RWTS CALL

```
JSR  $3E3    LOCATE PARM LIST.
STY  PTR     SET UP ZPAGE . . .
STA  PTR+1   POINTER.
 .
 .
JSR  $3E3    RELOAD PARM PTR.
JSR  $3D9    CALL RWTS
BCS  ERROR   IF ERROR, BRANCH
```

Also See Page 6-4

RWTS PARAMETERS (IOB)

+00	$01	SLOT * 16	DRIVE	VOL
+04	TRK	SEC	ADDR OF DCT	
+08	ADDR OF BUFFER		NOT USED	$00
+0C	CC	RC	PREV. VOL	PREV. SLOT
+10	PREV. DRIVE			

CC: COMMAND CODE
$00 = SEEK
$01 = READ
$02 = WRITE
$04 = FORMAT

RC: RETURN CODE
$00 = NO ERRORS
$08 = FORMATTING ERROR
$10 = WRITE PROTECTED
$20 = VOL MISMATCH
$40 = DRIVE ERROR
$80 = READ ERROR

Also See Page 6-5

DEVICE CHARACTERISTICS TABLE (DCT)

+00	TYPE $00	PHASES $01	MOTOR ON $EFD8	

Also See Page 6-5

FILE MANAGER CALL

```
JSR  $3DC    LOCATE PARM LIST.
STY  PTR     SET UP ZPAGE . . .
STA  PTR+1   POINTER.
 .
 .
 .
LDX  #0      ALLOW NEW FILE
JSR  $3D6    CALL FILE MANAGER
BCS  ERROR   IF ERROR, BRANCH
```

Also See Page 6-7

FILE MANAGER PARAMETER LIST

	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11
OPEN	01		RECORD LENGTH OR 0000		V	D	S	FILE TYPE	FILE NAME ADDRESS		RETURN CODE (OUTPUT)		ADDR. OF FILE MANAGER WORK AREA BUFFER		ADDR. OF T/S LIST BUFFER			
CLOSE	02																DATA SECTOR BUFFER ADDRESS	
READ	03	SUBCODE	RECORD NUMBER		BYTE OFFSET		RANGE LENGTH		ONE DATA BYTE / RANGE ADDR.	RANGE ADDR.								
WRITE	04																	
DELETE	05				V	D	S		FILE NAME ADDRESS									
CATALOG	06					D	S											
LOCK	07				V	D	S		FILE NAME ADDRESS						T/S LIST ADDRESS			
UNLOCK	08				V	D	S											
RENAME	09		NEW NAME ADDRESS		V	D	S											
POSITION	0A		RECORD NUMBER		BYTE OFFSET													
INIT	0B	DOS PAGE NO.			V	D	S											
VERIFY	0C				V	D	S		FILE NAME ADDRESS						T/S LIST ADDRESS		DATA BUFF. ADDRESS	

FILE MANAGER RETURN CODES (+0A)

00 = NO ERRORS
01 = NOT USED
02 = BAD CALL TYPE (+00)
03 = BAD SUB-CALL TYPE (+01)
04 = WRITE PROTECTED
05 = END OF DATA
06 = FILE NOT FOUND (WAS ALLOCATED IF X=0 WHEN CALLED)
07 = VOLUME MISMATCH
08 = DISK I/O ERROR
0A = FILE LOCKED

Also See Page 6-8

DOS FILE BUFFER FORMAT

00	FILE NAME			
08				
10				
18				FMW
20	TSL	DATA	LINK	

FILENAME — IF FIRST BYTE IS 00 THIS FILE BUFFER IS FREE
FMW — ADDRESS OF FILE MANAGER WORKAREA BUFFER (45 BYTES)
TSL — ADDRESS OF T/S LIST BUFFER (256 BYTES)
DATA — ADDRESS OF DATA SECTOR (256 BYTES)

Also See Page 6-13

DOS ADDRESSES FOR VARIOUS MACHINE SIZES

SIZE	MAIN DOS	FILE MANG.	RWTS	END RAM
16K	1D00	2AFD	37B5	4000
20K	2D00	3AFD	47B5	5000
24K	3D00	4AFD	57B5	6000
32K	5D00	6AFD	77B5	8000
36K	6D00	7AFD	87B5	9000
40K	7D00	8AFD	97B5	A000
48K	9D00	AAFD	B7B5	C000

