

GnuCOBOL Sample Programs

For Version 3.2 - Final [11 January 2026 at 22:10 GMT.], for 3.3 and 4.0 (partial & tentative only).

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This manual documents GnuCOBOL 3.2 - Final, 11 January 2026 at 22:10 GMT. build.
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1 FileStat-Msgs

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

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

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

Here's the 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
Page: 1

Line	Statement
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 **

GNUCOBOL 3.1.2 06MAR202 Source Listing

2022/03/06
COBDUMP.cbl
Page: 2

```

Line 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
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
Page: 3

Line Statement

```
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
```

GNUCOBOL 3.1.2 06MAR202 Source Listing

2022/03/06
COBDUMP.cbl
Page: 4

Line	Statement
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	.

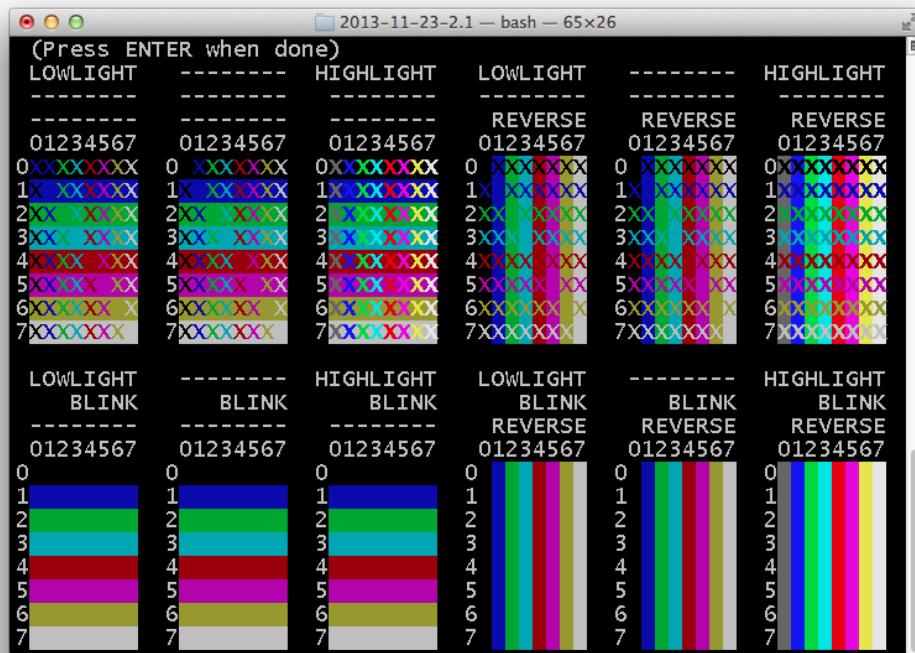
GNU COBOL 2.1 23NOV2013 Cross-Reference Listing					2014/03/27
		C:/Users/tda010/Documents/Programs/Samples/COBDUMP.cbl			
PROGRAM-ID	Identifier/Register/Function	Defn	Where Defined	References	Page: 5
=====	=====	=====	=====	=====	=====
COBDUMP	000-Main	116 PROCEDURE			
COBDUMP	100-Generate-Address	161 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      4      4      '.
26 05 LINE + 1.
27 10 COL 1 VALUE '5      5      5      5      5      5      5      5      '.
28 05 LINE + 1.
29 10 COL 1 VALUE '6      6      6      6      6      6      6      6      '.
30 05 LINE + 1.
31 10 COL 1 VALUE '7      7      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      4      '.
50 05 LINE + 1.
51 10 COL 1 VALUE '5      5      5      5      5      5      5      '.
52 05 LINE + 1.
53 10 COL 1 VALUE '6      6      6      6      6      6      6      '.
54 05 LINE + 1.

```

```

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

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

