

```

;
; =====
;                               LIVEWIRE
;                               =====
;
; =====
;   WRITTEN BY: TOM HUDSON
;   A.N.A.L.O.G. COMPUTING #12
;   =====
;
; -----
;   PAGE ZERO USAGE
;   -----
;

```

0000	=	0080		ORG	\$80	
0080	=	0001	LO	DS	1	
0081	=	0001	HI	DS	1	
0082	=	0001	PLOTX	DS	1	;PLOT X VALUE
0083	=	0001	PLOTY	DS	1	;PLOT Y VALUE
0084	=	0001	COLOR	DS	1	;PLOT COLOR
0085	=	0001	DRAWX	DS	1	;DRAWTO X
0086	=	0001	DRAWY	DS	1	;DRAWTO Y
0087	=	0001	ACCX	DS	1	;X ACCUM.
0088	=	0001	ACCY	DS	1	;Y ACCUM.
0089	=	0001	DELTA	DS	1	;DRAW WORK AREA
008A	=	0001	DELTA	DS	1	;DRAW WORK AREA
008B	=	0001	INCX	DS	1	;DRAW X INCREMENT
008C	=	0001	INCY	DS	1	;DRAW Y INCREMENT
008D	=	0001	COUNTR	DS	1	;DRAWTO COUNTER
008E	=	0001	ENDPT	DS	1	;DRAW ENDPOINT
008F	=	0001	HOLD	DS	1	;WORK AREA
0090	=	0001	XWORK	DS	1	
0091	=	0001	YWORK	DS	1	
0092	=	0001	GRID	DS	1	;GRID # WORK
0093	=	0001	OFFSET	DS	1	;GRID OFFSET
0094	=	0001	PMTIME	DS	1	;PLAYER MOVE TIMER
0095	=	0001	PLRGRD	DS	1	;PLAYER GRID#
0096	=	0001	PLRY	DS	1	;PLAYER Y POS.
0097	=	0001	GRIDNO	DS	1	;GRID #
0098	=	0001	LAST	DS	1	;GRID...
0099	=	0001	NEXT	DS	1	;DIVIDE...
009A	=	0001	STEP	DS	1	;WORK...
009B	=	0001	DEST	DS	1	;AREAS
009C	=	0001	VBXHLD	DS	1	;X HOLD
009D	=	0001	PFTIME	DS	1	;PLAYER FIRE TIMER
009E	=	0001	ENDVAL	DS	1	;WORK AREA
009F	=	0001	MISNUM	DS	1	;MISSILE #
00A0	=	0001	PRFLIP	DS	1	;PROJ. FLIP FLAG
00A1	=	0001	PRADVT	DS	1	;PROJ. MOVE TIMER
00A2	=	0001	PRADV1	DS	1	;PROJ. TIMER
00A3	=	0001	TIMER	DS	1	;GENERAL TIMER
00A4	=	0001	INTRFG	DS	1	;INTRO FLAG

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00A5 = 0001      BCDLVL  DS      1      ;LEVEL #
00A6 = 0001      SHCOLR  DS      1      ;CHAR. COLOR
00A7 = 0001      SHOBYT  DS      1      ;CHAR. BYTE POS.
00A8 = 0001      YOFFSET  DS      1      ;PLOT Y OFFSET
00A9 = 0001      OBJTIM1  DS      1      ;OBJECT MOVE TIMER
00AA = 0001      OBJNUM   DS      1      ;OBJECT #
00AB = 0001      SHAPIX   DS      1      ;OBJ. SHAPE INDEX
00AC = 0001      LENGTH   DS      1      ;OBJ. LENGTH
00AD = 0001      XI        DS      1      ;OBJ. X INCREMENT
00AE = 0001      YI        DS      1      ;OBJ. Y INCREMENT
00AF = 0001      SHAPCT   DS      1      ;OBJ. SHAPE CNT.
00B0 = 0001      HLDGRD   DS      1      ;OBJ. GRID WORK
00B1 = 0001      PAUFLG   DS      1      ;PAUSE FLAG
00B2 = 0001      ZAP       DS      1      ;ZAP FLAG
00B3 = 0001      SAVEX     DS      1      ;WORK AREA
00B4 = 0001      SAVEY     DS      1      ;WORK AREA
00B5 = 0001      FLASHY   DS      1      ;OBJ. FLASH POS.
00B6 = 0001      FLTIME   DS      1      ;FLASH TIME
00B7 = 0001      SP1IX    DS      1      ;PLAYER...
00B8 = 0001      SP2IX    DS      1      ;SHAPE...
00B9 = 0001      SP3IX    DS      1      ;INDEX...
00BA = 0001      SPIX     DS      1      ;AREAS
00BB = 0001      PLTBYT   DS      1      ;PLYR. IMAGE BYTE
00BC = 0001      PSCNT    DS      1      ;PLYR. SHAPE COUNT
00BD = 0001      KILPLR   DS      1      ;KILL PLYR FLAG
00BE = 0001      PAVAIL   DS      1      ;# PROJ. AVAILABLE
00BF = 0001      TRANTM   DS      1      ;TRANSIENT TIMER
00C0 = 0001      DESTLO   DS      1      ;DESTINATION...
00C1 = 0001      DESTHI   DS      1      ;ADDRESS
00C2 = 0001      SHFLIP   DS      1      ;SHORT FLIP FLAG
00C3 = 0001      DESTNM   DS      1      ;SHORT PLYR #
00C4 = 0001      CPYST    DS      1      ;SHORT IMAGE START
00C5 = 0001      DMAC1    DS      1      ;DMA CTRL WORK
00C6 = 0001      GRAC1    DS      1      ;GRAPHICS CTRL WK.
00C7 = 0001      GRIDIX   DS      1      ;GRID INDEX
00C8 = 0001      LIVES    DS      1      ;LIVES LEFT
00C9 = 0001      GRDADJ   DS      1      ;GRID...
00CA = 0001      GRDWK    DS      1      ;DRAW...
00CB = 0001      GRDWK2   DS      1      ;WORK...
00CC = 0001      GRDNUM   DS      1      ;AREAS
00CD = 0001      OBJSPD   DS      1      ;OBJ. SPEED
00CE = 0001      JOYPAD   DS      1      ;STICK/PADDLE
00CF = 0001      CPYCNT   DS      1      ;SHORT COPY CNT.
00D0 = 0001      BONUS    DS      1      ;BONUS VALUE
00D1 = 0001      FIRSOU   DS      1      ;FIRE SOUND COUNT
00D2 = 0001      OBDSOU   DS      1      ;OBJ. DEATH SOUND
00D3 = 0001      MOVSOU   DS      1      ;PLYR MOVE SOUND
00D4 = 0004      PRYHLD   DS      4      ;PROJ. Y HOLDS
00D8 = 0003      SCORE    DS      3      ;SCORE
00DB = 0003      SCOADD   DS      3      ;SCORE ADD VALUE
00DE = 0001      MISCAD   DS      1      ;MISC. SCORE ADD
00DF = 0005      NUMOBJ   DS      5      ;OBJECTS LEFT

