
 
 
F-ES-1-7-TXT                    001631F   002776 003662
F-ES-1-CHR                      001628F   002777 003663
F-ES-2-256-TXT-256              001629F   002920 003675
F-ES-8-256-TXT                  001632F
F-EXPANDED-SRC-FILE             001617F   001626 002709 002756 002766 003653 003656 003671 003684
F-EXPANDED-SRC-REC              001627F   002710 002764 002788 002790 002820 002824 002833 002837
                                          002846 002850 002858 002876 002961 002966 003727 003729
F-EXPANDED-SRC2-REC             001630F
F-LISTING-135-REC               001636F   003559 003561 003563 003564 003566 003567 003570 003572
                                          003573 003574 003575 003576 003577 003578 003579 003607
                                          003619 003621 003622 003624 003626 003628 003630 003631
                                          003775 003777 003779 003780 003782 003784 003785 003786
                                          003816 003818 003820 003821 003823 003824 003826 003828
                                          003829 003831 003832 003858 003863 003864 003867 003868
F-LISTING-96-REC                001635F   003582 003584 003586 003587 003589 003590 003593 003595
                                          003596 003597 003598 003599 003600 003601 003602 003610
                                          003634 003636 003637 003639 003641 003643 003645 003646
                                          003792 003794 003795 003797 003799 003800 003802 003804
                                          003805 003806 003835 003837 003839 003840 003842 003843
                                          003845 003847 003848 003850 003851 003859 003874 003879
                                          003883 003888 003892 003896
F-LISTING-FILE                  001619F   001634 002613 002621
F-LISTING-REC                   001637F
F-ORIGINAL-SRC-FILE             001621F   001639 003652 003670 003694
F-ORIGINAL-SRC-REC              001640F   003698
F-OS-1-128-TXT                  001641F
F-OS-129-256-TXT                001646F
F-OS-7-CHR                      001643F   003703
F-OS-8-72-TXT                   001644F   003699 003731
F-SORT-WORK-FILE                001623F   001648 002615 003478
F-SORT-WORK-REC                 001649F   002731 002733 002768 002770 003248 003251 003254 003296
                                          003299 003304 003307 003328 003330 003333 003416 003423
                                          003428 003433 003437 003447 003457 003461
F-SW-DEF-LINE-NUM               001654F   003421 003504 003512 003516 003528 003529
F-SW-PROG-ID-TXT                001650F   002616 003417 003438 003448 003462 003489 003495 003500
                                          003509 003521 003525
F-SW-REF-FLAG-CHR               001657F   003253 003298 003306 003332 003443 003467 003540
F-SW-REF-LINE-NUM               001656F   002618 003422 003442 003452 003466 003538
F-SW-REFERENCE-TXT              001655F   003532
F-SW-SECTION-TXT                001653F   003420 003441 003451 003465 003511 003527
F-SW-TOKEN-TXT                  001652F   003419 003440 003450 003464 003526
F-SW-TOKEN-UC-TXT               001651F   002617 003418 003439 003449 003463 003490 003501 003503
                                          003515
L-LISTING-FN-TXT                001619F   002593 002605
L-SRC-FN-TXT                    001621F   002595 002606 002642 002643 002645 002650 002654 002666
                                          002667 002669 002671 002676
WS-EXPANDED-SRC-FN-TXT          001617F   001697 002684 002685
```

```
ACS Cobol Xref v2.02.04       Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:07    Page  100
Symbols of Module: GCIC (LISTING)
--------------------------------

Data Section (WORKING-STORAGE)  Defn    Locations
-----------------------------+-----------------------------------------------------------------