Also See Page 5-3

DOS PAGE 3 VECTORS

3D0	JMP	$9DBF	JUMP TO DOS WARMSTART
3D3	JMP	$9D84	JUMP TO DOS COLDSTART
3D6	JMP	$AAFD	JUMP TO DOS FILE MANAGER
3D9	JMP	$B7B5	JUMP TO RWTS
3DC	LDA	$9D0F	SUBROUTINE TO LOCATE FILE
	LDY	$9D0E	MANAGER PARM LIST
	RTS		
3E3	LDA	$AAC2	SUBROUTINE TO LOCATE RWTS
	LDY	$AAC1	PARM LIST
	RTS		
3EA	JMP	$A851	JUMP TO REPLACE DOS INTERCEPTS
	NOP		SUBROUTINE
	NOP		
3EF	JMP	$FA59	AUTOSTART BRK HANDLER
3F2	$9DBF		AUTOSTART RESET HANDLER
3F4	$38		POWER-UP BYTE ($3F2 EOR $A5)
3F5	JMP	$FF58	APPLESOFT & HANDLER
3F8	JMP	$FF65	CTL-Y HANDLER
3FB	JMP	$FF65	NMI HANDLER
3FE	$FF65		IRQ HANDLER

Also See Page 5-5

DOS LOCATION TABLE

DISKETTE STORAGE				MEMORY STORAGE	
MASTER		SLAVE			
TRACK	SECTOR	TRACK	SECTOR	LOAD ADDRESS	RELOCATED ADDRESS
00	00	00	00	$3600	$B600
00	01	00	01	$3700	$B700
00	02	00	02	$3800	$B800
00	03	00	03	$3900	$B900
00	04	00	04	$3A00	$BA00
00	05	00	05	$3B00	$BB00
00	06	00	06	$3C00	$BC00
00	07	00	07	$3D00	$BD00
00	08	00	08	$3E00	$BE00
00	09	00	09	$3F00	$BF00
00	0A	00	0A*	$1B00	
00	0B	00	0B*	$1C00	
00	0C	00	0C	$1D00	$9D00
00	0D	00	0D	$1E00	$9E00
00	0E	00	0E	$1F00	$9F00
00	0F	00	0F	$2000	$A000
01	00	01	00	$2100	$A100
01	01	01	01	$2200	$A200
01	02	01	02	$2300	$A300
01	03	01	03	$2400	$A400
01	04	01	04	$2500	$A500
01	05	01	05	$2600	$A600
01	06	01	06	$2700	$A700
01	07	01	07	$2800	$A800
01	08	01	08	$2900	$A900
01	09	01	09	$2A00	$AA00
01	0A	01	0A	$2B00	$AB00
01	0B	01	0B	$2C00	$AC00
01	0C	01	0C	$2D00	$AD00
01	0D	01	0D	$2E00	$AE00
01	0E	01	0E	$2F00	$AF00
01	0F	01	0F	$3000	$B000
02	00	02	00	$3100	$B100
02	01	02	01	$3200	$B200
02	02	02	02	$3300	$B300
02	03	02	03	$3400	$B400
02	04	02	04	$3500	$B500