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00E4 = 0001    DIFF    DS      1      ;DIFFICULTY ADJUST
00E5 = 0006    OBJPRS   DS      6      ;OBJ PRESENT FLAGS

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;-----
; MISCELLANEOUS MEMORY
;-----

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= 0000    FMAREA = $0000    ;P/M AREA
= 0300    MISSLS = FMAREA+768
= 0400    PL0    = FMAREA+1024
= 0500    PL1    = FMAREA+1280
= 0600    PL2    = FMAREA+1536
= 0700    PL3    = FMAREA+1792
= 0800    DISP   = $0800    ;DISPLAY

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;-----
; SYSTEM EQUATES
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= 0200    VDSLST = $200     ;DLI VECTOR
= D40A    WSYNC  = $D40A    ;WAIT/SYNC
= 027C    PTRIG0 = $27C     ;PADDLE TRIG.
= 0270    POT0   = $270     ;PADDLE 0
= 02FC    KEY    = $2FC     ;KEYBOARD
= D01F    CONSOL = $D01F    ;CONSOLE BUTTONS
= D407    PMBASE = $D407    ;P/M BASE ADDR
= D20A    RANDOM = $D20A    ;RANDOM #
= E45C    SETVBV = $E45C    ;VBLANK SET
= E462    XITVBV = $E462    ;VBLANK EXIT
= 02C8    COLBK  = $2C8     ;COLORS
= 02C4    COLPF0 = $2C4
= 02C5    COLPF1 = $2C5
= 02C6    COLPF2 = $2C6
= 02C7    COLPF3 = $2C7
= D201    AUDC1  = $D201    ;AUDIO CONTROL
= D203    AUDC2  = $D203
= D205    AUDC3  = $D205
= D207    AUDC4  = $D207
= D200    AUDF1  = $D200    ;AUDIO FREQUENCY
= D202    AUDF2  = $D202
= D204    AUDF3  = $D204
= D206    AUDF4  = $D206
= D208    AUDCTL = $D208    ;MAIN AUDIO CTRL.
= 026F    PRIOR  = $026F    ;PRIORITY
= 004D    ATTRAC = $4D      ;ATTRACT MODE
= 022F    DMACTL = $22F     ;DMA CONTROL
= 0230    DLISTL = $230     ;DISP. LIST
= D01D    GRACTL = $D01D    ;GRAPHICS CTRL.
= D40E    NMIE   = $D40E    ;INTERRUPT ENABLE
= 02C0    COLPM0 = $2C0     ;PLAYER COLORS
= 02C1    COLPM1 = $2C1
= 02C2    COLPM2 = $2C2

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= 02C3      COLPM3 =          $2C3
= D000      HPOSP0 =          $D000      ;PLAYER POSITIONS
= D001      HPOSP1 =          $D001
= D002      HPOSP2 =          $D002
= D003      HPOSP3 =          $D003
= D004      HPOSM0 =          $D004      ;MISSILE POSITIONS
= D01E      HITCLR =          $D01E      ;COLLISION CLEAR
= D00C      P0PL  =          $D00C      ;PL0 TO PLAYER COLL.
= 0278      STICK =          $278       ;JOYSTICK
= 0284      STRIG =          $284       ;STICK TRIGGER

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```
00EB = 2000      ORG          $2000
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; -----
; MAIN GAME DISPLAY LIST
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2000 70F0704E  DLIST  DB          $70,$F0,$70,$4E
2004 0008      DW          DISP
2006 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
200E 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
2016 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
201E 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
2026 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
202E 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
2036 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
203E 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
2045 4E        DB          $4E
2046 0010      DW          DISP+$800
2048 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
2050 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
2058 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
2060 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
2068 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
2070 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
2078 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
2080 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
2088 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
2090 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
2098 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
20A0 0E0E0E0E0E DB          $E,$E,$E,$E,$E,$E,$E,$E
20A7 8000      DB          $80,$00
20A9 47        DB          $47
20AA 0321      DW          INFOLN
20AC 41        DB          $41
20AD 0020      DW          DLIST

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; -----
; TITLE SCREEN DISPLAY LIST
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```
20AF 7070707070 TITLDL DB          $70,$70,$70,$70,$70,$70
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20B5 7047          DB      $70,$47
20B7 6321          DW      LASTSC
20B9 707046       DB      $70,$70,$46
20BC 1321          DW      MAGMSG
20BE 7047          DB      $70,$47
20C0 2321          DW      TITLE
20C2 3046          DB      $30,$46
20C4 3321          DW      AUTHOR
20C6 70703046     DB      $70,$70,$30,$46
20CA 4321          DW      JOYMSG
20CC 41            DB      $41
20CD AF20          DW      TITLDL

```

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;-----
; DISPLAY LIST INTERRUPTS
;-----

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20CF 48           DLI1    PHA            ;SAVE ACCUM
20D0 A5C6         LDA      GRAC1      ;GET GR. CTRL
20D2 8D0AD4       STA      WSYNC     ;WAIT FOR SYNC
20D5 8D1DD0       STA      GRACTL    ;STORE IT
20D8 A5C5         LDA      DMAC1     ;GET AND SAVE
20DA 8D00D4       STA      $D400    ;DMA CTRL
20DD A9E9         LDA      #DLI2&255 ;POINT...
20DF 8D0002       STA      VDLSLST  ;TO...
20E2 A920         LDA      #DLI2/256 ;NEXT...
20E4 8D0102       STA      VDLSLST+1 ;DLI!
20E7 68           PLA            ;GET ACCUM
20E8 40           RTI            ;AND EXIT!

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20E9 48           DLI2    PHA            ;SAVE ACCUM
20EA A90A         LDA      #$0A     ;GET WHITE
20EC 8D0AD4       STA      WSYNC     ;WAIT FOR SYNC
20EF 8D16D0       STA      $D016    ;PUT IN COLOR 0
20F2 A974         LDA      #$74     ;PUT BLUE...
20F4 8D17D0       STA      $D017    ;IN COLOR 1
20F7 A928         LDA      #$28     ;PUT ORANGE...
20F9 8D18D0       STA      $D018    ;IN COLOR 2
20FC A93D         LDA      #$3D     ;SET UP...
20FE 8D00D4       STA      $D400    ;DMA CTRL
2101 68           PLA            ;GET ACCUM.
2102 40           RTI            ;AND EXIT

```

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;-----
; SCREEN MESSAGES
;-----

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2103 0000000000  INFOLN  DB      0,0,0,0,0,0,0,0
210B 00006C766C  DB      0,0,$6C,$76,$6C,0,0,0
2113 212E212C2F  MAGMSG  DB      $21,$2E,$21,$2C,$2F,$27
2119 00232F2D30  DB      0,$23,$2F,$2D,$30,$35
211F 34292E27     DB      $34,$29,$2E,$27