```

```

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

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

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163 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 VALUE 'X'.
164 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 VALUE 'X'.
165 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 VALUE 'X'.
166 05 LINE + 1.
167 10 COL 12 BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 VALUE 'X'.
168 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 VALUE 'X'.
169 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 VALUE 'X'.
170 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 VALUE 'X'.
171 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 VALUE 'X'.
172 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 VALUE 'X'.
173 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 VALUE 'X'.
174 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 VALUE 'X'.
175 05 LINE + 1.
176 10 COL 12 BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 VALUE 'X'.
177 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 VALUE 'X'.
178 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 VALUE 'X'.
179 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 VALUE 'X'.
180 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 VALUE 'X'.
181 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 VALUE 'X'.
182 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 VALUE 'X'.
183 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 VALUE 'X'.
184 05 LINE + 1.
185 10 COL 12 BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 VALUE 'X'.
186 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 VALUE 'X'.
187 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 VALUE 'X'.
188 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 VALUE 'X'.
189 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 VALUE 'X'.
190 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 VALUE 'X'.
191 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 VALUE 'X'.
192 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 VALUE 'X'.
193 05 LINE + 1.
194 10 COL 12 BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 VALUE 'X'.
195 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 VALUE 'X'.
196 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 VALUE 'X'.
197 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 VALUE 'X'.
198 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 VALUE 'X'.
199 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 VALUE 'X'.
200 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 VALUE 'X'.
201 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 VALUE 'X'.
202 *gt; #3
203 05 LINE 05.
204 10 COL 22 BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
205 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
206 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
207 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.
208 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
209 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
210 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
211 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
212 05 LINE + 1.
213 10 COL 22 BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 HIGHLIGHT VALUE 'X'.
214 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 HIGHLIGHT VALUE 'X'.
215 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 HIGHLIGHT VALUE 'X'.
216 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 HIGHLIGHT VALUE 'X'.

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

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

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271 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 HIGHLIGHT VALUE 'X'.
272 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 HIGHLIGHT VALUE 'X'.
273 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 HIGHLIGHT VALUE 'X'.
274 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 HIGHLIGHT VALUE 'X'.
275 *> #4
276 05 LINE 05.
277 10 COL 32 BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
278 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
279 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
280 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
281 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
282 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
283 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
284 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
285 05 LINE + 1.
286 10 COL 32 BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
287 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
288 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
289 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
290 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
291 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
292 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
293 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
294 05 LINE + 1.
295 10 COL 32 BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
296 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
297 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
298 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
299 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
300 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
301 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
302 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
303 05 LINE + 1.
304 10 COL 32 BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
305 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
306 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
307 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
308 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
309 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
310 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
311 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
312 05 LINE + 1.
313 10 COL 32 BACKGROUND-COLOR 4 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
314 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
315 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
316 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
317 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
318 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
319 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
320 10 COL + 1 BACKGROUND-COLOR 4 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
321 05 LINE + 1.
322 10 COL 32 BACKGROUND-COLOR 5 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
323 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
324 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.

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325 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
326 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
327 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
328 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
329 10 COL + 1 BACKGROUND-COLOR 5 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
330 05 LINE + 1.
331 10 COL 32 BACKGROUND-COLOR 6 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
332 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
333 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
334 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
335 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
336 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
337 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
338 10 COL + 1 BACKGROUND-COLOR 6 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
339 05 LINE + 1.
340 10 COL 32 BACKGROUND-COLOR 7 FOREGROUND-COLOR 0 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
341 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 1 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
342 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 2 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
343 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 3 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
344 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 4 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
345 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 5 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
346 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 6 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
347 10 COL + 1 BACKGROUND-COLOR 7 FOREGROUND-COLOR 7 LOWLIGHT REVERSE-VIDEO VALUE 'X'.
348 *> #5
349 05 LINE 05.
350 10 COL 42 BACKGROUND-COLOR 0 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
351 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
352 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
353 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
354 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
355 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
356 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
357 10 COL + 1 BACKGROUND-COLOR 0 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
358 05 LINE + 1.
359 10 COL 42 BACKGROUND-COLOR 1 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
360 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
361 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
362 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
363 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
364 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
365 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
366 10 COL + 1 BACKGROUND-COLOR 1 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
367 05 LINE + 1.
368 10 COL 42 BACKGROUND-COLOR 2 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
369 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.
370 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 2 REVERSE-VIDEO VALUE 'X'.
371 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 3 REVERSE-VIDEO VALUE 'X'.
372 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 4 REVERSE-VIDEO VALUE 'X'.
373 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 5 REVERSE-VIDEO VALUE 'X'.
374 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 6 REVERSE-VIDEO VALUE 'X'.
375 10 COL + 1 BACKGROUND-COLOR 2 FOREGROUND-COLOR 7 REVERSE-VIDEO VALUE 'X'.
376 05 LINE + 1.
377 10 COL 42 BACKGROUND-COLOR 3 FOREGROUND-COLOR 0 REVERSE-VIDEO VALUE 'X'.
378 10 COL + 1 BACKGROUND-COLOR 3 FOREGROUND-COLOR 1 REVERSE-VIDEO VALUE 'X'.

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

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

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

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

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

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

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

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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'.

```

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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'.

