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```

P 0001 0 MODULE find ( IDENT = 'V04-000'
0002 0          %BLISS32C, ADDRESSING_MODE (EXTERNAL = LONG_RELATIVE,
0003 0          NONEXTERNAL = LONG_RELATIVE)
0004 0          ) =
0005 1 BEGIN
0006 1
0007 1 *****
0008 1 *
0009 1 *  COPYRIGHT (c) 1978, 1980, 1982, 1984 BY
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0026 1 *
0027 1 *
0028 1 *****
0029 1
0030 1 ++
0031 1 FACILITY:      DSR (Digital Standard RUNOFF) / DSRPLUS
0032 1
0033 1 ABSTRACT:      Uses a binary search to look up a keyword.
0034 1
0035 1 ENVIRONMENT:   Transportable
0036 1
0037 1 AUTHOR:        R.W.Friday      CREATION DATE: May, 1978
0038 1
0039 1

```

SEARCH

Revision History

:	41	0040	1	%SBTTL 'Revision History'
:	42	0041	1	
:	43	0042	1	MODIFIED BY:
:	44	0043	1	
:	45	0044	1	002 RER00002 Ron Randall 07-Mar-1983
:	46	0045	1	Global edit of all modules. Updated module names, idents,
:	47	0046	1	copyright dates. Changed require files to BLISS library.
:	48	0047	1	
:	49	0048	1	--
:	50	0049	1	

Module Level Declarations

```

: 52      0050 1 %SBTTL 'Module Level Declarations'
: 53      0051 1
: 54      0052 1
: 55      0053 1 : TABLE OF CONTENTS:
: 56      0054 1
: 57      0055 1 : INCLUDE FILES:
: 58      0056 1
: 59      0057 1 LIBRARY 'NXPORT:XPORT';      ! XPORT Library
: 60      0058 1 REQUIRE 'REQ:RNODEF';      ! RUNOFF variant definitions
: 61      0189 1
: 62      U 0190 1 %IF DSRPLUS %THEN
: 63      U 0191 1 LIBRARY 'REQ:DPLLIB';      ! DSRPLUS BLISS Library
: 64      0192 1 %ELSE
: 65      0193 1 LIBRARY 'REQ:DSRLIB';      ! DSR BLISS Library
: 66      0194 1 %FI
: 67      0195 1
: 68      0196 1
: 69      0197 1 : EXTERNAL REFERENCES:
: 70      0198 1
: 71      0199 1 EXTERNAL ROUTINE
: 72      0200 1     TPROBE;
: 73      0201 1

```

```

75 0202 1 GLOBAL ROUTINE FIND (KEY, SIZE, LIST) =
76 0203 1
77 0204 1 |++
78 0205 1 | FUNCTIONAL DESCRIPTION:
79 0206 1 |
80 0207 1 |     Searches LIST in an attempt to recognize KEY.
81 0208 1 |     A binary search algorithm is used.
82 0209 1 |
83 0210 1 | FORMAL PARAMETERS:
84 0211 1 |
85 0212 1 |     KEY is the word that is to be identified; SIZE is its length.
86 0213 1 |     LIST is a list of keywords, as defined in the module LP1.
87 0214 1 |
88 0215 1 | IMPLICIT INPUTS:      None
89 0216 1 |
90 0217 1 | IMPLICIT OUTPUTS:    None
91 0218 1 |
92 0219 1 | ROUTINE VALUE:
93 0220 1 | COMPLETION CODES:
94 0221 1 |
95 0222 1 |     If KEY is recognized, the address of the corresponding
96 0223 1 |     entry in LIST is returned.  Otherwise, zero is returned.
97 0224 1 |
98 0225 1 | SIDE EFFECTS:        None
99 0226 1 | --
100 0227 1
101 0228 2     BEGIN
102 0229 2     MAP
103 0230 2         LIST : REF VECTOR;
104 0231 2
105 0232 2     LOCAL
106 0233 2         RESULT,
107 0234 2         TOP,
108 0235 2         BOTTOM,
109 0236 2         HALF OF RANGE,
110 0237 2         MIDPOINT;
111 0238 2
112 0239 2     TOP = 0;
113 0240 2     BOTTOM = .LIST [-1] - 1;
114 0241 2
115 0242 2     WHILE 1 DO
116 0243 3         BEGIN
117 0244 3             HALF OF RANGE = (.BOTTOM - .TOP + 1)/2;
118 0245 3             MIDPOINT = .TOP + .HALF OF RANGE;
119 0246 3             RESULT = TPROBE (.KEY, .SIZE, .LIST [.MIDPOINT]);
120 0247 3
121 0248 3         CASE .RESULT FROM 0 TO 3 OF
122 0249 3             SET
123 0250 3
124 0251 3             [FOUND] :
125 0252 3                 RETURN .LIST [.MIDPOINT];
126 0253 3
127 0254 3             [GIVE UP] :
128 0255 3                 RETURN 0;
129 0256 3
130 0257 3             [TRY ABOVE] :
131 0258 4                 BEGIN

```