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2123 000000006C TITLE DB 0,0,0,0,$6C,$69,$76,$65
212B 7769726500 DB $77,$69,$72,$65,0,0,0,0
2133 00A2B90000 AUTHOR DB 0,$A2,$B9,0,0,$B4,$AF
213A AD00A8B5A4 DB $AD,0,$A8,$B5,$A4,$B3
2140 AFAE00 DB $AF,$AE,0
2143 00000000EA JOYMSG DB 0,0,0,0,$EA,$EF,$F9,$F3
214B F4E9E3EB00 DB $F4,$E9,$E3,$EB,0,0,0,0
2153 0000000000 PADMSG DB 0,0,0,0,0,$F0,$E1,$E4
215B E4ECE50000 DB $E4,$EC,$E5,0,0,0,0,0
2163 0000000000 LASTSC DB 0,0,0,0,0,0,0,0
216B 0000000000 DB 0,0,0,0,0,0,0,0

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; -----
; PROG START
; -----

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2173 DB LIVE CLD
2174 2065E4 JSR $E465 ;INIT SOUND
2177 A900 LDA #0 ;CLEAR PAGE 0
2179 A27F LDX #127
217B 9580 CPAGE0 STA $80,X
217D CA DEX
217E 10FB ^217B BPL CPAGE0
2180 A901 LDA #1 ;INIT...
2182 85A5 STA BCDLVL ;LEVEL #
2184 85A4 STA INTRFG ;SET INTRO FLAG
2186 A943 LDA #JOYMSG&255 ;DEFAULT...
2188 8DCA20 STA CONTRL ;CONTROL...
218B A921 LDA #JOYMSG/256 ;IS...
218D 8DCB20 STA CONTRL+1 ;STICK!
2190 A900 LDA #0 ;INIT...
2192 8D2F02 STA DMACTL ;DMA
2195 8D0ED4 STA NMEN ;INTERRUPTS
2198 8D08D2 STA AUDCTL ;AUDIO
219B 8D1ED0 STA HITCLR ;COLLISION
219E 8DC802 STA COLBK ;BACKGND COLOR
21A1 A203 LDX #3 ;CLEAR SHORTS
21A3 9D582E CLRSHO STA SHORTF,X
21A6 CA DEX
21A7 10FA ^21A3 BPL CLRSHO
21A9 A205 LDX #5 ;ZERO OBJECT...
21AB 9D682E CLRDED STA OBDEAD,X ;CLR DEAD TABLE
21AE CA DEX
21AF 10FA ^21AB BPL CLRDED
21B1 A202 LDX #2 ;ZERO SCORE
21B3 95D8 CLRSCO STA SCORE,X
21B5 95DB STA SCOADD,X
21B7 CA DEX
21B8 10F9 ^21B3 BPL CLRSCO
21BA A207 LDX #7
21BC 9D0C2E CLRPRJ STA PROJAC,X ;CLEAR PROJ.
21BF CA DEX

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21C0 10FA ^21BC      BPL      CLRPRJ
21C2 A205            LDX      #5
21C4 BD0321      MOVSCO LDA      INFOLN,X      ;COPY SCORE...
21C7 9D6821      STA      LASTSC+5,X    ;TO LAST...
21CA CA          DEX      ;SCORE LINE
21CB 10F7 ^21C4    BPL      MOVSCO
21CD A91D          LDA      #29      ;SET ALL...
21CF A205            LDX      #5      ;OBJECTS TO...
21D1 9D862E      INIOBS  STA      OBJSEG,X    ;SEGMENT # 29
21D4 CA          DEX
21D5 10FA ^21D1    BPL      INIOBS
21D7 208D25      JSR      SHOSCO      ;SHOW SCORE
21DA 208A26      JSR      SNDOFF      ;NO SOUNDS
21DD A906          LDA      #6      ;6 PROJECTILES
21DF 85BE          STA      PAVAIL      ;AVAILABLE
21E1 A902          LDA      #2      ;SET...
21E3 85D0          STA      BONUS      ;BONUS=20000
21E5 85C8          STA      LIVES      ;2 EXTRA LIVES
21E7 202C26      JSR      SHOLIV      ;SHOW LIVES LEFT
21EA A905          LDA      #5      ;SET UP...
21EC 85B8          STA      SP2IX      ;PLAYER...
21EE A90A          LDA      #10     ;SHAPE...
21F0 85B9          STA      SP3IX      ;INDEXES
21F2 A9AF          LDA      #TITLDL&255 ;POINT TO...
21F4 8D3002      STA      DLISTL      ;TITLE...
21F7 A920          LDA      #TITLDL/256 ;DISPLAY...
21F9 8D3102      STA      DLISTL+1    ;LIST
21FC A0EB          LDY      #VBI&255   ;POINT TO...
21FE A228          LDX      #VBI/256   ;VERTICAL...
2200 A907          LDA      #7      ;BLANK...
2202 205CE4      JSR      SETVBV      ;INTERRUPT
2205 A900          LDA      #PMAREA/256 ;SET UP P/M...
2207 8D07D4      STA      PMBASE      ;BASE ADDRESS
220A 208B2C      JSR      FMCLR      ;CLEAR P/M
220D A974          LDA      ##74      ;PUT BLUE...
220F 8DC402      STA      COLPF0      ;IN COLOR 0
2212 A9C4          LDA      ##C4      ;PUT GREEN...
2214 8DC502      STA      COLPF1      ;IN COLOR 1
2217 A90A          LDA      ##0A      ;PUT WHITE...
2219 8DC602      STA      COLPF2      ;IN COLOR 2
221C A934          LDA      ##34      ;PUT RED...
221E 8DC702      STA      COLPF3      ;IN COLOR 3
2221 A93D          LDA      ##3D      ;SET UP...
2223 8D2F02      STA      DMACTL      ;DMA,
2226 A903          LDA      #3      ;GRAPHICS,
2228 8D1DD0      STA      GRCTL      ;AND
222B A9C0          LDA      ##C0      ;INTERRUPT...
222D 8D0ED4      STA      NMEN      ;ENABLE
2230 A911          LDA      ##11      ;SET P/M...
2232 8D6F02      STA      PRIOR      ;PRIORITY
2235 A90F          LDA      ##0F      ;PUT WHITE...
2237 8DC102      STA      COLPM1      ;IN PLAYER 1,

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223A 8DC202          STA      COLPM2  ;PLAYER 2
223D 8DC302          STA      COLPM3  ;AND 3
2240 A916            LDA      #16      ;PUT YELLOW...
2242 8DC002          STA      COLPM0  ;IN PLAYER 0

;
; -----
;
;
;
2245 AD1FD0          INTRO  LDA      CONSOL  ;START KEY...
2248 2901            AND      #1        ;PRESSED?
224A D00A ^2256      BNE     CKSEL    ;NO!
224C AD1FD0          GOCKEK LDA      CONSOL  ;START KEY...
224F 2901            AND      #1        ;RELEASED?
2251 F0F9 ^224C      BEQ     GOCKEK   ;NO, WAIT.
2253 4C7B22          JMP     DIGIN    ;GO DIG IN!!
2256 AD1FD0          CKSEL  LDA      CONSOL  ;SELECT KEY...
2259 2902            AND      #2        ;PRESSED?
225B D0E8 ^2245      BNE     INTRO    ;NAW, LOOP BACK.
225D A5CE            LDA      JOYPAD  ;TOGGLE...
225F 18              CLC                    ;STICK/PADDLE...
2260 6901            ADC      #1        ;INDICATOR...
2262 2901            AND      #1
2264 85CE            STA      JOYPAD
2266 AA              TAX
2267 BD912F          LDA      JPLO,X   ;AND SHOW...
226A 8DCA20          STA      CONTRL  ;CONTROLLER...
226D BD932F          LDA      JPFI,X   ;MESSAGE...
2270 8DCB20          STA      CONTRL+1 ;ON SCREEN!
2273 A91E            LDA      #30      ;30 JIFFY...
2275 208326          JSR     WAIT     ;WAIT!
2278 4C4522          JMP     INTRO    ;AND LOOP.