*These sectors are blank

Also See Page 5-6

Beneath Apple DOS

REFERENCE CARD

DOS 3.3

QUALITY SOFTWARE
6660 Reseda Blvd.
Suite 105
Reseda, CA 91335
(213) 344-6599

TRACK FORMAT

ADDRESS FIELD

PROLOGUE	VOLUME	TRACK	SECTOR	CHECKSUM	EPILOGUE
D5 AA 96	XX YY	XX YY	XX YY	XX YY	DE AA EB

ODD-EVEN ENCODED

DATA BYTE — $D_7 D_6 D_5 D_4 D_3 D_2 D_1 D_0$

XX — $1\ D_7\ 1\ D_5\ 1\ D_3\ 1\ D_1$

YY — $1\ D_6\ 1\ D_4\ 1\ D_2\ 1\ D_0$

Also See Page 3-12

DATA FIELD

PROLOGUE	USER DATA	CHECKSUM	EPILOGUE
D5 AA AD	342 BYTES DATA	XX	DE AA EB

$\underbrace{\text{342 BYTES DATA}}_{\text{SIX AND TWO ENCODED}}$

SIX AND TWO ENCODED

Also See Page 3-13

"6 and 2" WRITE TRANSLATE TABLE

00 = 96	10 = B4	20 = D6	30 = ED
01 = 97	11 = B5	21 = D7	31 = EE
02 = 9A	12 = B6	22 = D9	32 = EF
03 = 9B	13 = B7	23 = DA	33 = F2
04 = 9D	14 = B9	24 = DB	34 = F3
05 = 9E	15 = BA	25 = DC	35 = F4
06 = 9F	16 = BB	26 = DD	36 = F5
07 = A6	17 = BC	27 = DE	37 = F6
08 = A7	18 = BD	28 = DF	38 = F7
09 = AB	19 = BE	29 = E5	39 = F9
0A = AC	1A = BF	2A = E6	3A = FA
0B = AD	1B = CB	2B = E7	3B = FB
0C = AE	1C = CD	2C = E9	3C = FC
0D = AF	1D = CE	2D = EA	3D = FD
0E = B2	1E = CF	2E = EB	3E = FE
0F = B3	1F = D3	2F = EC	3F = FF

AA
D5 } Reserved Bytes

Also See Page 3-20

DIRECT USE OF DISK DRIVE

ADDRESS	LABEL	DESCRIPTION
$C080	PHASEOFF	Stepper motor phase 0 off.
$C081	PHASEON	Stepper motor phase 0 on.
$C082	PHASE1OFF	Stepper motor phase 1 off.
$C083	PHASE1ON	Stepper motor phase 1 on.
$C084	PHASE2OFF	Stepper motor phase 2 off.
$C085	PHASE2ON	Stepper motor phase 2 on.
$C086	PHASE3OFF	Stepper motor phase 3 off.
$C087	PHASE3ON	Stepper motor phase 3 on.
$C088	MOTOROFF	Turn motor off.
$C089	MOTORON	Turn motor on.
$C08A	DRV0EN	Engage drive 1.
$C08B	DRV1EN	Engage drive 2.
$C08C	Q6L	Strobe Data Latch for I/O.
$C08D	Q6H	Load Data Latch.
$C08E	Q7L	Prepare latch for input.
$C08F	Q7H	Prepare latch for output.

Q7L with Q6L = Read
Q7L with Q6H = Sense Write Protect
Q7H with Q6L = Write
Q7H with Q6H = Load Write Latch