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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

GNU COBOL 2.1 23NOV2013 Source Listing 2014/03/27
 C:/Users/tda010/Documents/Programs/Samples/DAY-FROM-DATE.cbl
 Line Statement Page: 2
 =====

```

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

=====

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

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

5 GCic

This is MUCH more than a mere demonstration program – it's also a very practical utility! The "GCic" (GnuCOBOL Interactive Compiler) is a TUI (Textual User Interface) program that may be used as a full-screen interface to the "cobic" 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.

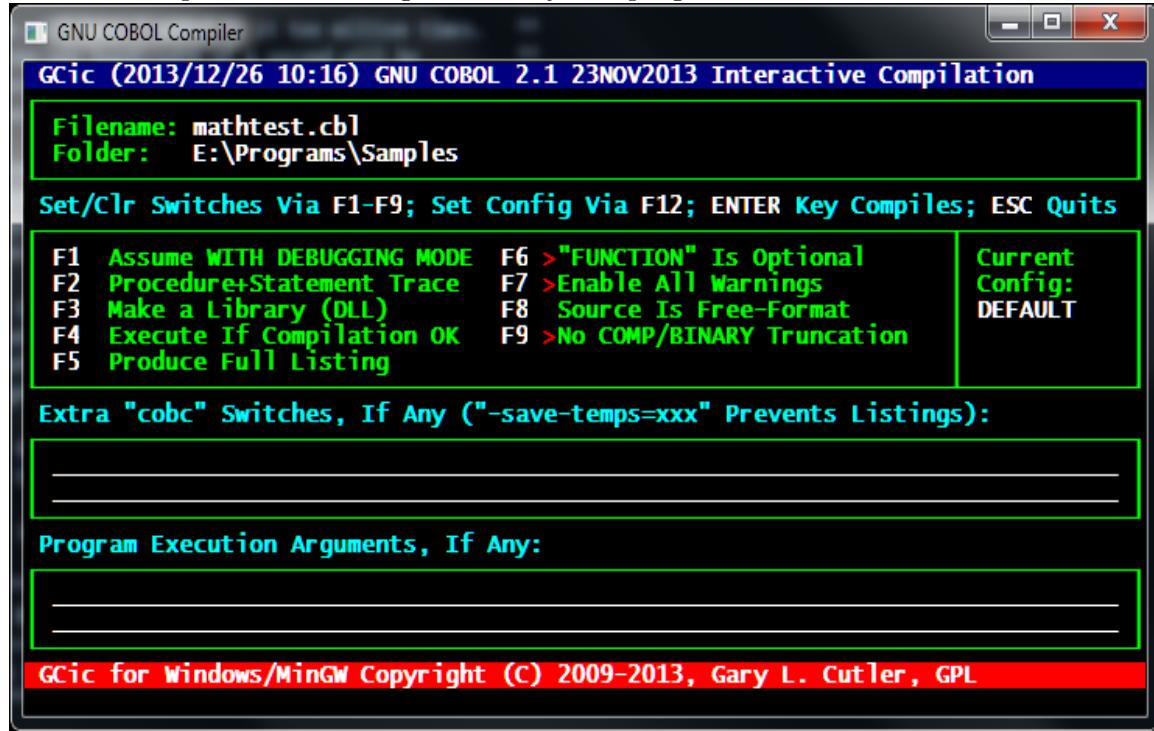
Cross-reference listings will show all user-defined data items and procedures as well as intrinsic function and special register references. In addition to showing the line numbers at which items were defined and referenced, those references that MODIFY the contents of the data item will have an asterisk 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:
 - ACCEPT FROM COMMAND-LINE statement
 - ACCEPT FROM DATE/TIME statement
 - ACCEPT FROM ENVIRONMENT statement
 - EXIT PERFORM statement
 - EXIT SECTION statement
 - INSPECT statement
 - PERFORM FOREVER statement
 - SEARCH ALL statement
 - SET ENVIRONMENT statement
 - SORT statement
 - STRING statement
 - UNSTRING statement

- Using the following built-in subroutines:
 - C\$JUSTIFY built-in system subroutine
 - C\$SLEEP built-in system subroutine
 - CBL_CHANGE_DIR built-in system subroutine
 - CBL_CHECK_FILE_EXIST built-in system subroutine
 - CBL_DELETE_FILE built-in system subroutine
 - SYSTEM built-in system subroutine
- Using the following intrinsic functions:
 - CONCATENATE intrinsic function
 - LENGTH intrinsic function
 - LOWER-CASE intrinsic function
 - NUMVAL intrinsic function
 - TRIM intrinsic function
 - 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.

```

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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)

```

```

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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  *>*****>NOTE< >NOTE< >NOTE< >NOTE< >NOTE< >NOTE< ****
73  *>                                **>
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 *->*****

```

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```

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-temp' (without '=dir') specified  **
145      *> in the EXTRA options field will be ignored. A   **
146      *> '-save-temp=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   **

```

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```

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 intrinsic=all with           **
176      *> VBC intrinsics=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      ******ENVIRONMENT DIVISION.*****
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

```

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```
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.
```

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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

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```

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).

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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'.	

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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'.