WS-CD-IN-DATA-DIV-BOOL          001674W  002741
WS-CD-IN-ENV-DIV-BOOL           001673W  002739
WS-CD-IN-IDENT-DIV-BOOL         001672W  002737
WS-CD-IN-PROC-DIV-BOOL          001675W  002743
WS-COPYRIGHT-TXT                001660W  002631 002637 003623 003638 003781 003801
WS-CPI-13-15-TXT                001681W  003032
WS-CPI-16-CHR                   001682W  003031
WS-CS-1-CHR                     001685W  002954
WS-CS-11-14-TXT                 001688W  002956 002957
WS-CS-15-CHR                    001689W  002959
WS-CS-2-14-TXT                  001686W  002955
WS-CURR-CHAR-IS-PUNCT-BOOL      001663W  002799 002807 002812
WS-CURR-CHAR-IS-QUOTE-BOOL      001667W  002818
WS-CURR-CHAR-IS-X-BOOL          001668W  002831
WS-CURR-CHAR-IS-Z-BOOL          001669W  002844
WS-CURR-CHR                     001662W  002789 002792 002794 002800 002808 002814 002821
WS-CURR-DIVISION-TXT            001671W  002714 002750 002801 002809 002909 003025 003044 003070
                                         003126 003131
WS-CURR-LINE-NUM                001677W  002713 002773 002932 002972 003421 003442 003452 003466
                                         003693
WS-CURR-PROG-ID-TXT             001679W  002703 003030 003417 003438 003448 003462
WS-CURR-SECTION-TXT             001684W  002935 002940 003049 003075 003121 003122 003420 003441
                                         003451 003465
WS-CURR-VERB-TXT                001691W  002704 002728 002752 003136 003145
WS-DELIM-TXT                    001693W  002861 002863 002881 002883 002886
WS-DUMMY-TXT                    001695W  002679 002924 002953 002986 002991 002992 003679
WS-EXPANDED-SRC-FN-TXT          001697W  002684 002685
WS-FILENAME-TXT                 001699W  002678 002681 002952 002955
WS-FLAGS-TXT                    001701W
WS-FORMATTED-DT                 001704W  002702 003562 003585 003819 003838
WS-GI-PROG-ID-TXT               001707W  003489 003495 003500
WS-GI-TOKEN-TXT                 001708W  003490 003501 003503 003515
WS-GROUP-INDICATORS-TXT         001706W  003473
WS-HELD-REFERENCE-TXT           001710W  002705 002730 002731 002732 002767 002768 002769 003248
                                         003250 003251 003252 003289 003295 003296 003297 003303
                                         003304 003305 003328 003330 003331
WS-I-SUB                        001712W  002643 002646 002649 002653 002669 002672 002673 002676
                                         002929 002932 002943 002946 002947 002950 003474 003508
                                         003520 003533 003534 003536 003539 003541 003614
WS-J-SUB                        001714W  002670 002674 002944 002948
WS-LINES-LEFT-NUM               001716W  003475 003484 003498 003550 003604 003615 003659 003706
                                         003710 003737 003771 003853 003860 003869 003876 003885
                                         003898
WS-LINES-PER-PAGE-ENV-TXT       001720W  002659 002663 002690 002691
WS-LINES-PER-PAGE-NUM           001718W  002692 002695 002697 002700 003604 003853
WS-MAIN-MODULE-NAME-TXT         001722W  002650 002655 002931 003681
WS-NEXT-CHAR-IS-QUOTE-BOOL      001725W  002831 002844
WS-NEXT-CHR                     001724W  002791 002834 002847
WS-OS-TYPE-FILLER-TXT           001727W  001733
```

```
ACS Cobol Xref v2.02.04       Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:07    Page  101
Symbols of Module: GCIC (LISTING)
--------------------------------


Data Section (WORKING-STORAGE)  Defn    Locations
-----------------------------+-------------------------------------------------------------------

WS-OS-TYPE-TXT                001734W  002633
WS-OS-TYPES-TXT               001733W
WS-PAGE-NO-TXT                001739W  003556 003571 003594 003625 003640 003783 003803 003813
                                       003827 003846
WS-PAGE-NUM                   001737W  002629 003552 003554 003772 003809 003811
WS-PN-LITERAL-TXT             001740W  003553 003810
WS-PN-PAGE-NUM                001741W  003554 003555 003811 003812
WS-PROGRAM-PATH-TXT           001743W  002667 002668 003565 003588 003822 003841
WS-RESERVED-WORD-TABLE-TXT    002500W
WS-RESERVED-WORD-TXT          002501W  002896
WS-RESERVED-WORDS-TXT         001745W  002500
WS-RS-DUPLICATE-CHR           002509W  003476 003491 003506 003517 003518
WS-RS-IN-COPYBOOK-BOOL        002512W  002938 003687
WS-RS-IN-MAIN-MODULE-BOOL     002511W  002933 002971 003682 003692
WS-RS-IN-WHICH-PGM-CHR        002510W
WS-RS-LAST-TOKEN-ENDED-SENT-CHR 002513W 002762 002908
WS-RS-PROCESSING-PICTURE-CHR  002514W  002857 002871 003080
WS-RS-TOKEN-ENDED-SENTENCE-CHR 002515W 002749 002761 002763 002796 002825 002838 002851 002864
                                       002884
WS-RS-VERB-HAS-BEEN-FOUND-CHR 002516W  002715 002900 003022
WS-RUNTIME-SWITCHES           002508W
WS-RW-IDX                     002504W  002897 002898
WS-RW-TYPE-CD                 002505W  002898
WS-RW-WORD-TXT                002503W  002506 002897
WS-SAVED-SECTION-TXT          002518W  002934 002935 002939 002940
WS-SDL-LINE-NUM               002525W  003697
WS-SDL-STATEMENT-TXT          002527W  003698 003730 003760 003764 003766 003862 003866 003878
                                       003882 003887 003891 003895
WS-SRC-DASHES-TXT             002520W  003830 003849
WS-SRC-DETAIL-LINE-TXT        002524W  003657 003696 003704 003708 003713 003717 003721 003728
                                       003740 003744 003748 003858 003863 003865 003867 003874
                                       003879 003881 003883 003888 003890 003892 003894 003896
                                       003901
WS-SRC-HOLD-TXT               002529W  003862 003866 003878 003882 003887 003891 003895
WS-SRC-LINE-NUM               002531W  003654 003683 003695 003697
WS-SRC-LINES-NUM              002533W  003758 003761 003765 003767 003771 003774 003788 003856
                                       003872
WS-SRC-SUB                    002535W  002711 002764 002765 002784 002788 002790 002793 002802
                                       002813 002819 002823 002824 002826 002832 002836 002837
                                       002839 002845 002849 002850 002852 002862 002865 002882
                                       002887 002962 002967 002969
WS-SUPPRESS-FF-CHR            001702W  002630 003485 003627 003642
WS-TALLY-QTY                  002537W  003001 003003 003004 003008 003009
WS-TEMP-10-CHARS-TXT          002539W  002922 002925 002926 002927 002929 003677
WS-TEMP-256-CHARS-TXT         002549W  002686 002923 002930 002942 002945 002950 003678 003680
WS-TEMP-32-CHARS-1-TXT        002541W  002977 002978 002980 002987
WS-TEMP-32-CHARS-2-TXT        002543W  002984 002989 002995 002996 003002 003005 003012
WS-TEMP-32-CHARS-3-TXT        002545W  002985 002990 002998 002999 003007 003010 003012
WS-TEMP-65-CHARS-TXT          002547W  003700 003701 003707 003712 003716 003720 003732 003733
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:07     Page  102
Symbols of Module: GCIC (LISTING)
--------------------------------