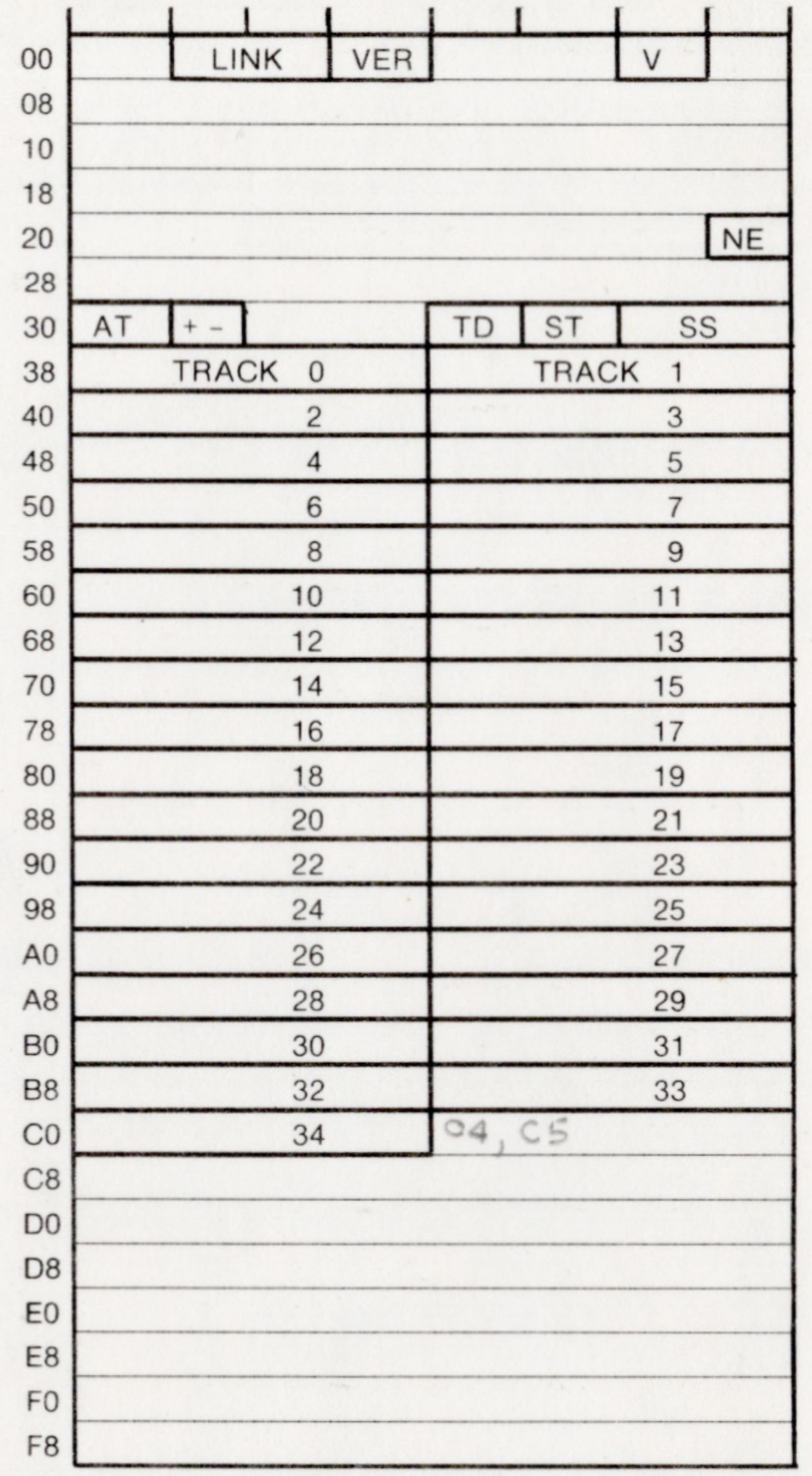
Also See Pages 6-1 to 6-3

DISK LAYOUT

```
TRACKS
  All DOS versions................35

SECTORS PER TRACK
  DOS 3.2.1 and earlier...........13
  DOS 3.3.........................16

SECTORS PER DISKETTE
  DOS 3.2.1 and earlier..........455
  DOS 3.3........................560

BYTES PER SECTOR
  All DOS versions...............256

BYTES PER DISKETTE
  DOS 3.2.1 and earlier.......116480
  DOS 3.3.....................143360

USABLE* SECTORS FOR DATA STORAGE
  DOS 3.2.1 and earlier..........403
  DOS 3.3........................496

USABLE* BYTES PER DISKETTE
  DOS 3.2.1 and earlier.......103168
  DOS 3.3.....................126976

* Excludes DOS, VTOC, and CATALOG
```

VOLUME TABLE OF CONTENTS (VTOC)