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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          *>1234567890123456789012345678901234567890123456789012345678901234567890
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 | XXXXXXXXXXXX |
535  11 *>| F4 Execute If Compilation OK F9 No COMP/BINARY Truncation | |
536  12 *>| F5 >Produce Listing (Landscape) | |
537  13 *>+-----+
538  14 *> Extra "cdbc" Switches, If Any ("<save-temp=xxx>" Prevents Listings):
539  15 *>+-----+
540  16 *>| -----

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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  *>1234567890123456789012345678901234567890123456789012345678901234567890
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'CO'.
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

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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.

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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  GC0712      05     COL 80           VALUE LD-UR-Corner.
653
654  GC0712      05 LINE 16 COL 01           VALUE LD-Vert-Line.
655  GC0712      05     COL 80           VALUE LD-Vert-Line.
656
657  GC0712      05 LINE 17 COL 01           VALUE LD-Vert-Line.
658  GC0712      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  GC0712      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  GC0712      05     COL 80           VALUE LD-UR-Corner.
667
668  GC0712      05 LINE 21 COL 01           VALUE LD-Vert-Line.
669  GC0712      05     COL 80           VALUE LD-Vert-Line.
670
671  GC0712      05 LINE 22 COL 01           VALUE LD-Vert-Line.
672  GC0712      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  GC0712      05     COL 80           VALUE LD-LR-Corner.
677  *>
678  *> TOP AND BOTTOM LINES
679  *>
680  GC0712      03 BACKGROUND-COLOR COB-COLOR-BLUE
681  GC0712      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 ') GNCOBOL 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  GC0712      03 BACKGROUND-COLOR COB-COLOR-BLACK
693  GC0712      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 "cobic" Switches, If Any ' &
698  GC0712      '("-save-temp=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

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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

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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    *>*****Legend to procedure names:*****
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    *>*****

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```

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: ''
```

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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 "O".
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

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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 GC0712    IF WS-File-Name-TXT = SPACES
942 GC0712        DISPLAY 'No program filename was specified'
943 GC0712        PERFORM 900-Terminate
944 * ----- Control will NOT return
945 GC0712    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 GC0712        SUBTRACT 1 FROM WS-I-SUB
961 GC0712    END-PERFORM
962 GC0712    IF WS-I-SUB = 0
963 GC0712        MOVE SPACES      TO WS-Prog-Folder-TXT
964 GC0712        MOVE WS-File-Name-TXT TO WS-Prog-File-Name-TXT
965 GC0712    ELSE
966 GC0712        MOVE '*' TO WS-FN-CHR (WS-I-SUB)
967 GC0712        UNSTRING WS-File-Name-TXT DELIMITED BY '*'
968 GC0712        INTO WS-Prog-Folder-TXT
969 GC0712        WS-Prog-File-Name-TXT
970 GC0712    MOVE WS-OS-Dir-CHR TO WS-FN-CHR (WS-I-SUB)
971 GC0712    END-IF
972 GC0712    IF WS-Prog-Folder-TXT = SPACES

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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

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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

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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

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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-temp'
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-temp used
1173           GC0712   END-IF
1174           GC0712   IF WS-CS-LISTING-CHR > SPACE
1175           GC1010   STRING '-save-temp'
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

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```

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 'cdbc' 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.

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```

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    IF WS-OS-Cygwin-BOOL AND WS-Prog-Folder-TXT (2:1) = ':'
1294    STRING '/cygdrive/'
1295  GC0909    INTO WS-Cmd-TXT
1296  GC0909    WITH POINTER WS-I-SUB

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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  GC0909      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

```

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```

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  GC0809    IF WS-CS-Args-TXT NOT = SPACES
1357  GC0809        STRING ' ' TRIM(WS-CS-Args-TXT,TRAILING)
1358  GC0809        INTO WS-Cmd-TXT
1359  GC0809        WITH POINTER WS-I-SUB
1360  GC0809    END-IF
1361  *>***** ****
1362  *> Run the program
1363  *>*****
1364  GC0114    CALL X'E4'
1365  GC0114    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  GC0114    PERFORM 900-Terminate
1369  GC0114    * -- 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  GC0712    SET WS-RS-More-To-1st-Prog-BOOL TO TRUE
1379  GC0712    PERFORM UNTIL WS-RS-1st-Prog-Complete-BOOL
1380  GC0712        READ F-Source-Code-FILE AT END
1381  GC0712        CLOSE F-Source-Code-FILE
1382  GC0712        EXIT SECTION
1383  GC0712        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  GC0712        IF WS-RS-Source-Rec-Ident-BOOL
1388  GC0712        SET WS-RS-1st-Prog-Complete-BOOL TO TRUE
1389  GC0712        END-IF
1390  GC0712    END-PERFORM
1391  GC0712    SET WS-RS-Source-Rec-Ignored-BOOL TO TRUE
1392  GC0712    PERFORM UNTIL WS-RS-Source-Rec-Linkage-BOOL
1393  GC0712        OR WS-RS-Source-Rec-Ident-BOOL
1394  GC0712        READ F-Source-Code-FILE AT END
1395  GC0712        CLOSE F-Source-Code-FILE
1396  GC0712        EXIT SECTION
1397  GC0712        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  GC0712    END-PERFORM
1402  GC0712    CLOSE F-Source-Code-FILE
1403  GC0712    IF WS-RS-Source-Rec-Linkage-BOOL
1404  GC0712        MOVE SELCHAR TO WS-CS-LIBRARY-CHR

```

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```

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  GC0712  /
1457  GC0712*>*****
1458  GC0712*> Display a message and halt the program                **

