

# **GnuCOBOL Sample Programs**

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For Version 3.2 - Final [22 August 2025 at 17:30 GMT.], for 3.3 and 4.0 (partial & tentative only).

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This manual documents GnuCOBOL 3.2 - Final, 22 August 2025 at 17:30 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	USAGE BINARY-LONG.
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	.

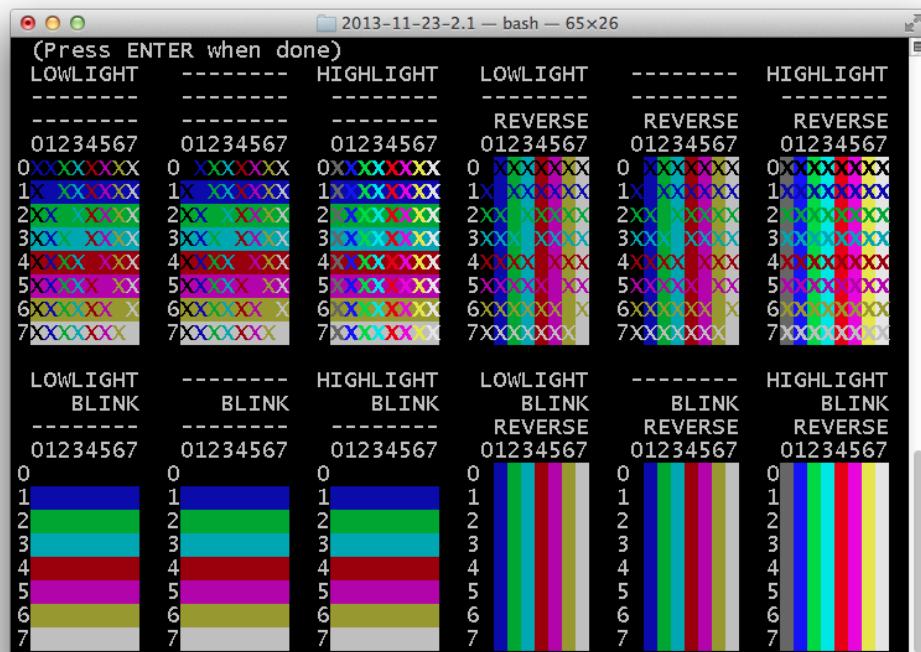
GNU COBOL 2.1 23NOV2013 Cross-Reference Listing					2014/03/27
			C:/Users/tda010/Documents/Programs/Samples/COBDUMP.cbl		
PROGRAM-ID	Identifier/Register/Function	Defn	Where Defined	References	Page: 5
=====	=====	=====	=====	=====	=====
COBDUMP	000-Main	116 PROCEDURE			
COBDUMP	100-Generate-Address	161 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          '.
26 05 LINE + 1.
27 10 COL 1 VALUE '5          5          5          5          5          5          '.
28 05 LINE + 1.
29 10 COL 1 VALUE '6          6          6          6          6          6          '.
30 05 LINE + 1.
31 10 COL 1 VALUE '7          7          7          7          7          7          '.
32 05 LINE + 1.
33 10 COL 1 VALUE 'LOWLIGHT ----- HIGHLIGHT LOWLIGHT ----- HIGHLIGHT'.
34 05 LINE + 1.
35 10 COL 1 VALUE '     BLINK     BLINK     BLINK     BLINK     BLINK     BLINK'.
36 05 LINE + 1.
37 10 COL 1 VALUE '----- ----- ----- REVERSE REVERSE REVERSE'.
38 05 LINE + 1.
39 10 COL 1 VALUE '01234567 01234567 01234567 01234567 01234567 01234567'.
40 05 LINE + 1.
41 10 COL 1 VALUE '0          0          0          0          0          0          '.
42 05 LINE + 1.
43 10 COL 1 VALUE '1          1          1          1          1          1          '.
44 05 LINE + 1.
45 10 COL 1 VALUE '2          2          2          2          2          2          '.
46 05 LINE + 1.
47 10 COL 1 VALUE '3    7    3    8    3    9    3    10   3    11   3    12   '.
48 05 LINE + 1.
49 10 COL 1 VALUE '4          4          4          4          4          4          '.
50 05 LINE + 1.
51 10 COL 1 VALUE '5          5          5          5          5          5          '.
52 05 LINE + 1.
53 10 COL 1 VALUE '6          6          6          6          6          6          '.
54 05 LINE + 1.

```

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

```

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

```

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

```

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

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

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

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

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

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

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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'.

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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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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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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'.

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```
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)

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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)

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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 yyymmdd       **  

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

=====

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

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## 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

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

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

The screenshot shows a Windows application window titled "GNU COBOL Compiler". The title bar also displays "GCic (2013/12/26 10:16) GNU COBOL 2.1 23NOV2013 Interactive Compilation". Inside the window, there is a configuration panel with the following details:

- Filename:** mathtest.cbl
- Folder:** E:\Programs\Samples

A message at the top says: "Set/clr Switches Via F1-F9; Set Config Via F12; ENTER Key Compiles; ESC Quits". Below this are function key definitions:

F1 Assume WITH DEBUGGING MODE	F6 >"FUNCTION" Is Optional
F2 Procedure+Statement Trace	F7 >Enable All Warnings
F3 Make a Library (DLL)	F8 Source Is Free-Format
F4 Execute If Compilation OK	F9 >No COMP/BINARY Truncation
F5 Produce Full Listing	

To the right of the function keys, it says "Current Config: DEFAULT".

Below the function key definitions, there are two sections for extra switches and program execution arguments, each with three empty lines for input.

