```
                                        ;
                                        ;  BOOT BLOCK.
                                        ;
                                        ;  AUTHOR: PAUL HARDY.  THIS CODE IS IN THE PUBLIC DOMAIN.
                                        ;
                                        ;  THIS CODE IS IN TRACK 0 SECTOR 0 OF THE RL02, FOR STAND-ALONE BOOT.
                                        ;
                                        ;  THIS BOOT BLOCK READS SCREENS 40-47 OF THE 'FORTH.DAT' FILE.
                                        ;  WHEN THE LOADER EXECUTES IT READS IN THE BINARY IMAGE (STARTING AT
                                        ;  1000 OCTAL) AND BRANCHES TO ADDRESS 1000 TO START EXECUTION OF THE
                                        ;  LOADED PROGRAM.
                                        ;
000000                                          .ASECT
        000000                          .=0
000000  000240                          ORIGIN: NOP
000002  000442                                  BR      BOOTRL
        000004                          .=ORIGIN+4
000004  000036                                  .WORD   ERROR           ; TIME OUT / BUS ERROR VECTOR
000006  000343                                  .WORD   343             ; FLAG (WHICH HALT)
        000010                          .=ORIGIN+10
000010  000036                                  .WORD   ERROR           ; RESERVED INSTRUCTION VECTOR
000012  000344                                  .WORD   344             ; FLAG (WHICH HALT)
000014  000030                                  .WORD   DEBUG           ; EXECUTE WAIT INSTRUCTION
000016  000340                                  .WORD   340             ; SET PSW = PRIORITY 7
        000020                          .=ORIGIN+20
000020  000001                                  .WORD   WAIT            ; IOT TRAP - USED FOR WAIT SUBROUTINE
000022  000340                                  .WORD   340             ; SET PSW = PRIORITY 7
000024  000036                                  .WORD   ERROR           ; POWER FAILURE INTERRUPT VECTOR
000026  000345                                  .WORD   345             ; FLAG (WHICH HALT)
        000030                          .=ORIGIN+30
000030  000001                          DEBUG:  WAIT                    ; EMT TRAP AREA, USED AS DEBUG VECTOR
000032  000002                                  RTI
        000034                          .=ORIGIN+34
000034  000036                                  .WORD   ERROR           ; IF TRAP, HALT WITH PSW=000000
000036  000000                          ERROR:  HALT
        000060                          .=ORIGIN+60
000060  000036                                  .WORD   ERROR           ; HALT IF TERMINAL INPUT INTERRUPT
000062  000341                                  .WORD   341             ; FLAG (WHICH HALT)
000064  000036                                  .WORD   ERROR           ; HALT IF TERMINAL OUTPUT INTERRUPT
000066  000342                                  .WORD   342             ; FLAG (WHICH HALT)
        000100                          .=ORIGIN+100
000100  000207                                  .WORD   RETURN          ; IF KW11L CLOCK INTERRUPT, JUST RTI
000102  000340                                  .WORD   340
000104  000207                                  .WORD   RETURN          ; IF KW11P CLOCK INTERRUPT, JUST RTI
000106  000340                                  .WORD   340
                                        ;
                                        ; DECLARATIONS FOR TERMINAL I/O
                                        ;
        177560                          RCSR=177560     ; TERMINAL RECEIVE CONTROL AND STATUS
        177562                          RBUF=177562     ; TERMINAL RECEIVE BUFFER
        177564                          XCSR=177564     ; TERMINAL TRANSMIT CONTROL AND STATUS
        177566                          XBUF=177566     ; TERMINAL TRANSMIT BUFFER
                                        ;
                                        ; DECLARATIONS FOR RL02 DISK CONTROLLER
                                        ;
        174400                          RLCS=174400
        174402                          RLBA=174402
```

```
                174404                  RLDA=174404
                174406                  RLMP=174406

000110                                  BOOTRL:
000110  012700  174400                          MOV     #RLCS,R0
                                                ;
                                                ; GET STATUS
                                                ;