```

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```
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      /
```

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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	

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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	

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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	

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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		

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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-COMPILER-FAILED-BOOL	000487W	001220 001232				
WS-RS-COMPILER-OK-BOOL	000485W	000883 001213				
WS-RS-COMPILER-OK-CHR	000484W					
WS-RS-COMPILER-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				

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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	

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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-COMPILER-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				

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-COMPIL-E-OK-CHR	WS-RS-COMPIL-E-OK-BOOL
WS-RS-COMPIL-E-OK-CHR	WS-RS-COMPIL-E-OK-WARN-BOOL
WS-RS-COMPIL-E-OK-CHR	WS-RS-COMPIL-E-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

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

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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			

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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			

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	

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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

```

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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-FILERAMES-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

```

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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

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Symbols of Module: GCIC (GCIC)

Unreferenced Procedures

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

```

ACS Cobol Xref v2.02.04           Dictionary File for GCIC      06/03/2022 23:09:11:00  Page  45

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

```

```

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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

```

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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	

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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

```
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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
```

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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

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Symbols of Module: GCIC (CHECKSRC)

Functions	Defn	Locations
UPPER-CASE	001534I	

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Symbols of Module: GCIC (CHECKSRC)

Procedure Defn Locations
-----+-----

None		
------	--	--

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Symbols of Module: GCIC (CHECKSRC)

Unreferenced Working Storage Symbols

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

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Symbols of Module: GCIC (CHECKSRC)

Unreferenced Procedures

None

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```
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          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  
1629                  PIC X.
```

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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	88 WS-Curr-Char-Is-Quote-BOOL	VALUE '"', "'".
1666	88 WS-Curr-Char-Is-X-BOOL	VALUE 'x', 'X'.
1667	88 WS-Curr-Char-Is-Z-BOOL	VALUE 'z', 'Z'.
1668		
1669	01 WS-Curr-Division-TXT	PIC X(1).
1670	GC1010 88 WS-CD-In-IDENT-DIV-BOOL	VALUE 'i', 'I', '?'.
1671	88 WS-CD-In-ENV-DIV-BOOL	VALUE 'e', 'E'.
1672	88 WS-CD-In-DATA-DIV-BOOL	VALUE 'd', 'D'.
1673	88 WS-CD-In-PROC-DIV-BOOL	VALUE 'p', 'P'.
1674		
1675	01 WS-Curr-Line-NUM	PIC 9(6).
1676		
1677	01 WS-Curr-Prog-ID-TXT.	PIC X(12).
1678	05 FILLER	PIC X(3).
1679	05 WS-CPI-13-15-TXT	PIC X(1).
1680	05 WS-CPI-16-CHR	
1681		
1682	GC0712 05 WS-CPI-16-CHR	

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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		

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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 'FANNUTY	' 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).	

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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).

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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).	

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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).

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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).	

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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).	
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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 'MSWO	' 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).	

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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).	

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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).	

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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

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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		

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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 O 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:))