;
; -----
;
;
;
227B A900            DIGIN  LDA      #DLIST&255 ;POINT TO...
227D 8D3002          STA      DLISTL  ;GAME...
2280 A920            LDA      #DLIST/256 ;DISPLAY...
2282 8D3102          STA      DLISTL+1 ;LIST
2285 A900            LDA      #0        ;NO LONGER IN...
2287 85A4            STA      INTRFG  ;INTRO
2289 A901            FOREVR LDA      #1        ;WE WANT...
228B 8584            STA      COLOR  ;COLOR 1
228D 85B2            STA      ZAP      ;RESET ZAP.
228F 20A12C          JSR     CLRSC    ;CLEAR SCREEN
2292 A5C7            LDA      GRIDIX  ;GET GRID#
2294 2907            AND      #7        ;FIND WHICH...
2296 AA              TAX                    ;GRID SHAPE...
2297 BDB42D          LDA      GRDTBL,X ;TO DRAW...
229A 85CC            STA      GRDNUM  ;AND STORE

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229C 203826      JSR      SHOLVL  ;SHOW LEVEL#
229F 209B26      JSR      DRGRID  ;DRAW GRID!
22A2 A5B1         CONWT   LDA      PAUFLG  ;WE PAUSED?
22A4 D0FC ^22A2   BNE      CONWT  ;YUP, LOOP.
22A6 A5BD         LDA      KILPLR  ;PLAYER DEAD?
22A8 F003 ^22AD   BEQ      PLIVE  ;NOPE!
22AA 20AF25      JSR      DECLIV  ;ONE LESS LIFE!
22AD 854D         PLIVE   STA      ATTRAC  ;CANCEL ATTRACT!
22AF A5B6         LDA      FLTIME  ;FLASH GOING?
22B1 D003 ^22B6   BNE      NOFEND  ;YES! STORE...
22B3 8D01D0      STA      HPOSP1  ;FLASH POSITION!
22B6 A5A9         NOFEND  LDA      OBJTIM1 ;OBJECTS MOVING?
22B8 D075 ^232F   BNE      NOOHAN  ;NOT YET!
22BA A5CD         LDA      OBJSPD  ;RESET MOVE...
22BC 85A9         STA      OBJTIM1 ;TIMER

;-----
;
; COPY OBJECT KILL TABLE
;-----

22BE A205         LDX      #5      ;THIS SECTION
22C0 BD682E      COPDED  LDA      OBDEAD,X  ;COPIES THE
22C3 9D6E2E      STA      OBDED2,X  ;OBJECT KILL
22C6 A900         LDA      #0      ;TABLE WHICH IS
22C8 9D682E      STA      OBDEAD,X  ;SET UP BY THE
22CB CA          DEX      ;PROJECTILE
22CC 10F2 ^22C0   BPL      COPDED  ;HANDLER

22CE A5DE         LDA      MISCAD  ;MISC.SCORE?
22D0 F009 ^22DB   BEQ      NOMSCO  ;NO!
22D2 85DC         STA      SCOADD+1  ;SET SCORE ADD...
22D4 205A25      JSR      ADDSCO  ;AND ADD IT!
22D7 A900         LDA      #0      ;THEN RESET THE
22D9 85DE         STA      MISCAD  ;ADD VALUE.
22DB A205         NOMSCO  LDX      #5      ;THIS SECTION
22DD A900         LDA      #0      ;TALLIES ALL
22DF 15E5         CKOBLV  ORA      OBJPRS,X  ;OBJECTS THAT
22E1 CA          DEX      ;ARE ALIVE
22E2 10FB ^22DF   BPL      CKOBLV
22E4 A204         LDX      #4      ;NOW TALLY
22E6 15DF         CKOBWT  ORA      NUMOBJ,X  ;ALL OBJECTS
22E8 CA          DEX      ;THAT ARE NOT
22E9 10FB ^22E6   BPL      CKOBWT  ;ON GRID YET
22EB C900         CMP      #0      ;ANY OBJECTS?
22ED F04D ^233C   BEQ      LVLEND  ;NO, END OF LEVEL!

22EF A205         LDX      #5      ;IS OBJECT
22F1 B5E5         GENNOL  LDA      OBJPRS,X  ;PRESENT?
22F3 D031 ^2326   BNE      NXTOGN  ;YES, TRY NEXT.
22F5 AD0AD2      TRYTYP  LDA      RANDOM  ;LET'S TRY TO
22F8 2907         AND      #7      ;START UP A
22FA C905         CMP      #5      ;NEW OBJECT

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22FC B0F7 ^22F5      BCS      TRYTYP    ;GET A TYPE
22FE A8              TAY              ;ANY OF THAT
22FF B9DF00         LDA      NUMOBJ,Y    ;TYPE WAITING?
2302 F022 ^2326     BEQ      NXTOGN   ;NO, TRY NEXT
2304 38            SEC              ;DECREMENT #
2305 E901          SBC      #1        ;OF OBJECTS
2307 99DF00         STA      NUMOBJ,Y    ;WAITING.
230A 98            TYA              ;THEN SET
230B 9D742E         STA      OBJTYP,X    ;OBJECT TYPE.
230E AD0AD2         NEWGRD LDA      RANDOM  ;GET A RANDOM
2311 290F          AND      #0F        ;SUB-GRID
2313 C90F          CMP      #15        ;NUMBER
2315 F0F7 ^230E     BEQ      NEWGRD
2317 9D802E         STA      OBJGRD,X    ;AND SAVE IT
231A A91E          LDA      #30        ;PUT OBJECT AT
231C 9D862E         STA      OBJSEG,X    ;FAR END OF GRID
231F A901          LDA      #1        ;SET UP...
2321 9D7A2E         STA      OBJINC,X    ;OBJ. INCREMENT
2324 95E5          STA      OBJPRS,X    ;OBJECT PRESENT
2326 CA           NXTOGN DEX              ;LOOP BACK TO DO
2327 10C8 ^22F1     BPL      GENNOL    ;NEXT OBJECT