Data Section (WORKING-STORAGE)  Defn    Locations
----------------------------+----------------------------------------------------------------

                                        003736 003739 003743 003747
WS-TODAY-DT                     002551W 002701 002702
WS-TOKEN-CURR-TXT               002553W 002721 002725 002794 002803 002814 002822 002835 002848
                                        002860 002867 002880 002890 002892 002910 002977 003024
                                        003030 003043 003048 003069 003074 003078 003112 003130
                                        003419 003440 003450 003464
WS-TOKEN-CURR-UC-TXT            002555W 002722 002725 002728 002747 003124 003418 003439 003449
                                        003463
WS-TOKEN-PREV-TXT               002557W 002729 002747 002751 002810 003025 003028 003029 003044
                                        003049 003053 003070 003075 003084 003085 003089 003092
                                        003095 003098 003101 003104 003107 003110 003125 003131
                                        003135 003139 003192 003195 003202 003213 003216 003225
                                        003236 003245 003273 003286 003290 003293 003301 003309
                                        003316 003325 003341 003344 003347 003354 003363 003374
                                        003389 003392 003399
WS-TOKEN-SEARCH-TXT             002559W 002890 002891 002897
WS-TOKEN-TYPE-CD                002561W 002795 002804 002815 002868 002872 002893 002898 002911
WS-TT-TOKEN-IS-ARGTYPE-BOOL     002562W 003019 003039 003065
WS-TT-TOKEN-IS-EOF-BOOL         002563W 002718 002772
WS-TT-TOKEN-IS-FUNCTION-BOOL    002564W 003059
WS-TT-TOKEN-IS-IDENTIFIER-BOOL  002565W 002905 003052 003088 003134 003142
WS-TT-TOKEN-IS-KEYWORD-BOOL     002566W 002723 002746 003023 003042 003047 003068 003073 003079
                                        003129
WS-TT-TOKEN-IS-LIT-ALPHA-BOOL   002567W 002828 002854
WS-TT-TOKEN-IS-LIT-NUMBER-BOOL  002568W 002841 002907 002981 003013
WS-TT-TOKEN-IS-RESERVED-WD-BOOL 002570W 002724 003020 003040 003066 003083
WS-TT-TOKEN-IS-VERB-BOOL        002569W 002727 002899
WS-USERNAMES-QTY                002572W 002712
WS-VERSION-TXT                  002574W 002641 003558 003581 003815 003834
WS-XDL-DEF-LINE-NUM             002581W 003512 003529
WS-XDL-PROG-ID-TXT              002577W 003509 003521 003525
WS-XDL-REF-FLAG-CHR             002587W 003541
WS-XDL-REF-LINE-NUM             002586W 003539
WS-XDL-REFERENCE-TXT            002585W
WS-XDL-SECTION-TXT              002583W 003511 003527
WS-XDL-TOKEN-TXT                002579W 003510 003522 003526
WS-XREF-DETAIL-LINE-TXT         002576W 003472 003479 003482 003492 003496 003505 003524 003544
                                        003607 003610 003613
WS-XREF-LINES-PER-REC-NUM       002590W 002658 002662 003534
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:07    Page  103
Symbols of Module: GCIC (LISTING)
--------------------------------


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


L-LISTING-CD                    002603K  002610 002657 002694 003557 003606 003618 003759 003773
                                         003814 003855
L-LISTING-FN-TXT                002593K  002605
L-LPP-NUM                       002599K  002608 002695
L-LPP-PORT-NUM                  002601K  002609 002697
L-OS-TYPE-CD                    002597K  002607 002633
L-SRC-FN-TXT                    002595K  002606 002642 002643 002645 002650 002654 002666 002667
                                         002669 002671 002676


ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:07    Page  104
Symbols of Module: GCIC (LISTING)
--------------------------------
Variable Tested [S]           Symbol (88-Conditions)
--------------------------------------------------------------