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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  GC1213      INSPECT L-Src-Fn-TXT REPLACING ALL '\' BY '/'
2667  GC1213      MOVE L-Src-Fn-TXT TO WS-Program-Path-TXT
2668  GC1213      CALL 'C$JUSTIFY' USING WS-Program-Path-TXT, 'Right'
2669  GC1213      MOVE LENGTH(TRIM(L-Src-Fn-TXT,Trailing)) TO WS-I-SUB
2670  GC1213      MOVE 0 TO WS-J-SUB
2671  GC1213      PERFORM UNTIL L-Src-Fn-TXT(WS-I-SUB:1) = '/'
2672  GC1213          OR WS-I-SUB = 0
2673  GC1213          SUBTRACT 1 FROM WS-I-SUB
2674  GC1213          ADD 1 TO WS-J-SUB
2675  GC1213      END-PERFORM
2676  GC1213      UNSTRING L-Src-Fn-TXT((WS-I-SUB + 1):WS-J-SUB)
2677  GC1213          DELIMITED BY '..'
2678  GC1213          INTO WS-Filename-TXT
2679  GC1213          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  GC1010      IF WS-Lines-Per-Page-Env-TXT NOT = SPACES
2691  GC1010          MOVE NUMVAL(WS-Lines-Per-Page-Env-TXT)
2692  GC1010          TO WS-Lines-Per-Page-NUM
2693  GC1010      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  GC1213      END-IF
2700  GC1213      SUBTRACT 3 FROM WS-Lines-Per-Page-NUM *-> FOR PAGE FOOTER
2701  GC1213      ACCEPT WS-Today-DT FROM DATE YYYYMMDD
2702  GC1213      MOVE WS-Today-DT TO WS-Formatted-DT
2703  GC1213      MOVE '????????????...'' TO WS-Curr-Prog-ID-TXT
2704  GC1213      MOVE SPACES TO WS-Curr-Verb-TXT
2705  GC1213          WS-Held-Reference-TXT
2706  GC1213      .
2707  GC1213      /
2708  GC1213      300-Tokenize-Source SECTION.
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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

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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

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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

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

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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

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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

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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

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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              IF WS-Token-Curr-TXT NOT = 'SUM'
3113                  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

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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

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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

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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'

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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

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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

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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

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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 O           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 O 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

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3519  GC0710      PERFORM 410-Generate-Report-Line
3520  GC0710      MOVE O 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)

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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  GC1213      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  GC1213          MOVE SPACES TO WS-Xref-Detail-Line-TXT
3614  GC1213          MOVE 0 TO WS-I-SUB
3615  GC1213          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)

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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)) =

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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          GC0712      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

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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

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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

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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

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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
```

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

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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

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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

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Symbols of Module: GCIC (LISTING)
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Data Section (WORKING-STORAGE)  Defn      Locations
-----+-----+
WS-TODAY-DT                    002551W   003736 003739 003743 003747
WS-TOKEN-CURR-TXT              002553W   002701 002702
                                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

```

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 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

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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

```

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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:
 - **ACCEPT FROM ENVIRONMENT** statement
 - **INSPECT** statement
 - **STRING** statement
- Using the following built-in subroutines:
 - **C\$PARAMSIZE** built-in system subroutine
 - **CBL_CLOSE_FILE** built-in system subroutine
 - **CBL_DELETE_FILE** built-in system subroutine
 - **CBL_EXIT_PROC** built-in system subroutine
 - **CBL_OPEN_FILE** built-in system subroutine
 - **CBL_READ_FILE** built-in system subroutine
 - **CBL_WRITE_FILE** built-in system subroutine
- Using the following intrinsic functions:
 - **RANDOM** intrinsic function
 - **TRIM** intrinsic function

First, here is the STREAMIOcb.cpy copybook:

```

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

```

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

GNU COBOL 2.1 23NOV2013 Source Listing 2014/03/27
 C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl
 Line Statement Page: 1
 =====

```

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

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

GNU COBOL 2.1 23NOV2013 Source Listing 2014/03/27
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 Line Statement Page: 2

```

Line Statement
=====
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        **
  
```

=====

GNU COBOL 2.1 23NOV2013 Source Listing 2014/03/27
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 Line Statement Page: 4

```

=====  

148    *> **  

149    *> This function invokes a standard CBL_READ_FILE against **  

150    *> the file specified in the control block (see **  

151    *> SCB-Filename-TXT). **  

152    *> **  

153    *> The buffer into which you wish to read data must be **  

154    *> supplied as "arg2". The size of that buffer, in bytes, **  

155    *> will define the "byte-count" value supplied to the **  

156    *> CBL_READ_FILE subroutine. The buffer data item will be **  

157    *> set to SPACES before the read takes place. **  

158    *> **  

159    *> If the file-offset value (SCB-Offset-NUM) is greater **  

160    *> than the size of the file, a "no more data" return code **  

161    *> (01) will be passed back in SCB-Return-CD and the **  

162    *> buffer will have been set to SPACES. **  

163    *> **  

164    *> At the conclusion of a successful SCB-Func-READ-BOOL, **  

165    *> the value of SCB-Offset-NUM will have been automati- **  

166    *> cally incremented by the byte-count size of "arg2". **  

167    *> **  

168    *> SCB-Func-WRITE-BOOL **  

169    *> **  

170    *> This function invokes a standard CBL_WRITE_FILE against **  

171    *> the file specified in the control block (see **  

172    *> SCB-Filename-TXT). **  

173    *> **  

174    *> The buffer from which data will be written to the file **  

175    *> must be supplied as "arg2". The size of that buffer, **  

176    *> in bytes, will define the "byte-count" value supplied **  

177    *> CBL_WRITE_FILE subroutine. The buffer data will be **  

178    *> written to the file-offset position defined by the **  

179    *> SCB-Offset-NUM value. You may specify "arg2" either **  

180    *> as an actual alphanumeric data item or as an alpha- **  

181    *> numeric literal. **  

182    *> **  

183    *> If the file-offset value (SCB-Offset-NUM) is greater **  

184    *> than the size of the file, a "no more data" return code **  

185    *> will be passed back in SCB-Return-CD and the buffer **  

186    *> will have been set to SPACES. **  

187    *> **  

188    *> At the conclusion of a successful SCB-Func-WRITE-BOOL **  

189    *> operation, the value of SCB-Offset-NUM will have been **  

190    *> automatically incremented by the byte-count size of **  

191    *> "arg2". **  

192    *> **  

193    *> SCB-Func-READ-Delim-BOOL **  

194    *> **  

195    *> SCB-Func-READ-Delim-BOOL bahaves like the SCB-FUNC- **  

196    *> READ function, with the following behavioral dif- **  

=====