```

: 132 0259 4
: 133 0260 4      IF .MIDPOINT EQL .TOP
: 134 0261 4      THEN
: 135 0262 4      RETURN 0
: 136 0263 4      ELSE
: 137 0264 4      BOTTOM = .MIDPOINT - 1;
: 138 0265 4
: 139 0266 4      END;
: 140 0267 3
: 141 0268 3      [TRY BELOW] :
: 142 0269 4      BEGIN
: 143 0270 4
: 144 0271 4      IF .MIDPOINT EQL .BOTTOM
: 145 0272 4      THEN
: 146 0273 4      RETURN 0
: 147 0274 4      ELSE
: 148 0275 4      TOP = .MIDPOINT + 1;
: 149 0276 4
: 150 0277 3      END;
: 151 0278 3      TES;
: 152 0279 3
: 153 0280 3      END
: 154 0281 3
: 155 0282 1      END;

```

!End of FIND

```

                                .TITLE FIND
                                .IDENT \V04-000\
                                .EXTRN TPROBE
                                .PSECT $CODE$,NOWRT,2
                                .ENTRY FIND, Save R2,R3,R4,R5,R6
                                CLRL TOP
                                MOVL LIST, R4
                                SUBL3 #1, -4(R4), BOTTOM
                                SUBL3 TOP, BOTTOM, R1
                                INCL R1
                                DIVL3 #2, R1, HALF OF RANGE
                                ADDL3 HALF OF RANGE, TOP, MIDPOINT
                                PUSHL (R4)[MIDPOINT]
                                MOVQ KEY, -(SP)
                                CALLS #3, TPROBE
                                CASEL RESULT, #0, #3
                                .WORD 6$-2$,-
                                3$-2$,-
                                4$-2$,-
                                5$-2$
                                MOVL (R4)[MIDPOINT], R0
                                RET
                                CMPL MIDPOINT, TOP
                                BEQL 6$
                                MOVAC -1(R2), BOTTOM
                                BRB 1$
                                CMPL MIDPOINT, BOTTOM
                                BNEQ 7$
                                : 0202
                                : 0239
                                : 0240
                                : 0244
                                : 0245
                                : 0246
                                : 0248
                                : 0252
                                : 0260
                                : 0264
                                : 0248
                                : 0271
                                :

```

0018	03	00000000G	0008	001D	0002D	2\$:
	53	FC	54	0C	55	D4 00002
	51		53		01	C3 00008
	56		51		55	C3 0000D 1\$:
	52		55		51	D6 00011
					02	C7 00013
					56	C1 00017
					6442	DD 0001B
			7E	04	AC	7D 0001E
			EF		03	FB 00022
			00		50	CF 00029
					001D	0002D 2\$:
			50		6442	D0 00035 3\$:
					04	00039
			55		52	D1 0003A 4\$:
					0B	13 0003D
			53	FF	A2	9E 0003F
					C8	11 00043
			53		52	D1 00045 5\$:
					03	12 00048

```

      50 D4 0004A 6$:   CLRL   R0           ; 0273
      04 0004C       RET           ; 0275
      55 01 A2 9E 0004D 7$: MOVAB 1(R2), TOP ; 0242
      BA 11 00051     BRB   1$

```

: Routine Size: 83 bytes, Routine Base: \$CODE\$ + 0000

```

: 156      0283 1
: 157      0284 1 END           !End of module
: 158      0285 0 ELUDOM

```

PSECT SUMMARY

Name	Bytes	Attributes
\$CODE\$	83	NOVEC, NOWRT, RD, EXE, NOSHR, LCL, REL, CON, NOPIC, ALIGN(2)

Library Statistics

File	Symbols		Pages Mapped	Processing Time
	Total	Loaded Percent		
\$255\$DUA28:[SYSLIB]XPORT.L32;1	590	0 0	252	00:00.1
\$255\$DUA28:[RUNOFF.SRC]DSRLIB.L32;1	1248	4 0	86	00:00.3

COMMAND QUALIFIERS

: BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS\$:FIND/OBJ=OBJ\$:FIND MSRC\$:FIND/UPDATE=(ENH\$:FIND)

```

: Size:      83 code + 0 data bytes
: Run Time:  00:03.4
: Elapsed Time: 00:14.3
: Lines/CPU Min: 5104
: Lexemes/CPU-Min: 9438
: Memory Used: 43 pages
: Compilation Complete

```