2329 205B23         JSR      OBJHAN    ;HANDLE OBJECTS
232C 202C25         JSR      SHOHAN    ;HANDLE SHORTS

232F AD1FD0         NOOHAN LDA      CONSOL   ;ANY CONSOLE
2332 C907          CMP      #7        ;KEYS PRESSED?
2334 F003 ^2339     BEQ      JCONWT   ;NOPE!
2336 4C7321         JMP      LIVE      ;YES, RESTART GAME
2339 4CA222         JCONWT JMP      CONWT    ;INDIRECT JUMP
233C A5C7          LVLEND LDA      GRIDIX   ;ARE WE ON
233E C93F          CMP      #63        ;GRID #63?
2340 F016 ^2358     BEQ      NOGRDI   ;YES, DON'T INC!
2342 18            CLC              ;INCREMENT
2343 6901          ADC      #1        ;GRID #
2345 85C7          STA      GRIDIX   ;AND SAVE IT.
2347 2907          AND      #7        ;ADD 2 TO
2349 D004 ^234F     BNE      NODIFI   ;DIFFICULTY IF
234B E6E4          INC      DIFF      ;ON A MULTIPLE
234D E6E4          INC      DIFF      ;OF 8 GRIDS.
234F F8           NODIFI SED              ;INCREMENT
2350 A5A5          LDA      BCDLVL   ;BCD LEVEL #
2352 18            CLC              ;
2353 6901          ADC      #1        ;
2355 85A5          STA      BCDLVL   ;
2357 D8            CLD              ;NOW GO TO
2358 4C8922         NOGRDI JMP      FOREVR   ;DRAW NEW GRID.

; -----
; OBJECT HANDLER
; -----

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235B A5AA      OBJHAN  LDA      OBJNUM  ;INCREMENT
235D 18        CLC          ;OBJECT #
235E 6901      ADC      #1
2360 C906      CMP      #6      ;DONE?
2362 D005 ^2369 BNE      STONUM  ;NO, CONTINUE.
2364 A9FF      LDA      #$FF  ;RESET
2366 85AA      STA      OBJNUM  ;OBJECT #
2368 60        RTS          ;AND EXIT.
2369 85AA      STONUM  STA      OBJNUM  ;SAVE OBJ #
236B A6AA      OBHLP1  LDX      OBJNUM  ;GET OBJ #
236D B5E5      LDA      OBJPRS,X  ;OBJ PRESENT?
236F F0EA ^235B BEQ      OBJHAN  ;NO!
2371 BD862E    OBLIVE  LDA      OBJSEG,X  ;WITHIN 2 UNITS
2374 C902      CMP      #2      ;OF RIM?
2376 9039 ^23B1 BCC      NOOBFI  ;YES, DON'T FIRE
2378 AD0AD2    LDA      RANDOM  ;RANDOM CHANCE
237B 290F      AND      #$0F  ;OF SHOOTING
237D D032 ^23B1 BNE      NOOBFI  ;DON'T SHOOT
237F AD0C2E    LDA      PROJAC  ;PROJ. 0 ACTIVE?
2382 D004 ^2388 BNE      TRYPR1  ;YES, IGNORE!
2384 A000      LDY      #0      ;FORCE BRANCH
2386 F007 ^238F BEQ      STOBFI  ;TO STORE IT
2388 AD0D2E    TRYPR1  LDA      PROJAC+1  ;PROJ. 1 ACTIVE?
238B D024 ^23B1 BNE      NOOBFI  ;YES, NO FIRE
238D A001      LDY      #1      ;SET INDEX
238F BD862E    STOBFI  LDA      OBJSEG,X  ;INITIALIZE
2392 4A        LSR      A          ;PROJECTILE
2393 992C2E    STA      PROJSG,Y  ;SEGMENT #
2396 BD802E    LDA      OBJGRD,X  ;AND
2399 991C2E    STA      PROGRD,Y  ;SUB-GRID #
239C 0A        ASL      A          ;MULTIPLY
239D 0A        ASL      A          ;BY
239E 0A        ASL      A          ;16
239F 0A        ASL      A          ;AND
23A0 99242E    STA      PROJGN,Y  ;SAVE INDEX!
23A3 A9FF      LDA      #$FF  ;SET INCREMENT
23A5 99142E    STA      PROJNC,Y  ;(TOWARD RIM)
23A8 A915      LDA      #21  ;START THE
23AA 85D1      STA      FIRSOU  ;FIRE SOUND
23AC A901      LDA      #1      ;AND
23AE 990C2E    STA      PROJAC,Y  ;PROJECTILE
23B1 A900      NOOBFI  LDA      #0      ;SET COLOR 0
23B3 8584      STA      COLOR  ;TO ERASE OBJECT
23B5 207924    JSR      DRWOBJ  ;AND ERASE IT
23B8 A6AA      LDX      OBJNUM
23BA BD6E2E    LDA      OBDEDZ,X  ;OBJ DEAD?
23BD F01A ^23D9 BEQ      NOOKIL  ;YES! START
23BF 205526    JSR      FLASH  ;DEATH FLASH
23C2 A6AA      LDX      OBJNUM
23C4 BC742E    LDY      OBJTYP,X  ;GET OBJECT TYPE
23C7 B94E2E    LDA      POINT1,Y  ;GET POINTS
23CA 85DC      STA      SCOADD+1  ;AND READY

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23CC B9532E      LDA      POINT2,Y          ;THE SCORE
23CF 85DD       STA      SCOADD+2          ;ADD VALUE
23D1 205A25     JSR      ADDSCO           ;ADD TO SCORE!
23D4 A6AA       LDX      OBJNUM
23D6 4C2724     JMP      KILOBJ          ;THEN KILL OBJ.
23D9 BD862E     NOOKIL LDA      OBJSEG,X          ;INCREMENT
23DC 38         SEC
23DD FD7A2E     SBC      OBJINC,X          ;SEGMENT
23E0 9D862E     STA      OBJSEG,X          ;POSITION
23E3 3042 ^2427 BMI      KILOBJ          ;PAST RIM!
23E5 C91E       CMP      #30             ;TYPE 3 PAST END?
23E7 D004 ^23ED BNE      NOTOT3          ;NOPE!
23E9 E6E1       INC      NUMOBJ+2          ;START TYPE 2
23EB D03A ^2427 BNE      KILOBJ          ;FORCE BRANCH
23ED C90A       NOTOT3 CMP      #10             ;AT TYPE 3 TURN?
23EF D00C ^23FD BNE      OBHLP2          ;NO!
23F1 BD742E     LDA      OBJTYP,X          ;IS IT
23F4 C903       CMP      #3              ;TYPE 3?
23F6 D005 ^23FD BNE      OBHLP2          ;NO!
23F8 A9FF       LDA      #$FF           ;REVERSE OBJECT
23FA 9D7A2E     STA      OBJINC,X          ;INCREMENT
23FD BD742E     OBHLP2 LDA      OBJTYP,X          ;IS OBJECT
2400 C902       CMP      #2              ;TYPE 2?
2402 D014 ^2418 BNE      SETHUE          ;NO, SET COLOR
2404 AD0AD2     LDA      RANDOM          ;GET RANDOM
2407 2901       AND      #1              ;DIRECTION
2409 A8         TAY
240A BD802E     LDA      OBJGRD,X          ;AND
240D 18         CLC
240E 792731     ADC      ADDSB1,Y          ;SUBTRACT 1
2411 C90F       CMP      #15             ;PAST LIMIT?
2413 B003 ^2418 BCS      SETHUE          ;YES!
2415 9D802E     STA      OBJGRD,X          ;SAVE NEW POS.
2418 BD742E     SETHUE LDA      OBJTYP,X          ;GET OBJ. TYPE
241B AA        TAX
241C BD8C2E     LDA      OBJHUE,X          ;COLOR #
241F 8584       STA      COLOR           ;SAVE IT
2421 207924     JSR      DRWOBJ          ;AND DRAW OBJECT!
2424 4C5B23     JMP      OBJHAN          ;DO NEXT ONE