WS-CURR-CHR                   WS-CURR-CHAR-IS-PUNCT-BOOL
WS-CURR-CHR                   WS-CURR-CHAR-IS-QUOTE-BOOL
WS-CURR-CHR                   WS-CURR-CHAR-IS-X-BOOL
WS-CURR-CHR                   WS-CURR-CHAR-IS-Z-BOOL
WS-CURR-DIVISION-TXT          WS-CD-IN-IDENT-DIV-BOOL
WS-CURR-DIVISION-TXT          WS-CD-IN-ENV-DIV-BOOL
WS-CURR-DIVISION-TXT          WS-CD-IN-DATA-DIV-BOOL
WS-CURR-DIVISION-TXT          WS-CD-IN-PROC-DIV-BOOL
WS-NEXT-CHR                   WS-NEXT-CHAR-IS-QUOTE-BOOL
WS-RS-IN-WHICH-PGM-CHR        WS-RS-IN-MAIN-MODULE-BOOL
WS-RS-IN-WHICH-PGM-CHR        WS-RS-IN-COPYBOOK-BOOL
WS-TOKEN-TYPE-CD              WS-TT-TOKEN-IS-ARGTYPE-BOOL
WS-TOKEN-TYPE-CD              WS-TT-TOKEN-IS-EOF-BOOL
WS-TOKEN-TYPE-CD              WS-TT-TOKEN-IS-FUNCTION-BOOL
WS-TOKEN-TYPE-CD              WS-TT-TOKEN-IS-IDENTIFIER-BOOL
WS-TOKEN-TYPE-CD              WS-TT-TOKEN-IS-KEYWORD-BOOL
WS-TOKEN-TYPE-CD              WS-TT-TOKEN-IS-LIT-ALPHA-BOOL
WS-TOKEN-TYPE-CD              WS-TT-TOKEN-IS-LIT-NUMBER-BOOL
WS-TOKEN-TYPE-CD              WS-TT-TOKEN-IS-VERB-BOOL
WS-TOKEN-TYPE-CD              WS-TT-TOKEN-IS-RESERVED-WD-BOOL
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:07     Page  105
Symbols of Module: GCIC (LISTING)
------------------------------
Variable Tested            Symbol (88-Conditions) [S]
-----------------------------------------------------------

WS-CURR-DIVISION-TXT            WS-CD-IN-DATA-DIV-BOOL
WS-CURR-DIVISION-TXT            WS-CD-IN-ENV-DIV-BOOL
WS-CURR-DIVISION-TXT            WS-CD-IN-IDENT-DIV-BOOL
WS-CURR-DIVISION-TXT            WS-CD-IN-PROC-DIV-BOOL
WS-CURR-CHR                     WS-CURR-CHAR-IS-PUNCT-BOOL
WS-CURR-CHR                     WS-CURR-CHAR-IS-QUOTE-BOOL
WS-CURR-CHR                     WS-CURR-CHAR-IS-X-BOOL
WS-CURR-CHR                     WS-CURR-CHAR-IS-Z-BOOL
WS-NEXT-CHR                     WS-NEXT-CHAR-IS-QUOTE-BOOL
WS-RS-IN-WHICH-PGM-CHR          WS-RS-IN-COPYBOOK-BOOL
WS-RS-IN-WHICH-PGM-CHR          WS-RS-IN-MAIN-MODULE-BOOL
WS-TOKEN-TYPE-CD                WS-TT-TOKEN-IS-ARGTYPE-BOOL
WS-TOKEN-TYPE-CD                WS-TT-TOKEN-IS-EOF-BOOL
WS-TOKEN-TYPE-CD                WS-TT-TOKEN-IS-FUNCTION-BOOL
WS-TOKEN-TYPE-CD                WS-TT-TOKEN-IS-IDENTIFIER-BOOL
WS-TOKEN-TYPE-CD                WS-TT-TOKEN-IS-KEYWORD-BOOL
WS-TOKEN-TYPE-CD                WS-TT-TOKEN-IS-LIT-ALPHA-BOOL
WS-TOKEN-TYPE-CD                WS-TT-TOKEN-IS-LIT-NUMBER-BOOL
WS-TOKEN-TYPE-CD                WS-TT-TOKEN-IS-RESERVED-WD-BOOL
WS-TOKEN-TYPE-CD                WS-TT-TOKEN-IS-VERB-BOOL
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:07    Page  106
Symbols of Module: GCIC (LISTING)
-------------------------------
Functions                      Defn    Locations
-------------------------------+----------------------------------------------------------------

LOWER-CASE                     003699I  003731
NUMVAL                         002691I  002929
TRIM                           002642I  002669 002681 002930 002931 002942 003680 003681 003699
                                        003731
UPPER-CASE                     002650I  002654 002721 002867 002890 002930 003680

ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:07    Page  107
Symbols of Module: GCIC (LISTING)
-------------------------------
Called Procedures              Type    Locations
-------------------------------+---------------------------------------------------------------

C$JUSTIFY                      SYSTEM 002668 003555 003556 003812 003813
CBL_CHECK_FILE_EXIST           SYSTEM 002685

ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:07    Page  108
Symbols of Module: GCIC (LISTING)
-------------------------------
Procedure                      Defn    Locations
-------------------------------+----------------------------------------------------------------