TRACK $11, SECTOR $00



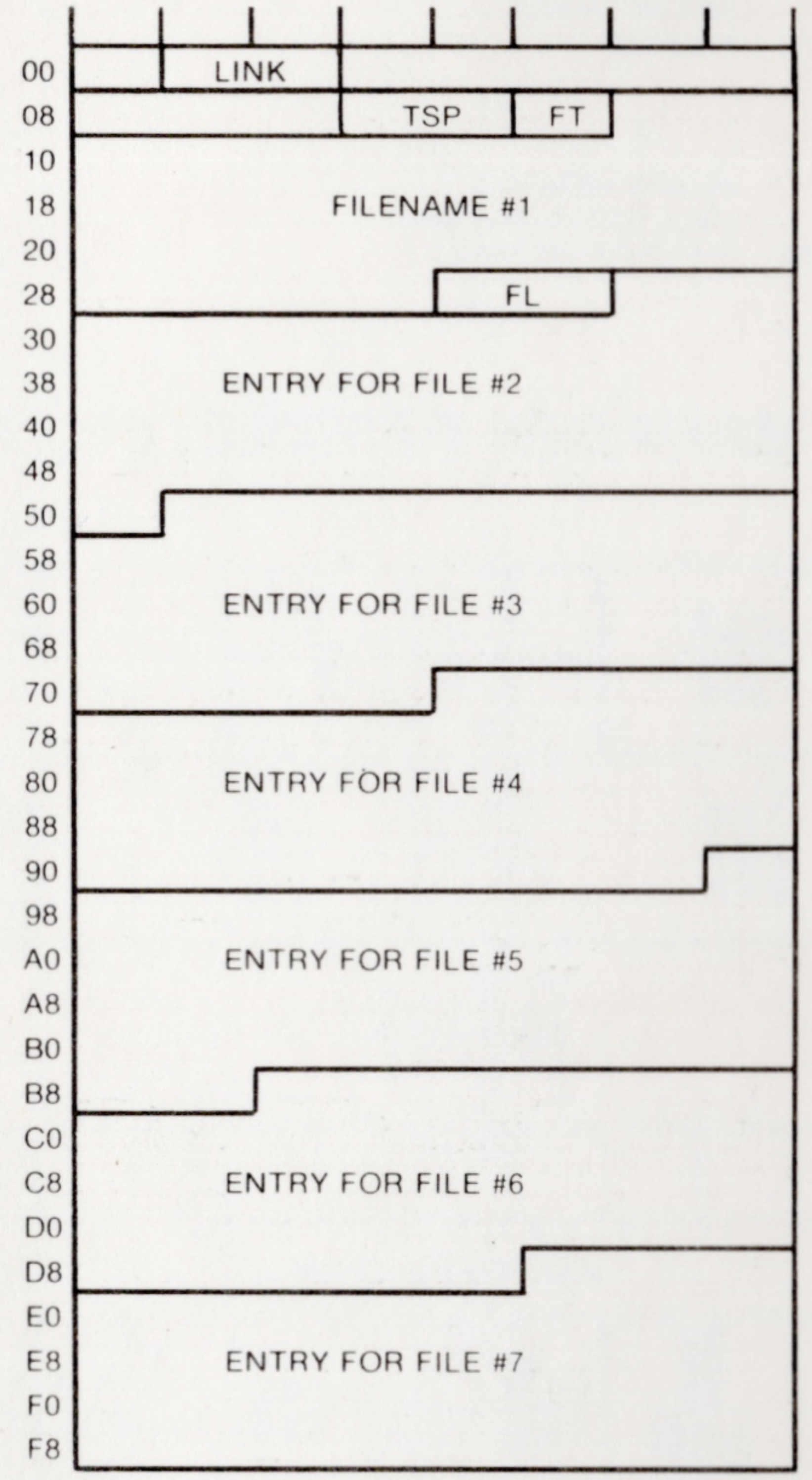
LINK — T/S OF FIRST DIRECTORY SECTOR
VER — DOS VERSION (1, 2, OR 3)
V — VOLUME NUMBER (1-254)
NE — NUMBER OF T/S LIST ENTRIES PER T/S LIST SECTOR
AT — LAST TRACK ALLOCATED
+ - — DIRECTION OF TRACK ALLOCATION
TD — NUMBER OF TRACKS PER DISK
ST — NUMBER OF SECTORS PER TRACK
SS — SECTOR SIZE IN BYTES
TRACK 0 — FREE SECTORS BIT MAP FOR TRACK 0
.
.
.
TRACK N — FREE SECTORS BIT MAP FOR TRACK N