```

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 Line Statement Page: 5

```

===== =====
197    *>      fferences:                      **
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    *>      Delimiter-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"**

```

=====
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```

===== =====
295   *> copybook.          **
296   *>          **
297   *>-----      **
298   *> SCB-Return-CD    **
299   *>-----      **
300   *>          **
301   *> The following are the possible SCB-Return-CD values. The    **
302   *> ones marked with a ">" will NOT trigger an error-routine, if **  

303   *> one is currently registered via SCB-Error-Routine-PTR.    **
304   *>          **
305   *> 12 I/O error writing to file      **
306   *> 11 File does not exist      **
307   *> 10 File already OPEN or already CLOSEd      **
308   *> > 02 READ-Delim was truncated      **
309   *> > 01 No more data is available from the current      **
310   *>     SCB-Offset-NUM      **
311   *> > 00 OK - the operation was successful      **
312   *> -1 Invalid SCB-Function-CD      **
313   *> -2 Invalid SCB-Mode-CD      **
314   *> -3 CBL_xxxxx(FILE routine rejected operation      **
315   *> -4 Invalid delimiter mode specified (Not U/W)      **
316   *>          **
317   *>-----      **
318   *> SCB-Filename-TXT      **
319   *>-----      **
320   *>          **
321   *> This is the name of the file you wish to access.      **
322   *>          **
323   *> If you are planning on reading the file, the file MUST exist **  

324   *> at the time the SCB-Func-OPEN-BOOL is executed.      **
325   *>          **
326   *> If you are planning on writing to the file, the file need      **
327   *> exist when the SCB-Func-OPEN-BOOL is issued.      **
328   *>          **
329   *> In general, the contents of SCB-Filename-TXT should re-      **
330   *> flect the complete path to the file as well as the name of      **
331   *> the file itself, unless the file is contained in whatever      **
332   *> directory is current at the time the SCB-Func-OPEN-BOOL is      **
333   *> executed.      **
334   *>          **
335   *> The following special values may be used for      **
336   *> SCB-Filename-TXT:      **
337   *>          **
338   *> SPACES If the filename is SPACES, a filename will be created **  

339   *> automatically for you in whatever directory is de-      **
340   *> fined by the TEMP environment variable. If there IS **  