COMP-VERS                      002641P
COMP-YEAR                      002635P
```

```
ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:07    Page  109
Symbols of Module: GCIC (LISTING)
-------------------------------
Unreferenced Working Storage Symbols

CBL_CHECK_FILE_EXIST            002685C
F-ES-8-256-TXT                  001632F
F-EXPANDED-SRC2-REC             001630F
F-LISTING-REC                   001637F
F-OS-1-128-TXT                  001641F
F-OS-129-256-TXT                001646F
WS-FLAGS-TXT                    001701W
WS-OS-TYPES-TXT                 001733W
WS-RESERVED-WORD-TABLE-TXT      002500W
WS-RS-IN-WHICH-PGM-CHR          002510W
WS-RUNTIME-SWITCHES             002508W
WS-XDL-REFERENCE-TXT            002585W


ACS Cobol Xref v2.02.04        Dictionary File for GCIC (LISTING) 06/03/2022  23:09:11:07    Page  110
Symbols of Module: GCIC (LISTING)
-------------------------------
Unreferenced Procedures

COMP-VERS                       002641P
COMP-YEAR                       002635P
```

6 STREAMIO

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

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

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

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

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

First, here is the STREAMIOcb.cpy copybook:

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

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

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   *>   **

==

```
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       *>--------------------------------------------------------------**

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

```
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                                  **

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

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-   **

==

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   **

===

```
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"**

======================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                     Page: 6
```

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

========================================================================================
GCic for OSX Copyright (C) 2009-2014, Gary L. Cutler, GPL                          Page: 7
```

```
   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 '.
```

==

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

==

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

```
====================================================================================
GCic for Windows/MinGW Copyright (C) 2009-2014, Gary L. Cutler, GPL          Page: 10
```

====== ===
    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 =

==

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
```

==

Line   Statement   Page: 13
====== ===
   565   CALL "CBL_WRITE_FILE" USING L-SCB-Handle-NUM
   566   L-SCB-Offset-NUM
   567   WS-Arg-Length-NUM
   568   0
   569   L-Arg2-TXT
   570   PERFORM 040-Check-WRITE-SCB-Return-CD
   571   ADD WS-Arg-Length-NUM TO L-SCB-Offset-NUM
   572   .
   573   400-READ SECTION.
   574   CALL "C$PARAMSIZE" USING 2
   575   MOVE RETURN-CODE TO WS-Arg-Length-NUM
   576   MOVE SPACES TO L-Arg2-TXT(1:WS-Arg-Length-NUM)
   577   CALL "CBL_READ_FILE" USING L-SCB-Handle-NUM
   578   L-SCB-Offset-NUM
   579   WS-Arg-Length-NUM
   580   0
   581   L-Arg2-TXT
   582   PERFORM 050-Check-READ-SCB-Return-CD
   583   ADD WS-Arg-Length-NUM TO L-SCB-Offset-NUM
   584   .
   585   500-READ-Delim SECTION.
   586   CALL "C$PARAMSIZE" USING 2
   587   MOVE RETURN-CODE TO WS-Arg-Length-NUM
   588   MOVE SPACES TO L-Arg2-TXT(1:WS-Arg-Length-NUM)
   589   CALL "CBL_READ_FILE" USING L-SCB-Handle-NUM
   590   L-SCB-Offset-NUM
   591   WS-Arg-Length-NUM
   592   0
   593   L-Arg2-TXT
   594   PERFORM 050-Check-READ-SCB-Return-CD
   595   MOVE 0 TO WS-Tally-NUM
   596   INSPECT L-Arg2-TXT(1:WS-Arg-Length-NUM)
   597   TALLYING WS-Tally-NUM FOR ALL X"0A"
   598   IF WS-Tally-NUM = 0 *> No LF found - return truncated data and position past n
   ext LF (if any)
   599   IF L-Arg2-TXT(WS-Arg-Length-NUM:1) = X"0D"
   600   MOVE SPACE TO L-Arg2-TXT(WS-Arg-Length-NUM:1)
   601   END-IF
   602   ADD WS-Arg-Length-NUM TO L-SCB-Offset-NUM
   603   MOVE 02 TO L-SCB-Return-CD
   604   MOVE 256 TO WS-Arg-Length-NUM
   605   PERFORM UNTIL 0 = 1
   606   MOVE SPACES TO WS-Buffer-TXT
   607   CALL "CBL_READ_FILE" USING L-SCB-Handle-NUM
   608   L-SCB-Offset-NUM
   609   WS-Arg-Length-NUM
   610   0
   611   WS-Buffer-TXT
   612   IF RETURN-CODE < 0

===

GNU COBOL 2.1 23NOV2013 Source Listing   2014/03/27
     C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
Line   Statement   Page: 14

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

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


=============================================================================================
GCic for Windows/MinGW Copyright (C) 2009-2014, Gary L. Cutler, GPL                Page: 15
```

```
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



============================================================================================
GCic for Windows/MinGW Copyright (C) 2009-2014, Gary L. Cutler, GPL            Page: 16
```

7 GNU Free Documentation License

Version 1.3, 3 November 2008

Copyright © 2000, 2001, 2002, 2007, 2008 Free Software Foundation, Inc.
`https://fsf.org/`

Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

0. PREAMBLE

The purpose of this License is to make a manual, textbook, or other functional and useful document *free* in the sense of freedom: to assure everyone the effective freedom to copy and redistribute it, with or without modifying it, either commercially or noncommercially. Secondarily, this License preserves for the author and publisher a way to get credit for their work, while not being considered responsible for modifications made by others.