000114  012760  000013  000004                  MOV     #13,4(R0)       ; RLDA SETUP FOR GET STATUS
000122  012710  000004                          MOV     #4,(R0)         ; RLCS GET STATUS
000126  105710                                  TSTB    (R0)            ; RLCS TEST FOR READY STATE
000130  100376                                  BPL     .-2
000132  016001  000006                          MOV     6(R0),R1        ; RLMP STATUS COPY TO R1
                                                ;
                                                ; SEEK CYLINDER 2, UPPER HEAD, FROM CYLINDER 0
                                                ;
000136  012760  000405  000004                  MOV     #000405,4(R0)
000144  012710  000006                          MOV     #000006,(R0)    ; SEEK COMMAND
000150  105710                                  TSTB    (R0)            ; RLCS TEST FOR READY STATE
000152  100376                                  BPL     .-2
                                                ;
                                                ; READ DATA
                                                ;
000154  012760  000400  000002                  MOV     #000400,2(R0)   ; RLBA START LOAD AT ADDR 000400 OCTAL
000162  012760  000431  000004                  MOV     #000431,4(R0)   ; RLDA CYLINDER 2, HEAD 0, SECTOR 31 (OCTAL)
000170  012760  174200  000006                  MOV     #-3600,6(R0)    ; RLMP GET 15. (DECIMAL) SECTORS = 3.75 KB
                                                                        ;      (DON'T LOAD BOOT SECTOR)
000176  012710  000014                          MOV     #14,(R0)        ; RLCS READ DISK WITH HEADER CHECK
000202  105710                                  TSTB    (R0)            ; RLCS TEST FOR READY STATE
000204  100376                                  BPL     .-2
000206  011003                                  MOV     (R0),R3         ; RLCS READ STATUS COPY TO R3
                                                ;
                                                ; SEEK CYLINDER 2, LOWER HEAD, FROM CYLINDER 0
                                                ;
000210  012760  000020  000004                  MOV     #000020,4(R0)
000216  012710  000006                          MOV     #000006,(R0)    ; SEEK COMMAND
000222  105710                                  TSTB    (R0)            ; RLCS TEST FOR READY STATE
000224  100376                                  BPL     .-2
                                                ;
                                                ; READ DATA
                                                ;
000226  012760  010000  000002                  MOV     #010000,2(R0)   ; RLBA START LOAD AT ADDR 010000 OCTAL
000234  012760  000500  000004                  MOV     #000500,4(R0)   ; RLDA CYLINDER 2, HEAD 1, SECTOR 0
000242  012760  174000  000006                  MOV     #-4000,6(R0)    ; RLMP GET 16. (DECIMAL) SECTORS = 4 KB
000250  012710  000014                          MOV     #14,(R0)        ; RLCS READ DISK WITH HEADER CHECK
000254  105710                                  TSTB    (R0)            ; RLCS TEST FOR READY STATE
000256  100376                                  BPL     .-2
000260  011005                                  MOV     (R0),R5         ; RLCS READ STATUS COPY TO R3
                                                ;
                                                ; BEGIN FORTH EXECUTION
                                                ;
000262  000167  000512                          JMP     1000
        000001                                  .END
```

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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           
1111111111111111111111111111111111
0000000001111111112222222222333333333444444444555555555566666666667777777778888888888999999999900000000001111111111222222222333
123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
.MAIN.  MACRO V04.00   00:00:07 PAGE 1-2
SYMBOL TABLE

BOOTRL  000110          ORIGIN  000000          RLBA  = 174402          RLDA  = 174404          XBUF  = 177566
DEBUG   000030          RBUF  = 177562          RLCS  = 174400          RLMP  = 174406          XCSR  = 177564
ERROR   000036          RCSR  = 177560

. ABS.  000266     000
        000000     001
ERRORS DETECTED:  0

VIRTUAL MEMORY USED:  8192 WORDS  ( 32 PAGES)
DYNAMIC MEMORY AVAILABLE FOR  67 PAGES
DK:BOOTRL,DK:BOOTRL.LST=DK:BOOTRL.MAC



        000000     001
ERRORS DETECTED:  0

VIRTUAL MEMORY USED:  8192 WORDS  ( 32 PAGES)
DYNAMIC MEMORY AVAILABLE FOR  67 PAGES
DK:BOOTRL,DK:BOOTRL.LST=DK:BOOTRL.MAC
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