At the bottom of the window, a red banner displays the copyright notice: "GCic for Windows/MinGW Copyright (C) 2009-2013, Gary L. Cutler, GPL".

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  *>*****<
73  *>      >NOTE<  >NOTE<  >NOTE<  >NOTE<  >NOTE<  >NOTE<    **
74  *>          **<
75  *>      If this program is compiled with '-fdebugging-line', you    **
76  *>      will need to pipe SYSERR to a text file when executing GCic  **
77  *>      (by adding the text '2> filename' to the end of the GCic    **
78  *>      command). You may also need to press the ENTER key when    **
79  *>      GCic is finished.                                         **
80  *>*****<
81  *>      This program provides a Textual User Interface (TUI) to the  **
82  *>      process of compiling and (optionally) executing a GNU COBOL  **
83  *>      program.                                              **
84  *>          **<
85  *>      This programs execution syntax is as follows:             **
86  *>          **<
87  *>      GCic <program-path-and-filename> [ <switch>... ]          **
88  *>          **<
89  *>      Once executed, a display screen will be presented showing   **
90  *>      the compilation options that will be used. The user will    **
91  *>      have the opportunity to change options, specify new ones   **
92  *>      and specify any program execution arguments to be used if  **
93  *>      you select the 'Execute' option. When you press the Enter   **
94  *>      key the program will be compiled.                            **
95  *>          **<
96  *>      The SCREEN SECTION contains an image of the screen.        **
97  *>          **<
98  *>      The '010-Parse-Args' section in the PROCEDURE DIVISION has  **
99  *>      documentation on switches and their function.               **
100 *>*****<
101 *>          **<
102 *>      AUTHOR:      GARY L. CUTLER                           **
103 *>              Copyright (C) 2009-2018, Gary L. Cutler, GPL  **
104 *>      Updated by   Vincent B Coen, 2018-2020+.            **
105 *>          **<
106 *>      DATE-WRITTEN: June 14, 2009                         **
107 *>          **<
108 *>*****<

```

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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 instrinsic=all with                **
176      *> VBC intrinstics=ALL. Changed mod detail units 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.*****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                                                                                /
196                                                                                SELECT F-Source-Code-FILE     ASSIGN TO WS-File-Name-TXT
197                                                                                ORGANIZATION IS LINE SEQUENTIAL
198                                                                                FILE STATUS IS WS-FSM-Status-CD.
199                                                                                /
200                                                                                DATA DIVISION.
201                                                                                FILE SECTION.
202                                                                                FD F-Cobc-Output-FILE.
203                                                                                01 F-Cobc-Output-REC     PIC X(256).
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.	OCCURS 256 TIMES		
400 05	WS-FN-CHR	PIC X(1).		
401				
402				
403 01	WS-File-Status-Message-TXT.	PIC X(13).		
404 05	VALUE 'Status Code: '	PIC 9(2).		
405 05	WS-FSM-Status-CD	PIC X(11).		
406 05	VALUE ', Meaning: '	PIC X(25).		
407 05	WS-FSM-Msg-TXT			
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
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 ("<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      *gt;
600      *gt; GENERAL SCREEN FRAMEWORK
601      *gt;
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           05           COL 80          VALUE LD-UR-Corner.
653
654 GC0712      05 LINE 16 COL 01          VALUE LD-Vert-Line.
655           05           COL 80          VALUE LD-Vert-Line.
656
657 GC0712      05 LINE 17 COL 01          VALUE LD-Vert-Line.
658           05           COL 80          VALUE LD-Vert-Line.
659
660 GC0712      05 LINE 18 COL 01          VALUE LD-LL-Corner.
661 GC0712      05           COL 02 PIC X(78) FROM WS-Horizontal-Line-TXT.
662           05           COL 80          VALUE LD-LR-Corner.
663
664 GC0712      05 LINE 20 COL 01          VALUE LD-UL-Corner.
665 GC0712      05           COL 02 PIC X(78) FROM WS-Horizontal-Line-TXT.
666           05           COL 80          VALUE LD-UR-Corner.
667
668 GC0712      05 LINE 21 COL 01          VALUE LD-Vert-Line.
669           05           COL 80          VALUE LD-Vert-Line.
670
671 GC0712      05 LINE 22 COL 01          VALUE LD-Vert-Line.
672           05           COL 80          VALUE LD-Vert-Line.
673
674 GC0712      05 LINE 23 COL 01          VALUE LD-LL-Corner.
675 GC0712      05           COL 02 PIC X(78) FROM WS-Horizontal-Line-TXT.
676           05           COL 80          VALUE LD-LR-Corner.
677      *>
678      *> TOP AND BOTTOM LINES
679      *>
680 GC0712      03 BACKGROUND-COLOR COB-COLOR-BLUE
681           FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
682 GC0410      05 LINE 01 COL 01 VALUE 'GCic ('.
683 GC0410      05           COL 08 PIC X(16) FROM WS-OC-Compile-DT.
684 GC1213      05           COL 24 VALUE ')' GNUCOBOL 3.1.2 06MAR2022 ' &
685 GC0410           'Interactive Compilation '.
686 VC0617      03 BACKGROUND-COLOR COB-COLOR-RED
687 GC0712      05           FOREGROUND-COLOR COB-COLOR-WHITE HIGHLIGHT.
688 GC0712      05 LINE 24 COL 01 PIC X(80) FROM WS-Output-Msg-TXT.
689      *>
690      *> LABELS
691      *>
692      03 BACKGROUND-COLOR COB-COLOR-BLACK
693           FOREGROUND-COLOR COB-COLOR-CYAN HIGHLIGHT.
694 GC0712      05 LINE 06 COL 02 VALUE 'Set/Clr Switches Via F1-F9; ' &
695           'Set Config Via F12; Enter Key ' &
696           'Compiles; Esc Quits'.
697 GC0712      05 LINE 14 COL 02 VALUE 'Extra "cdbc" Switches, If Any ' &
698           '("-save-temp=xxx" Prevents ' &
699           'Listings)'.
700 GC0712      05 LINE 19 COL 02 VALUE 'Program Execution Arguments, ' &
701           '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        *gt;
710        *> TOP SECTION BACKGROUND
711        *gt;
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        *gt;
725        *> TOP SECTION PROGRAM INFO
726        *gt;
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        *gt;
732        *> MIDDLE LEFT SECTION F-KEYS
733        *gt;
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        *gt;
747        *> MIDDLE LEFT SECTION SWITCHES
748        *gt;
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 *>*****
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 IF WS-File-Name-TXT = SPACES
942 GC0712   DISPLAY 'No program filename was specified'
943 PERFORM 900-Terminate
944 * ----- Control will NOT return
945 END-IF
946 *>*****  

947 *> Determine if 'Make A Library' feature should be forced 'ON' **
948 *>*****  

949 PERFORM 240-Find-LINKAGE-SECTION
950 *>*****  

951 *> Split 'WS-File-Name-TXT' into 'WS-Prog-Folder-TXT' and      **
952 *> 'WS-Prog-File-Name-TXT'                                **
953 *>*****  

954 GC0909   IF WS-OS-Cygwin-BOOL AND WS-File-Name-TXT (2:1) = ':'
955 GC0712       MOVE '\' TO WS-OS-Dir-CHR
956 GC0909   END-IF
957 GC0712   MOVE LENGTH(WS-File-Name-TXT) TO WS-I-SUB
958 GC0712   PERFORM UNTIL WS-I-SUB = 0
959 GC0712   OR WS-FN-CHR (WS-I-SUB) = WS-OS-Dir-CHR
960     SUBTRACT 1 FROM WS-I-SUB
961 END-PERFORM
962 IF WS-I-SUB = 0
963     MOVE SPACES TO WS-Prog-Folder-TXT
964     MOVE WS-File-Name-TXT TO WS-Prog-File-Name-TXT
965 ELSE
966     MOVE '*' TO WS-FN-CHR (WS-I-SUB)
967     UNSTRING WS-File-Name-TXT DELIMITED BY '*',
968         INTO WS-Prog-Folder-TXT
969         WS-Prog-File-Name-TXT
970 GC0712     MOVE WS-OS-Dir-CHR TO WS-FN-CHR (WS-I-SUB)
971 END-IF
972 IF WS-Prog-Folder-TXT = SPACES