This License is a kind of "copyleft", which means that derivative works of the document must themselves be free in the same sense. It complements the GNU General Public License, which is a copyleft license designed for free software.

We have designed this License in order to use it for manuals for free software, because free software needs free documentation: a free program should come with manuals providing the same freedoms that the software does. But this License is not limited to software manuals; it can be used for any textual work, regardless of subject matter or whether it is published as a printed book. We recommend this License principally for works whose purpose is instruction or reference.

1. APPLICABILITY AND DEFINITIONS

This License applies to any manual or other work, in any medium, that contains a notice placed by the copyright holder saying it can be distributed under the terms of this License. Such a notice grants a world-wide, royalty-free license, unlimited in duration, to use that work under the conditions stated herein. The "Document", below, refers to any such manual or work. Any member of the public is a licensee, and is addressed as "you". You accept the license if you copy, modify or distribute the work in a way requiring permission under copyright law.

A "Modified Version" of the Document means any work containing the Document or a portion of it, either copied verbatim, or with modifications and/or translated into another language.

A "Secondary Section" is a named appendix or a front-matter section of the Document that deals exclusively with the relationship of the publishers or authors of the Document to the Document's overall subject (or to related matters) and contains nothing that could fall directly within that overall subject. (Thus, if the Document is in part a textbook of mathematics, a Secondary Section may not explain any mathematics.) The relationship could be a matter of historical connection with the subject or with related matters, or of legal, commercial, philosophical, ethical or political position regarding them.

The "Invariant Sections" are certain Secondary Sections whose titles are designated, as being those of Invariant Sections, in the notice that says that the Document is released under this License. If a section does not fit the above definition of Secondary then it is not allowed to be designated as Invariant. The Document may contain zero Invariant Sections. If the Document does not identify any Invariant Sections then there are none.

The "Cover Texts" are certain short passages of text that are listed, as Front-Cover Texts or Back-Cover Texts, in the notice that says that the Document is released under this License.

A Front-Cover Text may be at most 5 words, and a Back-Cover Text may be at most 25 words.

A "Transparent" copy of the Document means a machine-readable copy, represented in a format whose specification is available to the general public, that is suitable for revising the document straightforwardly with generic text editors or (for images composed of pixels) generic paint programs or (for drawings) some widely available drawing editor, and that is suitable for input to text formatters or for automatic translation to a variety of formats suitable for input to text formatters. A copy made in an otherwise Transparent file format whose markup, or absence of markup, has been arranged to thwart or discourage subsequent modification by readers is not Transparent. An image format is not Transparent if used for any substantial amount of text. A copy that is not "Transparent" is called "Opaque".

Examples of suitable formats for Transparent copies include plain ASCII without markup, Texinfo input format, LaTeX input format, SGML or XML using a publicly available DTD, and standard-conforming simple HTML, PostScript or PDF designed for human modification. Examples of transparent image formats include PNG, XCF and JPG. Opaque formats include proprietary formats that can be read and edited only by proprietary word processors, SGML or XML for which the DTD and/or processing tools are not generally available, and the machine-generated HTML, PostScript or PDF produced by some word processors for output purposes only.

The "Title Page" means, for a printed book, the title page itself, plus such following pages as are needed to hold, legibly, the material this License requires to appear in the title page. For works in formats which do not have any title page as such, "Title Page" means the text near the most prominent appearance of the work's title, preceding the beginning of the body of the text.

The "publisher" means any person or entity that distributes copies of the Document to the public.

A section "Entitled XYZ" means a named subunit of the Document whose title either is precisely XYZ or contains XYZ in parentheses following text that translates XYZ in another language. (Here XYZ stands for a specific section name mentioned below, such as "Acknowledgements", "Dedications", "Endorsements", or "History".) To "Preserve the Title" of such a section when you modify the Document means that it remains a section "Entitled XYZ" according to this definition.

The Document may include Warranty Disclaimers next to the notice which states that this License applies to the Document. These Warranty Disclaimers are considered to be included by reference in this License, but only as regards disclaiming warranties: any other implication that these Warranty Disclaimers may have is void and has no effect on the meaning of this License.

2. VERBATIM COPYING

You may copy and distribute the Document in any medium, either commercially or noncommercially, provided that this License, the copyright notices, and the license notice saying this License applies to the Document are reproduced in all copies, and that you add no other conditions whatsoever to those of this License. You may not use technical measures to obstruct or control the reading or further copying of the copies you make or distribute. However, you may accept compensation in exchange for copies. If you distribute a large enough number of copies you must also follow the conditions in section 3.

You may also lend copies, under the same conditions stated above, and you may publicly display copies.