2427 A900       KILOBJ LDA      #0              ;OBJECT IS NO
2429 95E5       STA      OBJPRS,X          ;LONGER ALIVE
242B A915       LDA      #21             ;SET UP
242D 85D2       STA      OBDSOU          ;DEATH SOUND
242F BD862E     LDA      OBJSEG,X          ;CHECK
2432 1042 ^2476 BPL      JOBHAN          ;FOR A
2434 BD802E     LDA      OBJGRD,X          ;COLLISION
2437 C595       CMP      FLRGRD          ;WITH PLAYER
2439 D006 ^2441 BNE      CKSHOR          ;NO HIT
243B A901       LDA      #1              ;HIT,
243D 85BD       STA      KILPLR          ;KILL PLAYER!
243F D035 ^2476 BNE      JOBHAN          ;NEXT OBJECT

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2441 BD742E      CKSHOR  LDA      OBJTYP,X      ;OBJECT
2444 C901        CMP      #1          ;TYPE 1?
2446 D02E ^2476  BNE     JOBHAN      ;NOPE!
2448 A003        LDY     #3          ;TRY SHORT:
244A B9582E      TRYSHO  LDA      SHORTF,Y      ;SHORT AVAILABLE?
244D F005 ^2454  BEQ     INISHO      ;YUP!
244F 88         DEY     ;KEEP...
2450 10F8 ^244A  BPL     TRYSHO      ;TRYING!
2452 3022 ^2476  BMI     JOBHAN      ;NO SHORT AVAIL!
2454 BD802E      INISHO  LDA      OBJGRD,X      ;MULTIPLY THE
2457 0A         ASL     A          ;OBJECT'S
2458 0A         ASL     A          ;SUB-GRID #
2459 0A         ASL     A          ;BY 16...
245A 0A         ASL     A
245B 18         CLC
245C 6908        ADC     #8          ;AND ADD 8 FOR
245E 995C2E      STA     SHORTX,Y      ;THE SHORT INDEX
2461 A901        LDA     #1          ;SHORT IS
2463 99582E      STA     SHORTF,Y      ;ALIVE!
2466 AD0AD2      LDA     RANDOM      ;RANDOMIZE...
2469 2901        AND     #1          ;SHORT...
246B 99602E      STA     SHORTD,Y      ;DIRECTION
246E AD0AD2      LDA     RANDOM      ;AND THAT...
2471 293F        AND     #$3F        ;DIRECTION'S...
2473 99642E      STA     SHORTT,Y      ;TIME!
2476 4C5B23      JOBHAN  JMP     OBJHAN      ;NEXT OBJECT

2479 A6AA        DRWOBJ  LDX     OBJNUM      ;GET OBJECT #
247B BD802E      LDA     OBJGRD,X      ;GET SUB-GRID #
247E 0A         ASL     A          ;MULTIPLY
247F 0A         ASL     A          ;BY 16...
2480 0A         ASL     A
2481 0A         ASL     A
2482 85B0        STA     HLDGRD      ;AND SAVE.
2484 BD862E      LDA     OBJSEG,X      ;DIVIDE
2487 4A         LSR     A          ;SEGMENT BY 2
2488 B015 ^249F  BCS     ODDSEG      ;PROCESS ODD #
248A 18         CLC     ;IT'S EVEN, ADD
248B 65B0        ADC     HLDGRD      ;GRID INDEX
248D A8         TAY     ;PUT IN Y REG.
248E B9A031      LDA     SEGX,Y      ;GET OBJECT'S
2491 8582        STA     PLOTX      ;X POSITION
2493 85B3        STA     SAVEX      ;AND SAVE
2495 B9A032      LDA     SEGY,Y      ;GET OBJECT'S
2498 8583        STA     PLOTY      ;Y POSITION
249A 85B4        STA     SAVEY      ;AND SAVE
249C 4CBB24      JMP     ODDSKP      ;SKIP ODD ROUTINE
249F 18         ODDSEG  CLC     ;IT'S ODD, ADD
24A0 65B0        ADC     HLDGRD      ;GRID INDEX
24A2 A8         TAY     ;PUT IN Y REG.
24A3 B9A031      LDA     SEGX,Y      ;GET OBJECT'S
24A6 18         CLC     ;X POS, ADD