```

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

```

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

```

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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-temp' 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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Symbols of Module: GCIC (GCIC)

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

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<hr/>		
Data Section (WORKING-STORAGE)	Defn	Locations
<hr/>		
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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<hr/>			
Data Section (WORKING-STORAGE)	Defn	Locations	
<hr/>			
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	000249W 001056		
COB-SCR-F51	000294W		
COB-SCR-F52	000295W		
COB-SCR-F53	000296W		
COB-SCR-F54	000297W		
COB-SCR-F55	000298W		
COB-SCR-F56	000299W		
COB-SCR-F57	000300W		
COB-SCR-F58	000301W		
COB-SCR-F59	000302W		
COB-SCR-F60	000303W		
COB-SCR-F61	000250W 001061		
COB-SCR-F62	000304W		
COB-SCR-F63	000305W		
COB-SCR-F64	000306W		
COB-SCR-F65	000307W		
COB-SCR-F66	000308W		
COB-SCR-F67	000309W		
COB-SCR-F68	000251W 001067		
COB-SCR-F69	000252W 001073		
COB-SCR-F70	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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<hr/>		
Data Section (WORKING-STORAGE)	Defn	Locations
<hr/>		
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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<hr/>			
Data Section (WORKING-STORAGE)	Defn	Locations	
<hr/>			
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-COMPILER-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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<hr/>			
Data Section (WORKING-STORAGE)	Defn	Locations	
<hr/>			
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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<b>Data Section (SCREEN)</b>	<b>Defn</b>	<b>Locations</b>
COB-COLOR-BLACK	000597S	000602 000692 000702 000712 000717 000727 000734 000749 000764 000780 000787 000794
COB-COLOR-BLUE	000680S	
COB-COLOR-CYAN	000693S	
COB-COLOR-GREEN	000603S	000718 000765 000781
COB-COLOR-RED	000686S	000750
COB-COLOR-WHITE	000598S	000681 000687 000703 000713 000728 000735 000788 000795
LD-HORIZ-LINE	000573S	000582 000591 001003
LD-LL-CORNER	000568S	000577 000586 000614 000644 000660 000674
LD-LOWER-T	000572S	000581 000590 000646
LD-LR-CORNER	000570S	000579 000588 000616 000648 000662 000676
LD-UL-CORNER	000567S	000576 000585 000604 000618 000650 000664
LD-UPPER-T	000571S	000580 000589 000620
LD-UR-CORNER	000569S	000578 000587 000606 000622 000652 000666
LD-VERT-LINE	000574S	000583 000592 000608 000609 000611 000612 000624 000625 000626 000628 000629 000630 000632 000633 000634 000636 000637 000638 000640 000641 000642 000654 000655 000657 000658 000668 000669 000671 000672
S-BLANK-SCR	000595S	000885 001436 001465
S-SWITCHES-SCR	000597S	001029 001110 001200 001229 001244 001265 001276 001462
WS-CS-ARG-H1-TXT	000798S	
WS-CS-ARG-H2-TXT	000799S	
WS-CS-DEBUG-CHR	000751S	001033 001034 001036 001132
WS-CS-EXECUTE-CHR	000754S	000888 001051 001052 001054
WS-CS-EXTRA-H1-TXT	000796S	
WS-CS-EXTRA-H2-TXT	000797S	
WS-CS-Filename-TXT	000790S	001112
WS-CS-FREE-CHR	000759S	001074 001075 001077 001157
WS-CS-LIBRARY-CHR	000753S	001045 001046 001048 001123 001283 001338 001377 001404
WS-CS-LISTING-CHR	000755S	000884 001021 001024 001027 001170 001172 001174
WS-CS-NOFUNC-CHR	000757S	001062 001063 001065 001147
WS-CS-NOTRUNC-CHR	000760S	001080 001081 001083 001137
WS-CS-TRACEALL-CHR	000752S	001039 001040 001042 001142
WS-CS-WARNALL-CHR	000758S	001068 001069 001071 001152
WS-HORIZONTAL-LINE-TXT	000605S	000615 000619 000621 000645 000647 000651 000661 000665 000675 001003
WS-LISTING-TXT	000771S	001020 001023 001026
WS-OC-COMPILE-DT	000683S	000911 000912
WS-OS-LIB-TYPE-CONST	000769S	
WS-OUTPUT-MSG-TXT	000688S	000861 001008 001095 001109 001199 001214 001215 001223 001231 001243 001249 001258 001263 001275 001366 001367 001461
WS-PROG-FILE-NAME-TXT	000729S	000964 000969 000985 000991 000995 001187
WS-PROG-FOLDER-TXT	000730S	000963 000968 000972 000973 000976 001292 001293 001297 001302 001303 001308 001314