3. COPYING IN QUANTITY

If you publish printed copies (or copies in media that commonly have printed covers) of the Document, numbering more than 100, and the Document's license notice requires Cover Texts, you must enclose the copies in covers that carry, clearly and legibly, all these Cover Texts: Front-Cover Texts on the front cover, and Back-Cover Texts on the back cover. Both covers must also clearly and legibly identify you as the publisher of these copies. The front cover must present the full title with all words of the title equally prominent and visible. You may add other material on the covers in addition. Copying with changes limited to the covers, as long as they preserve the title of the Document and satisfy these conditions, can be treated as verbatim copying in other respects.

If the required texts for either cover are too voluminous to fit legibly, you should put the first ones listed (as many as fit reasonably) on the actual cover, and continue the rest onto adjacent pages.

If you publish or distribute Opaque copies of the Document numbering more than 100, you must either include a machine-readable Transparent copy along with each Opaque copy, or state in or with each Opaque copy a computer-network location from which the general network-using public has access to download using public-standard network protocols a complete Transparent copy of the Document, free of added material. If you use the latter option, you must take reasonably prudent steps, when you begin distribution of Opaque copies in quantity, to ensure that this Transparent copy will remain thus accessible at the stated location until at least one year after the last time you distribute an Opaque copy (directly or through your agents or retailers) of that edition to the public.

It is requested, but not required, that you contact the authors of the Document well before redistributing any large number of copies, to give them a chance to provide you with an updated version of the Document.

4. MODIFICATIONS

You may copy and distribute a Modified Version of the Document under the conditions of sections 2 and 3 above, provided that you release the Modified Version under precisely this License, with the Modified Version filling the role of the Document, thus licensing distribution and modification of the Modified Version to whoever possesses a copy of it. In addition, you must do these things in the Modified Version:

A. Use in the Title Page (and on the covers, if any) a title distinct from that of the Document, and from those of previous versions (which should, if there were any, be listed in the History section of the Document). You may use the same title as a previous version if the original publisher of that version gives permission.

B. List on the Title Page, as authors, one or more persons or entities responsible for authorship of the modifications in the Modified Version, together with at least five of the principal authors of the Document (all of its principal authors, if it has fewer than five), unless they release you from this requirement.

C. State on the Title page the name of the publisher of the Modified Version, as the publisher.

D. Preserve all the copyright notices of the Document.

E. Add an appropriate copyright notice for your modifications adjacent to the other copyright notices.

F. Include, immediately after the copyright notices, a license notice giving the public permission to use the Modified Version under the terms of this License, in the form shown in the Addendum below.

G. Preserve in that license notice the full lists of Invariant Sections and required Cover Texts given in the Document's license notice.

H. Include an unaltered copy of this License.

I. Preserve the section Entitled "History", Preserve its Title, and add to it an item stating at least the title, year, new authors, and publisher of the Modified Version as given on the Title Page. If there is no section Entitled "History" in the Document, create one stating the title, year, authors, and publisher of the Document as given on its Title Page, then add an item describing the Modified Version as stated in the previous sentence.

J. Preserve the network location, if any, given in the Document for public access to a Transparent copy of the Document, and likewise the network locations given in the Document for previous versions it was based on. These may be placed in the "History" section. You may omit a network location for a work that was published at least four years before the Document itself, or if the original publisher of the version it refers to gives permission.

K. For any section Entitled "Acknowledgements" or "Dedications", Preserve the Title of the section, and preserve in the section all the substance and tone of each of the contributor acknowledgements and/or dedications given therein.

L. Preserve all the Invariant Sections of the Document, unaltered in their text and in their titles. Section numbers or the equivalent are not considered part of the section titles.

M. Delete any section Entitled "Endorsements". Such a section may not be included in the Modified Version.

N. Do not retitle any existing section to be Entitled "Endorsements" or to conflict in title with any Invariant Section.

O. Preserve any Warranty Disclaimers.

If the Modified Version includes new front-matter sections or appendices that qualify as Secondary Sections and contain no material copied from the Document, you may at your option designate some or all of these sections as invariant. To do this, add their titles to the list of Invariant Sections in the Modified Version's license notice. These titles must be distinct from any other section titles.

You may add a section Entitled "Endorsements", provided it contains nothing but endorsements of your Modified Version by various parties—for example, statements of peer review or that the text has been approved by an organization as the authoritative definition of a standard.

You may add a passage of up to five words as a Front-Cover Text, and a passage of up to 25 words as a Back-Cover Text, to the end of the list of Cover Texts in the Modified Version. Only one passage of Front-Cover Text and one of Back-Cover Text may be added by (or through arrangements made by) any one entity. If the Document already includes a cover text for the same cover, previously added by you or by arrangement made by the same entity you are acting on behalf of, you may not add another; but you may replace the old one, on explicit permission from the previous publisher that added the old one.

The author(s) and publisher(s) of the Document do not by this License give permission to use their names for publicity for or to assert or imply endorsement of any Modified Version.

5. COMBINING DOCUMENTS

You may combine the Document with other documents released under this License, under the terms defined in section 4 above for modified versions, provided that you include in the combination all of the Invariant Sections of all of the original documents, unmodified, and list them all as Invariant Sections of your combined work in its license notice, and that you preserve all their Warranty Disclaimers.