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24A7 79A131      ADC      SEGX+1,Y      ;NEXT X POS.
24AA 6A          ROR      A          ;GET AVERAGE
24AB 8582        STA      PLOTX      ;PUT IN PLOT X
24AD 85B3        STA      SAVEX      ;AND SAVE
24AF B9A032      LDA      SEGY,Y      ;GET OBJECT'S
24B2 18          CLC          ;Y POS, ADD
24B3 79A132      ADC      SEGY+1,Y      ;NEXT Y POS.
24B6 6A          ROR      A          ;GET AVERAGE
24B7 8583        STA      PLOTY      ;PUT IN PLOT Y
24B9 85B4        STA      SAVEY      ;AND SAVE
24BB A91E          ODDSKP LDA      #30        ;NOW CALCULATE
24BD 38          SEC          ;THE OBJECT'S
24BE FD862E      SBC      OBJSEG,X      ;SIZE BASED ON
24C1 4A          LSR      A          ;ITS POSITION
24C2 29FE        AND      #FE         ;ON THE GRID
24C4 0A          ASL      A
24C5 0A          ASL      A
24C6 A8          TAY          ;PUT INDEX IN Y
24C7 A200        LDX      #0          ;NOW COPY PART
24C9 B9012F      COPYSZ LDA      SIZTBL,Y      ;OF THE SIZE
24CC 9D912E      STA      SIZEWK,X      ;TABLE TO A
24CF C8          INY          ;SIZE WORK AREA
24D0 EB          INX          ;THIS TABLE HOLDS
24D1 E008        CPX      #8          ;8 SIZE VALUES
24D3 D0F4 ^24C9 BNE      COPYSZ      ;BASED ON DIST.
24D5 A6AA        LDX      OBJNUM      ;GET OBJECT #
24D7 BD742E      LDA      OBJTYP,X      ;AND ITS TYPE
24DA 0A          ASL      A          ;AND MULTIPLY
24DB 0A          ASL      A          ;BY 8 FOR AN
24DC 0A          ASL      A          ;INDEX INTO
24DD 85AB        STA      SHAPIX      ;THE SHAPE TABLE
24DF A908        LDA      #8          ;MAX 8 LINES IN
24E1 85AF        STA      SHAPCT      ;EACH OBJECT
24E3 A6AB          DOBLP  LDX      SHAPIX      ;GET LINE#
24E5 BDB12E      LDA      OBJDIR,X      ;& ITS DIRECTION
24E8 A8          TAY          ;A NEGATIVE #
24E9 3040 ^252B BMI      ENDOBJ      ;INDICATES END
24EB B9992E      LDA      FXINC,Y      ;GET X INCREMENT
24EE 85AD        STA      XI          ;OF LINE,
24F0 B9A12E      LDA      FYINC,Y      ;Y INCREMENT
24F3 85AE        STA      YI          ;OF LINE,
24F5 BDD92E      LDA      OBJLEN,X      ;ABSOLUTE LENGTH
24F8 A8          TAY          ;OF LINE THEN
24F9 B9912E      LDA      SIZEWK,Y      ;SCALED LENGTH
24FC 85AC        STA      LENGTH      ;AND STORE!
24FE A582          PLOT0B LDA      PLOTX      ;THIS SECTION
2500 18          CLC          ;ADJUSTS THE
2501 65AD        ADC      XI          ;X AND Y PLOT
2503 8582        STA      PLOTX      ;VALUES...
2505 A583        LDA      PLOTY
2507 18          CLC
2508 65AE        ADC      YI

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250A 8583          STA      PLOTY
250C A5AB          LDA      SHAPIX ;DON'T PLOT
250E F003 ^2513   BEQ      NOPLT1 ;FIRST LINE!
2510 20BC2C       JSR      PLOTCL ;PLOT POINT
2513 A583          NOPLT1 LDA      PLOTY ;INCREMENT Y
2515 18           CLC      ;AGAIN TO ADJUST
2516 65AE         ADC      YI ;FOR GR. 7+
2518 8583          STA      PLOTY ;ASPECT RATIO
251A A5AB          LDA      SHAPIX ;DON'T PLOT
251C F003 ^2521   BEQ      NOPLT2 ;FIRST LINE
251E 20BC2C       JSR      PLOTCL ;PLOT POINT
2521 C6AC          NOPLT2 DEC      LENGTH ;END OF LINE?
2523 10D9 ^24FE   BPL      PLOT0B ;NOPE!
2525 E6AB          INC      SHAPIX ;NEXT LINE
2527 C6AF         DEC      SHAPCT ;LAST LINE?
2529 D0B8 ^24E3   BNE      DOBLP  ;NOT YET!
252B 60           ENDOBJ  RTS      ;ALL DONE!

; -----
; SHORT HANDLER
; -----

252C A203          SHOHAN  LDX      #3 ;MAX. 4 SHORTS
252E BD582E       SHHANL  LDA      SHORTF,X ;SHORT ALIVE?
2531 F023 ^2556   BEQ      HANNXS ;NO, DO NEXT
2533 BC602E       LDY      SHORTD,X ;GET SHORT DIR.
2536 BD5C2E       LDA      SHORTX,X ;GET X POS.
2539 18           CLC      ;AND ADJUST
253A 792531       ADC      ADDSUB,Y ;POSITION
253D C9F0         CMP      #240 ;ON GRID?
253F B008 ^2549   BCS      RESSHD ;NO! DON'T MOVE
2541 9D5C2E       STA      SHORTX,X ;OK, SAVE POS.
2544 DE642E       DEC      SHORTT,X ;DIRECTION CHANGE?
2547 100D ^2556   BPL      HANNXS ;NO!
2549 AD0AD2       RESSHD  LDA      RANDOM ;GET A RANDOM
254C 293F         AND      ##3F ;DIRECTION TIME
254E 9D642E       STA      SHORTT,X ;0-63 & SAVE
2551 2901         AND      #1 ;RANDOM DIRECTION
2553 9D602E       STA      SHORTD,X ;0-1 & SAVE
2556 CA           HANNXS  DEX      ;MORE SHORTS?
2557 10D5 ^252E   BPL      SHHANL ;YUP!
2559 60           RTS      ;ALL DONE!

; -----
; ADD TO SCORE
; -----

255A A000          ADDSCO  LDY      #0 ;GET ZERO
255C F8           SED      ;SET DECIMAL MODE
255D A5DA         LDA      SCORE+2 ;THIS SECTION
255F 18           CLC      ;INCREMENTS
2560 65DD         ADC      SCOADD+2 ;THE 3-DIGIT

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2562 85DA          STA      SCORE+2 ;SCORE USING
2564 84DD          STY      SCOADD+2      ;THE 3-DIGIT
2566 A5D9          LDA      SCORE+1 ;SCORE ADD
2568 65DC          ADC      SCOADD+1      ;AREA, THEN
256A 85D9          STA      SCORE+1 ;ZEROS OUT
256C 84DC          STY      SCOADD+1      ;THE
256E A5D8          LDA      SCORE  ;SCORE ADD
2570 65DB          ADC      SCOADD  ;AREA USING
2572 85DB          STA      SCORE  ;THE
2574 84DB          STY      SCOADD  ;Y REGISTER.
2576 D8            CLD          ;CLR DECIMAL MODE
2577 208D25        JSR      SHOSCO  ;SHOW SCORE
257A A5D8          LDA      SCORE  ;IS SCORE AT
257C C5D0          CMP      BONUS  ;BONUS LEVEL?
257E D00C ^258C   BNE      NOBONS  ;SORRY!
2580 20A325        JSR      INCLIV  ;BONUS, ADD LIFE!
2583 F8            SED          ;SET DECIMAL
2584 A5D0          LDA      BONUS  ;GET OLD BONUS
2586 18            CLC          ;ADD 20000
2587 6902          ADC      #2      ;TO IT
2589 D8            CLD          ;CLR DECIMAL
258A 85D0          STA      BONUS  ;AND SAVE BONUS
258C 60            NOBONS  RTS      ;FINIS!

```

```

; -----
; SHOW SCORE
; -----

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258D A910          SHOSCO  LDA      ##10  ;SET UP COLOR
258F 85A6          STA      SHCOLR ;BYTE FOR SHOW
2591 A200          LDX      #0      ;ZERO X
2593 A000          LDY      #0      ;& Y REGS
2595 B9D800        SSCOLP  LDA      SCORE,Y ;GET SCORE BYTE
2598 204026        JSR      SHOBCD  ;SHOW IT
259B E8            INX          ;INCREMENT SHOW
259C E8            INX          ;POS. BY 2
259D C8            INY          ;NEXT SCORE BYTE
259E C003          CPY      #3      ;DONE?
25A0 D0F3 ^2595   BNE      SSCOLP  ;NOT YET!
25A2 60            RTS          ;ALL DONE!

```