FREE SECTORS BIT MAP

13 SECTOR DISK:	CBA9	8765	4321	0 . . .	. . . .
16 SECTOR DISK:	FEDC	BA98	7654	3210	. . . .

Also See Pages 4-2 to 4-4

DIRECTORY (CATALOG) SECTOR

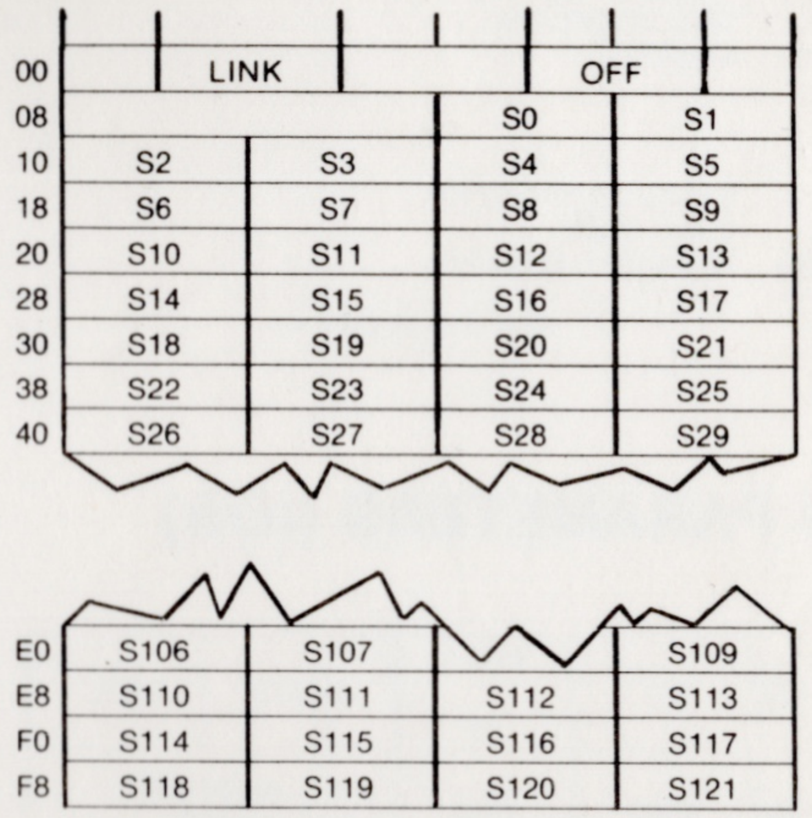


LINK — T/S OF NEXT DIRECTORY SECTOR OR 0000 IF NO MORE EXIST
TSP — T/S POINTER OF FIRST T/S LIST FOR THIS FILE OR 00 IF END OF DIRECTORY OR FF IF DELETED FILE.
FT — FILE TYPE: 80-LOCKED 00-TEXT
01-INT BASIC 02-ASOFT 04-BINARY
08-S 10-R 20-A
40-B
FL — FILE LENGTH IN SECTORS

REMAINING FILE ENTRIES HAVE SAME FORMAT AS FOR FILE #1 (TSP THROUGH FL)

Also See Page 4-6

TRACK/SECTOR LIST SECTOR



LINK — T/S OF NEXT T/S LIST SECTOR IF DATA SECTORS EXIST BEYOND 121.
OFF — SECTOR OFFSET INTO FILE OF FIRST DATA SECTOR LISTED
S0 — T/S OF DATA SECTOR 0 OR 0000 IF THIS SECTOR WAS NOT WRITTEN
S1 — etc.

Also See Page 4-8

TEXT FILE FORMAT

RECORD 0	8D	RECORD 1	8D	00

8D = CARRIAGE RETURN   00 = END OF DATA

Also See Page 4-11

BASIC (A OR I) FILE FORMAT

LL	LH	PROGRAM IMAGE

LL = LENGTH OF IMAGE LOW ORDER PART
LH = LENGTH OF IMAGE HIGH ORDER PART

Also See Pages 4-14, 4-15

BINARY FILE FORMAT

AL	AH	LL	LH	BINARY IMAGE

AL = ADDRESS OF IMAGE LOW ORDER PART
AH = ADDRESS OF IMAGE HIGH ORDER PART
LL = LENGTH OF IMAGE LOW ORDER PART
LH = LENGTH OF IMAGE HIGH ORDER PART

Also See Page 4-13