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

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<hr/>				
Variable Tested	Symbol (88-Conditions) [S]			
<hr/>				
WS-OS-TYPE-CD	WS-OS-CYGIN-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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-----				
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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-----  
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)				
<hr/>				
Unreferenced Working Storage Symbols				
COB-SCR-F55	000299W			
COB-SCR-F56	000300W			
COB-SCR-F57	000301W			
COB-SCR-F58	000302W			
COB-SCR-F59	000303W			
COB-SCR-F60	000304W			
COB-SCR-F61	000305W			
COB-SCR-F62	000306W			
COB-SCR-F63	000307W			
COB-SCR-F64	000308W			
COB-SCR-FATAL	000335W			
COB-SCR-INSERT	000326W			
COB-SCR-KEY-DOWN	000316W			
COB-SCR-KEY-END	000330W			
COB-SCR-KEY-HOME	000329W			
COB-SCR-KEY-LEFT	000322W			
COB-SCR-KEY-RIGHT	000323W			
COB-SCR-KEY-UP	000314W			
COB-SCR-KEY_DOWN	000317W			
COB-SCR-KEY_UP	000315W			
COB-SCR-MAX-FIELD	000336W			
COB-SCR-NO-FIELD	000332W			
COB-SCR-OK	000243W			
COB-SCR-PAGE-DOWN	000312W			
COB-SCR-PAGE-UP	000310W			
COB-SCR-PAGE_DOWN	000313W			
COB-SCR-PAGE_UP	000311W			
COB-SCR-PRINT	000319W			
COB-SCR-TAB	000320W			
COB-SCR-TIME-OUT	000333W			
E4	001364C			
F1	000364W			
F12	000358W			
F2	000371W			
F3	000367W			
F4	000365W			
F6	000369W			
F7	000372W			
F8	000366W			
F9	000370W			
LISTING	001250C			
WS-COMPILATION-SWITCHES-TXT	000338W			
WS-CS-FILENAMES-TABLE-TXT	000350W			
WS-DELETE-FN-TXT	000397W			
WS-FILE-STATUS-MESSAGE-TXT	000403W			
WS-OS-TYPES-TXT	000465W			
WS-PATH-DELIMITER-CHR	000471W			
WS-RS-COMPILE-OK-CHR	000484W			
WS-RS-COMPLETE-CHR	000488W			
WS-RS-IDENT-DIV-CHR	000493W			
WS-RS-NO-SWITCH-CHGS-CHR	000496W			

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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

