Function and tracing

There are 200 numbers at location *TABLE*, the code stores the number of nonzero elements at location *C*

```
        LDA     #0          initialize counter C ;
        STA     C           C ← O
        LDT     #600        T ← test value
        LDX     #0          X ← initial value
        LDS     #3          S ← increment
LOOP    LDA     TABLE,X     body of loop :
        COMP    #0              "   test one number
        JEQ     NEXT            "    if not zero
        LDA     C               "    increment
        ADD     #1              "   the
        STA     C               "   counter C
NEXT    ADDR    S,X         X ← X + increment
        COMPR   X,T         compare X to test value
        JLT     LOOP        jump if  X < test value
          :
TABLE   RESW    200
C       RESW    1
```

Pass 1: Set location counters and get symbol table

// start at location 0000 since no other starting address was given

0000		*LDA*	*#0*	F3
0003		*STA*	*C*	F3
0006		***LDT***	***#600***	F3
0009		***LDX***	***#0***	F3
000C		***LDS***	***#3***	F3
000F	***LOOP***	*LDA*	*TABLE,**X***	F3
0012		*COMP*	*#0*	F3
0015		*JEQ*	*NEXT*	F3
0018		*LDA*	*C*	F3
001B		*ADD*	*#1*	F3
001E		*STA*	*C*	F3
0021	*NEXT*	***ADDR***	***S,X***	F2
0023		***COMPR***	***X,T***	F2
0025		***JLT***	***LOOP***	F3
0028	*TABLE*	RESW	*200*	200w*3=$(600)_{10}$=$(258)_{16}$
0280	*C*	*RESW*	*1*	1w*3=$(3)_{10}$=$(3)_{16}$
0283				

Symbol	Location
Loop	000f
Next	0021
table	0028
c	0280

Pass 2: generate Object Code & THE record

				Object Code
0000		*LDA*	*#0*	**010000**
0003		*STA*	*C*	**0F227A**
0006		***LDT***	***#600***	**750258**
0009		***LDX***	***#0***	**050000**
000C		***LDS***	***#3***	**6D0003**
000F	***LOOP***	*LDA*	*TABLE**,X***	**03A016**
0012		*COMP*	*#0*	**290000**
0015		*JEQ*	*NEXT*	**332009**
0018		*LDA*	*C*	**032265**
001B		*ADD*	*#1*	**190001**
001E		*STA*	*C*	**0F225F**
0021	*NEXT*	***ADDR***	***S,X***	**9041**
0023		***COMPR***	***X,T***	**A015**
0025		***JLT***	***LOOP***	**3B2FE7**
0028	*TABLE*	RESW	*200*	-
0280	*C*	*RESW*	*1*	-
0283				

H.prog1x.000000.000283

T.000000.1E. 010000.0F227A.750258.050000.6D0003.03A016.290000.332009.032265.190001

T.00001E.0A.0F225F.9041.A015.3B2FE7

E.000000

Symbol	Location
LOOP	000f
NEXT	0021
TABLE	0028
C	0280