The combined work need only contain one copy of this License, and multiple identical Invariant Sections may be replaced with a single copy. If there are multiple Invariant Sections with the same name but different contents, make the title of each such section unique by adding at the end of it, in parentheses, the name of the original author or publisher of that section if known, or else a unique number. Make the same adjustment to the section titles in the list of Invariant Sections in the license notice of the combined work.

In the combination, you must combine any sections Entitled "History" in the various original documents, forming one section Entitled "History"; likewise combine any sections Entitled "Acknowledgements", and any sections Entitled "Dedications". You must delete all sections Entitled "Endorsements."

6. COLLECTIONS OF DOCUMENTS

You may make a collection consisting of the Document and other documents released under this License, and replace the individual copies of this License in the various documents with a single copy that is included in the collection, provided that you follow the rules of this License for verbatim copying of each of the documents in all other respects.

You may extract a single document from such a collection, and distribute it individually under this License, provided you insert a copy of this License into the extracted document, and follow this License in all other respects regarding verbatim copying of that document.

7. AGGREGATION WITH INDEPENDENT WORKS

A compilation of the Document or its derivatives with other separate and independent documents or works, in or on a volume of a storage or distribution medium, is called an "aggregate" if the copyright resulting from the compilation is not used to limit the legal rights of the compilation's users beyond what the individual works permit. When the Document is included in an aggregate, this License does not apply to the other works in the aggregate which are not themselves derivative works of the Document.

If the Cover Text requirement of section 3 is applicable to these copies of the Document, then if the Document is less than one half of the entire aggregate, the Document's Cover Texts may be placed on covers that bracket the Document within the aggregate, or the electronic equivalent of covers if the Document is in electronic form. Otherwise they must appear on printed covers that bracket the whole aggregate.

8. TRANSLATION

Translation is considered a kind of modification, so you may distribute translations of the Document under the terms of section 4. Replacing Invariant Sections with translations requires special permission from their copyright holders, but you may include translations of some or all Invariant Sections in addition to the original versions of these Invariant Sections. You may include a translation of this License, and all the license notices in the Document, and any Warranty Disclaimers, provided that you also include the original English version of this License and the original versions of those notices and disclaimers. In case of a disagreement between the translation and the original version of this License or a notice or disclaimer, the original version will prevail.

If a section in the Document is Entitled "Acknowledgements", "Dedications", or "History", the requirement (section 4) to Preserve its Title (section 1) will typically require changing the actual title.

9. TERMINATION

You may not copy, modify, sublicense, or distribute the Document except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, or distribute it is void, and will automatically terminate your rights under this License.

However, if you cease all violation of this License, then your license from a particular copyright holder is reinstated (a) provisionally, unless and until the copyright holder explicitly

and finally terminates your license, and (b) permanently, if the copyright holder fails to notify you of the violation by some reasonable means prior to 60 days after the cessation.

Moreover, your license from a particular copyright holder is reinstated permanently if the copyright holder notifies you of the violation by some reasonable means, this is the first time you have received notice of violation of this License (for any work) from that copyright holder, and you cure the violation prior to 30 days after your receipt of the notice.

Termination of your rights under this section does not terminate the licenses of parties who have received copies or rights from you under this License. If your rights have been terminated and not permanently reinstated, receipt of a copy of some or all of the same material does not give you any rights to use it.

10. FUTURE REVISIONS OF THIS LICENSE

The Free Software Foundation may publish new, revised versions of the GNU Free Documentation License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns. See `https://www.gnu.org/licenses/`.

Each version of the License is given a distinguishing version number. If the Document specifies that a particular numbered version of this License "or any later version" applies to it, you have the option of following the terms and conditions either of that specified version or of any later version that has been published (not as a draft) by the Free Software Foundation. If the Document does not specify a version number of this License, you may choose any version ever published (not as a draft) by the Free Software Foundation. If the Document specifies that a proxy can decide which future versions of this License can be used, that proxy's public statement of acceptance of a version permanently authorizes you to choose that version for the Document.

11. RELICENSING

"Massive Multiauthor Collaboration Site" (or "MMC Site") means any World Wide Web server that publishes copyrightable works and also provides prominent facilities for anybody to edit those works. A public wiki that anybody can edit is an example of such a server. A "Massive Multiauthor Collaboration" (or "MMC") contained in the site means any set of copyrightable works thus published on the MMC site.

"CC-BY-SA" means the Creative Commons Attribution-Share Alike 3.0 license published by Creative Commons Corporation, a not-for-profit corporation with a principal place of business in San Francisco, California, as well as future copyleft versions of that license published by that same organization.

"Incorporate" means to publish or republish a Document, in whole or in part, as part of another Document.

An MMC is "eligible for relicensing" if it is licensed under this License, and if all works that were first published under this License somewhere other than this MMC, and subsequently incorporated in whole or in part into the MMC, (1) had no cover texts or invariant sections, and (2) were thus incorporated prior to November 1, 2008.

The operator of an MMC Site may republish an MMC contained in the site under CC-BY-SA on the same site at any time before August 1, 2009, provided the MMC is eligible for relicensing.