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```

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

```

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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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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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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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---

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)

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Functions	Defn	Locations
UPPER-CASE		001534I

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Symbols of Module: GCIC (CHECKSRC)

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

None

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Symbols of Module: GCIC (CHECKSRC)

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Unreferenced Working Storage Symbols

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

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Symbols of Module: GCIC (CHECKSRC)

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Unreferenced Procedures

None

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1575      IDENTIFICATION DIVISION.
1576      PROGRAM-ID. LISTING.
1577      *>***** This subprogram generates a cross-reference listing of an ***
1578      *> GNU COBOL program.                                           ***
1579      *>*****                                                 ***
1580      *>                                                 ***
1581      *>                                                 ***
1582      *> AUTHOR:      GARY L. CUTLER                           ***
1583      *>                  Copyright (C) 2010, Gary L. Cutler, GPL   ***
1584      *>                                                 ***
1585      *> DATE-WRITTEN: April 1, 2010                         ***
1586      *>                                                 ***
1587      *>***** DATE CHANGE DESCRIPTION                         ***
1588      *>*****                                                 ***
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      *>***** ENVIRONMENT DIVISION.
1611      ENVIRONMENT DIVISION.
1612      CONFIGURATION SECTION.
1613      REPOSITORY.
1614      FUNCTION ALL INTRINSIC.
1615      INPUT-OUTPUT SECTION.
1616      FILE-CONTROL.
1617      SELECT F-Expanded-Src-FILE  ASSIGN TO WS-Expanded-Src-Fn-TXT
1618                                ORGANIZATION IS LINE SEQUENTIAL.
1619      GC0712      SELECT F-Listing-FILE      ASSIGN TO L-Listing-Fn-TXT
1620                                ORGANIZATION IS LINE SEQUENTIAL.
1621      SELECT F-Original-Src-FILE  ASSIGN TO L-Src-Fn-TXT
1622                                ORGANIZATION IS LINE SEQUENTIAL.
1623      SELECT F-Sort-Work-FILE   ASSIGN TO DISK.
1624      DATA DIVISION.
1625      FILE SECTION.
1626      FD  F-Expanded-Src-FILE.
1627      01  F-Expanded-Src-REC.
1628          05 F-ES-1-CHR                               PIC X.

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

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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 'FANNUNITY	' 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).	
1847	GC0711 05 VALUE 'CLASSIFICATION	' PIC X(33). UNIMPLEMENTED	
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)..
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2146                05 VALUE ' MEMORY	', PIC X(33).	
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2148                05 VALUE ' MESSAGE	', PIC X(33).	OBSOLETE
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2224        05 VALUE 'PARAGRAPH	' PIC X(33).	
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2229        05 VALUE 'KPIC	' PIC X(33).	
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2234        05 VALUE 'POSITIVE	' PIC X(33).	
2235        05 VALUE 'PREFIXED	' PIC X(33).      UNIMPLEMENTED	
2236        05 VALUE 'PRESENT	' PIC X(33).	
2237 GC1213    05 VALUE 'FPRESENT-VALUE	' PIC X(33).	
2238        05 VALUE 'PREVIOUS	' PIC X(33).	
2239        05 VALUE 'MPRINTER	' PIC X(33).	
2240        05 VALUE 'PRINTING	' PIC X(33).	
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2251        05 VALUE 'PROTOTYPE	' PIC X(33).      UNIMPLEMENTED	
2252        05 VALUE 'PURGE	' PIC X(33).      OBSOLETE	
2253        05 VALUE 'QUEUE	' PIC X(33).      OBSOLETE	
2254        05 VALUE 'QUOTE	' PIC X(33).	
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2261        05 VALUE 'VREAD	' PIC X(33).	
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2264        05 VALUE 'RECORD	' PIC X(33).	
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2276        05 VALUE 'REMAINDER	' PIC X(33).	

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

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

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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	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	05 VALUE 'FTEST-DATE-YYYYMMDD	' PIC X(33)..
2428	05 VALUE 'FTEST-DAY-YYYYDDD	' PIC X(33)..
2429	05 VALUE 'FTEST-FORMATTED-DATETIME	' PIC X(33). UNIMPLEMENTED
2430	05 VALUE 'FTEST-NUMVAL	' PIC X(33)..
2431	05 VALUE 'FTEST-NUMVAL-C	' PIC X(33)..
2432	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           INSPECT L-Src-Fn-TXT REPLACING ALL '\' BY '/'
2667           MOVE L-Src-Fn-TXT TO WS-Program-Path-TXT
2668           CALL 'C$JUSTIFY' USING WS-Program-Path-TXT, 'Right'
2669           MOVE LENGTH(TRIM(L-Src-Fn-TXT,Trailing)) TO WS-I-SUB
2670           MOVE 0 TO WS-J-SUB
2671           PERFORM UNTIL L-Src-Fn-TXT(WS-I-SUB:1) = '/'
2672                 OR WS-I-SUB = 0
2673                 SUBTRACT 1 FROM WS-I-SUB
2674                 ADD 1 TO WS-J-SUB
2675           END-PERFORM
2676           UNSTRING L-Src-Fn-TXT((WS-I-SUB + 1):WS-J-SUB)
2677                 DELIMITED BY '.'
2678                 INTO WS-Filename-TXT
2679                 WS-Dummy-TXT
2680 GC1010      STRING
2681 GC1010      TRIM(WS-Filename-TXT,Trailing)
2682 GC1010      '.i'
2683 GC1010      DELIMITED SIZE
2684 GC1010      INTO WS-Expanded-Src-Fn-TXT
2685 GC1010      CALL 'CBL_CHECK_FILE_EXIST' USING WS-Expanded-Src-Fn-TXT
2686 GC1010      WS-Temp-256-Chars-TXT
2687 GC1010      IF RETURN-CODE NOT = 0
2688 GC1010      GOBACK
2689 GC1010      END-IF
2690           IF WS-Lines-Per-Page-Env-TXT NOT = SPACES
2691             MOVE NUMVAL(WS-Lines-Per-Page-Env-TXT)
2692             TO WS-Lines-Per-Page-NUM
2693           ELSE
2694             GC1213     IF L-LISTING-CD = 1 *> LANDSCAPE
2695               GC1213     MOVE L-LPP-NUM TO WS-Lines-Per-Page-NUM
2696               GC1213     ELSE          *> PORTRAIT
2697               GC1213     MOVE L-LPP-Port-NUM TO WS-Lines-Per-Page-NUM
2698               GC1213     END-IF
2699             END-IF
2700             GC1213     SUBTRACT 3 FROM WS-Lines-Per-Page-NUM *> FOR PAGE FOOTER
2701             ACCEPT WS-Today-DT FROM DATE YYYYMMDD
2702             GC1213     MOVE WS-Today-DT TO WS-Formatted-DT
2703             MOVE '?????????????' TO WS-Curr-Prog-ID-TXT
2704             MOVE SPACES          TO WS-Curr-Verb-TXT
2705             WS-Held-Reference-TXT
2706             .
2707             /