341   *> no TEMP variable defined, the "/tmp" folder will be      **
342   *> assumed. The filename will be STREAMIO-nnnnnnnn.dat      **
343   *> where "nnnnnnnn" is a random number.      **

```

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```

=====
344      *>          **  

345      *> .    If you specify only a dot (period) as the filename, **  

346      *>       the behavior will be the same as with a value of **  

347      *>       SPACES except there will be no ".dat" at the end of **  

348      *>       the generated filename. **  

349      *>          **  

350      *> .ext   If you specify a filename extension prefixed with a **  

351      *>       dot (period), the behavior will be the same as if a **  

352      *>       value of SPACES were specified, except that the given **  

353      *>       extension will be used instead of ".dat". Note that **  

354      *>       if you are using a Unix/Cygwin implementation of **  

355      *>       OpenCOBOL and you'd like to specify a hidden file in **  

356      *>       the current directory as the SCB-Filename-TXT, you **  

357      *>       MUST code the filename as "./.xxxxx" to avoid having **  

358      *>       it treated as this special name. **  

359      *>          **  

360      *>*****  

361      ENVIRONMENT DIVISION.  

362      CONFIGURATION SECTION.  

363      REPOSITORY.  

364          FUNCTION ALL INTRINSIC.  

365      DATA DIVISION.  

366      WORKING-STORAGE SECTION.  

367          01 WS-Access-Mode-CD          PIC X(1) COMP-X.  

368          01 WS-Arg-Length-NUM        PIC X(4) COMP-X.  

369          01 WS-Buffer-TXT           PIC X(256).  

370          01 WS-Delim-Buffer-TXT     PIC X(2).  

371          01 WS-Env-Temp-TXT         PIC X(256).  

372          01 WS-Slash-CHR            PIC X(1).  

373          01 WS-Tally-NUM            USAGE BINARY-LONG.  

374          01 WS-8-Digit-NUM          PIC 9(8).  

375          01 WS-256-Byte-TXT         PIC X(256).  

376      LINKAGE SECTION.  

377          01 L-StreamIO-Control-Block-TXT.  

378          COPY STREAMIOcb  

379          REPLACING LEADING ==SCB--- BY ==L-SCB---.  

05 L-SCB-Handle-NUM PIC X(4) COMP-X.  

05 L-SCB-Mode-CD PIC X(1).  

88 L-SCB-MODE-Input-BOOL VALUE 'I' 'i'.  

88 L-SCB-MODE-Output-BOOL VALUE 'O' 'o'.  

88 L-SCB-MODE-Both-BOOL VALUE 'B' 'b'.  

05 L-SCB-Function-CD PIC X(2).  

88 L-SCB-Func-CLOSE-BOOL VALUE 'C' 'c'.  

88 L-SCB-Func-DELETE-BOOL VALUE 'D' 'd'.  

88 L-SCB-Func-OPEN-BOOL VALUE 'O' 'o'.  

88 L-SCB-Func-READ-BOOL VALUE 'R' 'r'.  

88 L-SCB-Func-READ-Delim-BOOL VALUE 'RD' 'rd'  

  'rD' 'Rd'.  

88 L-SCB-Func-WRITE-BOOL VALUE 'W' 'w'.  

=====
```

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```

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Line Statement
=====
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"ODOA" TO WS-Delim-Buffer-TXT
415                  WHEN OTHER
416                      MOVE -4 TO L-SCB-Return-CD
417                      PERFORM 099-ERROR-Return

=====
```

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```

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

```

=====
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```

467      ACCEPT WS-Env-Temp-TXT FROM ENVIRONMENT "TEMP"
468      EVALUATE TRUE
469          WHEN WS-Env-Temp-TXT (1:1) = "/"
470              MOVE "/"      TO WS-Slash-CHR
471          WHEN WS-Env-Temp-TXT (2:1) = ":" 
472              MOVE "\""     TO WS-Slash-CHR
473          WHEN OTHER
474              MOVE "/tmp"   TO WS-Env-Temp-TXT
475              MOVE "/"      TO WS-Slash-CHR
476      END-EVALUATE
477
478      099-ERROR-Return SECTION.
479      IF L-SCB-Error-Routine-NUM NOT = 0
480          CALL "CBL_EXIT_PROC" USING 0, L-SCB-Error-Routine-PTR
481          STOP RUN
482      END-IF
483      GOBACK
484
485      100-OPEN SECTION.
486      IF (L-SCB-Mode-Input-BOOL OR L-SCB-Mode-Both-BOOL)
487          AND (L-SCB-Filename-TXT = SPACES OR LOW-VALUES)
488          MOVE 11 TO L-SCB-Return-CD
489          PERFORM 099-ERROR-Return
490      END-IF
491      EVALUATE TRUE
492          WHEN L-SCB-Filename-TXT = SPACES OR LOW-VALUES
493              PERFORM 060-Identify-TEMP
494              MOVE SPACES TO L-SCB-Filename-TXT
495              COMPUTE
496                  WS-8-Digit-NUM =
497                  RANDOM(SECONDS-PAST-MIDNIGHT) * 100000000
498              END-COMPUTE
499              STRING
500                  TRIM(WS-Env-Temp-TXT,.TRAILINGING)
501                  WS-Slash-CHR
502                  "STREAMIO-"
503                  WS-8-Digit-NUM
504                  ".dat"
505                  DELIMITED BY SIZE
506                  INTO L-SCB-Filename-TXT
507          WHEN L-SCB-Filename-TXT(1:1) = "."
508              PERFORM 060-Identify-TEMP
509              IF L-SCB-Filename-TXT(2:1) = SPACE
510                  MOVE SPACES TO WS-256-Byte-TXT
511              ELSE
512                  MOVE L-SCB-Filename-TXT TO WS-256-Byte-TXT
513              END-IF
514              MOVE SPACES TO L-SCB-Filename-TXT
515              COMPUTE WS-8-Digit-NUM =

```

=====

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```

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

```

===== =====

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```

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

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```

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
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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*
=====	=====	=====	=====	=====	=====	=====

GNU COBOL 2.1 23NOV2013 Cross-Reference Listing C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl					2014/03/27
PROGRAM-ID	Identifier/Register/Function	Defn	Where Defined	References	Page: 16
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		
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