2708           300-Tokenize-Source SECTION.

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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-Been-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
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
2993           EXIT SECTION
2994 GC0711
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
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
3001 MOVE O 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
3010 GC0711      IF WS-Tally-QTY = 1
3011 GC0711          INSPECT WS-Temp-32-Chars-3-TXT REPLACING ALL '.' BY SPACE
3012 GC0711
3013 IF WS-Temp-32-Chars-2-TXT = SPACES AND WS-Temp-32-Chars-3-TXT = SPACES
3014           SET WS-TT-Token-Is-Lit-Number-BOOL TO TRUE
3015           EXIT SECTION
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
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
3027   EXIT SECTION
3028 END-IF
3029 GC0712      IF WS-Token-Prev-TXT = 'PROGRAM-ID' OR 'FUNCTION-ID'
3030 MOVE SPACES TO WS-Token-Prev-TXT
3031 GC0712      MOVE WS-Token-Curr-TXT TO WS-Curr-Prog-ID-TXT
3032 GC0712      IF WS-CPI-16-CHR NOT = SPACES
3033           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  GC1213      IF WS-Token-Curr-TXT NOT = 'SUM'
3113  GC1213      PERFORM 361-Release-Ref
3114  GC1213      END-IF
3115          END-EVALUATE
3116          EXIT SECTION
3117      END-IF
3118      .
3119      /
3120      350-PROCEDURE-DIVISION SECTION.
3121          IF WS-Curr-Section-TXT NOT = 'PROCEDURE'
3122              MOVE 'PROCEDURE' TO WS-Curr-Section-TXT
3123          END-IF
3124  GC0710      IF WS-Token-Curr-Uc-TXT = 'PROGRAM'
3125  GC0710      AND WS-Token-Prev-TXT = 'END'
3126  GC0710      MOVE '??' TO WS-Curr-Division-TXT
3127  GC0710      EXIT SECTION
3128  GC0710      END-IF
3129          IF WS-TT-Token-Is-Keyword-BOOL
3130          AND WS-Token-Curr-TXT = 'DIVISION'
3131              MOVE WS-Token-Prev-TXT TO WS-Curr-Division-TXT
3132          EXIT SECTION
3133      END-IF
3134  GC0313      IF WS-TT-Token-Is-Identifier-BOOL
3135  GC0313      AND WS-Token-Prev-TXT = SPACES
3136  GC0313      AND WS-Curr-Verb-TXT = SPACES
3137  GC0313*> ---- Definition of a Paragraph or Section
3138  GC0313      PERFORM 360-Release-Def
3139  GC0313      MOVE SPACES TO WS-Token-Prev-TXT
3140  GC0313      EXIT SECTION

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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 0          TO WS-I-SUB
3475          .               WS-Lines-Left-NUM
3476  GC0710    MOVE 'N'          TO WS-RS-Duplicate-CHR
3477    PERFORM FOREVER
3478          RETURN F-Sort-Work-FILE AT END
3479  GC1213    IF WS-Xref-Detail-Line-TXT NOT = SPACES
3480  GC1213    .               PERFORM 410-Generate-Report-Line
3481  GC1213    END-IF
3482  GC1213    MOVE SPACES TO WS-Xref-Detail-Line-TXT
3483  GC1213    PERFORM 410-Generate-Report-Line
3484  GC1213    .               UNTIL WS-Lines-Left-NUM = 0
3485  GC1213    MOVE 'Y' TO WS-Suppress-FF-CHR
3486  GC1213    PERFORM 420-Generate-Xref-Footer
3487    EXIT PERFORM
3488
3489    END-RETURN
3490    IF F-SW-Prog-ID-TXT NOT = WS-GI-Prog-ID-TXT
3491  GC0710    OR F-SW-Token-Uc-TXT NOT = WS-GI-Token-TXT
3492          MOVE 'N' TO WS-RS-Duplicate-CHR
3493          IF WS-Xref-Detail-Line-TXT NOT = SPACES
3494          .               PERFORM 410-Generate-Report-Line
3495          END-IF
3496  GC1213    IF F-SW-Prog-ID-TXT NOT = WS-GI-Prog-ID-TXT
3497  GC1213    .               MOVE SPACES TO WS-Xref-Detail-Line-TXT
3498  GC1213    PERFORM 410-Generate-Report-Line
3499          .               UNTIL WS-Lines-Left-NUM = 0
3500
3501    MOVE F-SW-Prog-ID-TXT TO WS-GI-Prog-ID-TXT
3502    MOVE F-SW-Token-Uc-TXT TO WS-GI-Token-TXT
3503  GC0710    END-IF
3504  GC0710    IF F-SW-Token-Uc-TXT = WS-GI-Token-TXT
3505  GC0710    AND F-SW-Def-Line-NUM NOT = SPACES
3506  GC0710    AND WS-Xref-Detail-Line-TXT NOT = SPACES
3507  GC0710    MOVE 'Y' TO WS-RS-Duplicate-CHR
3508  GC0710    PERFORM 410-Generate-Report-Line
3509  GC0710    MOVE O TO WS-I-SUB
3510  GC0710    MOVE F-SW-Prog-ID-TXT TO WS-XDL-Prog-ID-TXT
3511  GC0710    MOVE ' (Duplicate Definition)' TO WS-XDL-Token-TXT
3512  GC0710    MOVE F-SW-Section-TXT TO WS-XDL-Section-TXT
3513  GC0710    MOVE F-SW-Def-Line-NUM TO WS-XDL-Def-Line-NUM
3514  GC0710    EXIT PERFORM CYCLE
3515  GC0710    END-IF
3516  GC0710    IF F-SW-Token-Uc-TXT = WS-GI-Token-TXT
3517  GC0710    AND F-SW-Def-Line-NUM = SPACES
3518  GC0710    AND WS-RS-Duplicate-CHR = 'Y'
3519  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                                                 END-IF
3606 GC1213                                         IF L-Listing-CD = 1 *> LANDSCAPE
3607 GC1213                                         WRITE F-Listing-135-REC FROM WS-Xref-Detail-Line-TXT
3608 GC1213                                         BEFORE 1
3609 GC1213                                         ELSE                                         *> PORTRAIT
3610 GC1213                                         WRITE F-Listing-96-REC FROM WS-Xref-Detail-Line-TXT
3611 GC1213                                         BEFORE 1
3612 GC1213                                         END-IF
3613                                                 MOVE SPACES TO WS-Xref-Detail-Line-TXT
3614                                                 MOVE 0 TO WS-I-SUB
3615                                                 SUBTRACT 1 FROM WS-Lines-Left-NUM
3616 .
3617 GC1213 420-Generate-Xref-Footer SECTION.
3618 GC1213                                         IF L-Listing-CD = 1 *> LANDSCAPE
3619 GC1213                                         WRITE F-Listing-135-REC FROM SPACES BEFORE 1 *> Footer Line #1
3620 GC1213                                         MOVE ALL '='
3621 GC1213                                         TO F-Listing-135-REC
3622 GC1213                                         WRITE F-Listing-135-REC BEFORE 1 *> Footer Line #2
3623 GC1213                                         MOVE WS-Copyright-TXT
3624 GC1213                                         TO F-Listing-135-REC
3625 GC1213                                         MOVE WS-Page-No-TXT
3626 GC1213                                         TO F-Listing-135-REC(126:10)

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

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 Symbols of Module: GCIC (LISTING)

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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

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 Symbols of Module: GCIC (LISTING)

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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

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 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

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 Symbols of Module: GCIC (LISTING)

Called Procedures	Type	Locations
-------------------	------	-----------

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

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

COMP-VERS	002641P	
COMP-YEAR	002635P	

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-----  
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

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

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

```
=====
50      *> The control block format is as follows. This structure must **
51      *> be defined under an 01-level data item of your creation and   **
52      *> should be INITIALIZED before any items within it are used.   **
53      *>
54      *> 05 SCB-Handle-NUM          PIC X(4) COMP-X.                **
55      *> 05 SCB-Mode-CD           PIC X(1).                  **
56      *>    88 SCB-Mode-Input-BOOL  VALUE 'I', 'i'.                **
57      *>    88 SCB-Mode-Output-BOOL  VALUE 'O', 'o'.                **
58      *>    88 SCB-Mode-Both-BOOL   VALUE 'B', 'b'.                **
59      *> 05 SCB-Function-CD        PIC X(2).                  **
60      *>    88 SCB-Func-CLOSE-BOOL  VALUE 'C', 'c'.                **
61      *>    88 SCB-Func-DELETE-BOOL  VALUE 'D', 'd'.                **
62      *>    88 SCB-Func-OPEN-BOOL   VALUE 'O', 'o'.                **
63      *>    88 SCB-Func-READ-BOOL   VALUE 'R', 'r'.                **
64      *>    88 SCB-Func-READ-Delim-BOOL  VALUE 'RD', 'rd'.                **
65      *>                           'rD', 'Rd'.                **
66      *>    88 SCB-Func-WRITE-BOOL   VALUE 'W', 'w'.                **
67      *>    88 SCB-Func-WRITE-Delim-BOOL  VALUE 'WD', 'wd'.                **
68      *>                           'wD', 'Wd'.                **
69      *> 05 SCB-Delimiter-Mode-CD  PIC X(1).                  **
70      *>    88 SCB-Delim-Unix-BOOL   VALUE 'U', 'u'.                **
71      *>    88 SCB-Delim-Windows-BOOL  VALUE 'W', 'w'.                **
72      *> 05 SCB-Offset-NUM         PIC X(8) COMP-X.                **
73      *> 05 SCB-Error-Routine-PTR  USAGE PROGRAM-POINTER.        **
74      *> 05 SCB-Error-Routine-NUM REDEFINES SCB-Error-Routine-PTR  **
75      *>                           USAGE BINARY-LONG.            **
76      *> 05 SCB-Return-CD          USAGE BINARY-LONG.            **
77      *> 05 SCB-Filename-TXT       PIC X(256).                 **
78      *>
79      *> Such a structure is defined for your use using the copybook  **
80      *> "STREAMIOcb.cpy" (you may also define your own, provided it  **
81      *> conforms to the above layout).                                **
82      *-----**
83      *> SCB-Handle-NUM          **
```

---

```
84      *-----**
85      *>
86      *> Serves as a file handle to the file once it has been opened  **
87      *> (via the "SCB-Func-OPEN-BOOL" function).                      **
88      *>
89      *-----**
90      *> SCB-Mode-CD             **
```

---

```
91      *-----**
92      *>
93      *> Prior to calling "STREAMIO" for the first time for a file,   **
94      *> the appropriate subordinate level-88 must be set to TRUE to   **
95      *> select an I/O mode. You may also simply move one of the     **
96      *> string values listed on the level-88 items to "SCB-Mode-CD". **
97      *>
98      *-----**
```

---

GNU COBOL 2.1 23NOV2013 Source Listing 2014/03/27  
 C:/Users/tda010/Documents/Programs/Samples/STREAMIO.cbl  
 Line Statement Page: 3

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

=====
```

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```
=====  
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 behaves like the SCB-FUNC- **  
196      *> READ function, with the following behavioral dif- **
```

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

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---

Line Statement

---

```
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.csv"**
```

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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      *->*****ENVIRONMENT DIVISION.*****
361      ENVIRONMENT DIVISION.
362      CONFIGURATION SECTION.
363      REPOSITORY.
364      FUNCTION ALL INTRINSIC.
365      DATA DIVISION.
366      WORKING-STORAGE SECTION.
367      01 WS-Access-Mode-CD          PIC X(1) COMP-X.
368      01 WS-Arg-Length-NUM        PIC X(4) COMP-X.
369      01 WS-Buffer-TXT           PIC X(256).
370      01 WS-Delim-Buffer-TXT     PIC X(2).
371      01 WS-Env-Temp-TXT         PIC X(256).
372      01 WS-Slash-CHR            PIC X(1).
373      01 WS-Tally-NUM            USAGE BINARY-LONG.
374      01 WS-8-Digit-NUM          PIC 9(8).
375      01 WS-256-Byte-TXT         PIC X(256).
376      LINKAGE SECTION.
377      01 L-StreamIO-Control-Block-TXT.
378      COPY STREAMIOcb
379      REPLACING LEADING ==SCB== BY ==L-SCB==.

05 L-SCB-Handle-NUM PIC X(4) COMP-X.
05 L-SCB-Mode-CD PIC X(1).
88 L-SCB-MODE-Input-BOOL VALUE 'I' 'i'.
88 L-SCB-MODE-Output-BOOL VALUE 'O' 'o'.
88 L-SCB-MODE-Both-BOOL VALUE 'B' 'b'.
05 L-SCB-Function-CD PIC X(2).
88 L-SCB-Func-CLOSE-BOOL VALUE 'C' 'c'.
88 L-SCB-Func-DELETE-BOOL VALUE 'D' 'd'.
88 L-SCB-Func-OPEN-BOOL VALUE 'O' 'o'.
88 L-SCB-Func-READ-BOOL VALUE 'R' 'r'.
88 L-SCB-Func-READ-Delim-BOOL VALUE 'RD' 'rd'.
'rd' 'Rd'.
88 L-SCB-Func-WRITE-BOOL VALUE 'W' 'w'.
=====
```

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```
===== =====
 88 L-SCB-Func-WRITE-Delim-BOOL VALUE 'WD' 'wd'
   'wD' 'Wd'.
 05 L-SCB-Delimiter-Mode-CD PIC X(1).
 88 L-SCB-DELIM-Unix-BOOL VALUE 'U' 'u'.
 88 L-SCB-DELIM-Windows-BOOL VALUE 'W' 'w'.
 05 L-SCB-Offset-NUM PIC X(8) COMP-X.
 05 L-SCB-Error-Routine-PTR USAGE PROGRAM-POINTER.
 05 L-SCB-Error-Routine-NUM REDEFINES L-SCB-Error-Routine-PTR
  USAGE BINARY-LONG.
 05 L-SCB-Return-CD USAGE BINARY-LONG.
 05 L-SCB-Filename-TXT PIC X(256).
380      01 L-Arg2-TXT          PIC X ANY LENGTH.
381      PROCEDURE DIVISION USING L-StreamIO-Control-Block-TXT,
382                           L-Arg2-TXT.
383      000-Main SECTION.
384          MOVE 00 TO L-SCB-Return-CD
385          EVALUATE TRUE
386              WHEN L-SCB-Func-CLOSE-BOOL
387                  PERFORM 030-Validate-Handle-NonZero
388                  PERFORM 200-CLOSE
389              WHEN L-SCB-Func-DELETE-BOOL
390                  CALL "CBL_DELETE_FILE" USING L-SCB-Filename-TXT
391              WHEN L-SCB-Func-OPEN-BOOL
392                  PERFORM 020-Validate-Handle-Zero
393                  PERFORM 100-OPEN
394              WHEN L-SCB-Func-READ-BOOL
395                  PERFORM 030-Validate-Handle-NonZero
396                  PERFORM 400-READ
397              WHEN L-SCB-Func-READ-Delim-BOOL
398                  PERFORM 030-Validate-Handle-NonZero
399                  PERFORM 500-READ-Delim
400              WHEN L-SCB-Func-WRITE-BOOL
401                  PERFORM 030-Validate-Handle-NonZero
402                  PERFORM 300-WRITE
403              WHEN L-SCB-Func-WRITE-Delim-BOOL
404                  EVALUATE TRUE
405                      WHEN L-SCB-Delim-Unix-BOOL
406                          PERFORM 030-Validate-Handle-NonZero
407                          PERFORM 300-WRITE
408                          MOVE 1 TO WS-Arg-Length-NUM
409                          MOVE X"0A" TO WS-Delim-Buffer-TXT
410                      WHEN L-SCB-Delim-Windows-BOOL
411                          PERFORM 030-Validate-Handle-NonZero
412                          PERFORM 300-WRITE
413                          MOVE 2 TO WS-Arg-Length-NUM
414                          MOVE X"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,.TRAILING)
501                  WS-Slash-CHR
502                  "STREAMIO-"
503                  WS-8-Digit-NUM
504                  ".dat"
505                  DELIMITED BY SIZE
506                  INTO L-SCB-Filename-TXT
507          WHEN L-SCB-Filename-TXT(1:1) = "."
508              PERFORM 060-Identify-TEMP
509              IF L-SCB-Filename-TXT(2:1) = SPACE
510                  MOVE SPACES TO WS-256-Byte-TXT
511              ELSE
512                  MOVE L-SCB-Filename-TXT TO WS-256-Byte-TXT
513              END-IF
514              MOVE SPACES TO L-SCB-Filename-TXT
515              COMPUTE WS-8-Digit-NUM =
```

=====

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---

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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 O 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 O = 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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```

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---

Line Statement

---

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

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

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

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