```

; -----
; INCREMENT LIVES
; -----

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25A3 A5C8          INCLIV  LDA      LIVES  ;DO WE HAVE
25A5 C905          CMP      #5      ;5 LIVES NOW?
25A7 F005 ^25AE   BEQ      NOMOLV ;YUP, NO INC!
25A9 E6C8          INC      LIVES  ;ONE MORE LIFE
25AB 202C26        JSR      SHOLIV  ;SHOW IT
25AE 60            NOMOLV  RTS      ;AND EXIT!

```



```

;
; -----
;   DECREMENT LIVES
; -----
;

```

```

25AF  208A26      DECLIV  JSR      SNDOFF  ;NO SOUND

```

```

;
; -----
;   WAIT FOR PROJECTILES TO END
; -----
;

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25B2  A207        WAITPD  LDX      #7        ;8 PROJECTILES
25B4  A900        LDA      #0        ;ZERO TALLY
25B6  1D0C2E      CKPRLV  ORA      PROJAC,X    ;CHECK ALL
25B9  CA          DEX          ;PROJECTILES
25BA  D0FA ^25B6  BNE      CKPRLV   ;FOR ACTIVITY
25BC  C900        CMP      #0        ;ANY ACTIVE?
25BE  D0F2 ^25B2  BNE      WAITPD   ;YES! WAIT MORE!

```

```

;
; -----
;   STOP SHORTS
; -----
;

```

```

25C0  A203        LDX      #3        ;4 SHORTS (0-3)
25C2  9D582E      STPSHO  STA      SHORTF,X    ;TURN OFF
25C5  CA          DEX          ;ALL OF 'EM
25C6  10FA ^25C2  BPL      STPSHO   ;LOOP UNTIL DONE

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```

;
; -----
;   PUT OBJECTS AT END OF GRID
; -----
;

```

```

25C8  A900        LDA      #0        ;ERASE
25CA  8584        STA      COLOR    ;COLOR
25CC  A905        LDA      #5        ;ERASE ALL 6
25CE  85AA        STA      OBJNUM   ;OBJECTS
25D0  207924      ERSOBJ  JSR      DRWOBJ  ;ERASE IT!
25D3  A6AA        LDX      OBJNUM   ;GET OBJECT #
25D5  A91E        LDA      #30       ;PLACE AT
25D7  9D862E      STA      OBJSEG,X ;SEG #30
25DA  A901        LDA      #1        ;SET UP MOVE
25DC  9D7A2E      STA      OBJINC,X ;INCREMENT
25DF  AD0AD2      RNDOBG  LDA      RANDOM   ;GET RANDOM
25E2  290F        AND      #0F      ;SUB-GRID #
25E4  C90F        CMP      #0F      ;0-14
25E6  F0F7 ^25DF  BEQ      RNDOBG
25E8  9D802E      STA      OBJGRD,X
25EB  C6AA        DEC      OBJNUM   ;MORE OBJECTS?
25ED  10E1 ^25D0  BPL      ERSOBJ  ;YEAH, DO 'EM
25EF  A90F        LDA      #0F      ;SHOW PLAYER
25F1  8DC002      STA      COLPM0  ;DEATH HERE
25F4  8D01D2      STA      AUDC1   ;START SOUND
25F7  AD0AD2      MOREWT  LDA      RANDOM   ;SET RANDOM

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25FA 291F          AND    ##1F    ;DEATH SOUND
25FC 8D00D2       STA    AUDF1   ;FREQUENCY
25FF A906          LDA    #6      ;WAIT 0.1 SEC
2601 208326       JSR    WAIT
2604 CEC002       DEC    COLPM0  ;DEC BRIGHTNESS
2607 ADC002       LDA    COLPM0  ;NOW SET
260A 8D01D2       STA    AUDC1   ;DEATH VOLUME
260D D0E8 ^25F7   BNE    MOREWT  ;MORE WAIT
260F A5C8          LDA    LIVES   ;MORE LIVES?
2611 F014 ^2627   BEQ    DEAD    ;NO MORE LIFE!
2613 C6C8          DEC    LIVES   ;ONE LESS LIFE
2615 202C26       JSR    SHOLIV  ;SHOW IT
2618 A93C          LDA    #60     ;WAIT 1 SEC
261A 208326       JSR    WAIT
261D A900          LDA    #0      ;RESET PLAYER
261F 85BD         STA    KILPLR  ;KILL FLAG
2621 A916          LDA    ##16    ;AND
2623 8DC002       STA    COLPM0  ;PLAYER COLOR
2626 60            RTS          ;AND EXIT!
2627 68            DEAD  PLA          ;ALL DEAD, PULL
2628 68            PLA          ;RETURN ADDR.
2629 4C7321       JMP    LIVE    ;AND RESTART GAME

```

```

; -----
; SHOW LIVES
; -----

```

```

262C A990          SHOLIV LDA    ##90    ;SELECT DISPLAY
262E 85A6         STA    SHCOLR  ;COLOR
2630 A5C8          LDA    LIVES   ;GET LIVES
2632 A207          LDX    #7      ;7TH CHAR ON LINE
2634 204026       JSR    SHOBCD  ;SHOW IT!
2637 60            RTS          ;AND EXIT

```

```

; -----
; SHOW LEVEL
; -----

```

```

2638 A050          SHOLVL LDY    ##50    ;SELECT DISPLAY
263A 84A6         STY    SHCOLR  ;COLOR
263C A5A5          LDA    BCDLVL  ;GET LEVEL#
263E A20E          LDX    #14     ;14TH CHAR

```

```

; -----
; BCD CHAR DISPLAY
; -----

```

```

2640 85A7          SHOBCD STA    SHOBYT  ;SAVE CHARACTER
2642 290F         AND    ##0F    ;GET NUM 1
2644 05A6         ORA    SHCOLR  ;ADD COLOR
2646 9D0421       STA    INFOLN+1,X ;SHOW IT
2649 A5A7          LDA    SHOBYT  ;GET CHAR.

```

```

264B 4A          LSR      A          ;SHIFT RIGHT
264C 4A          LSR      A          ;TO GET
264D 4A          LSR      A          ;NUM 2
264E 4A          LSR      A
264F 05A6        ORA      SHCOLR    ;ADD COLOR
2651 9D0321      STA      INFOLN,X    ;SHOW IT
2654 60          RTS                ;AND EXIT!

```

```

;-----
;
; FLASH OBJECT WHEN DEAD
;-----

```

```

2655 A4B5          FLASH   LDY      FLASHY    ;GET Y POS.
2657 A900          LDA      #0        ;GET READY TO
2659 A20E          LDX      #14       ;CLEAR OLD FLASH
265B 990005        CLFLSH STA      FL1,Y    ;ZERO OUT EACH
265E C8            INY                ;BYTE OF FLASH
265F CA            DEX                ;DONE YET?
2660 D0F9 ^265B    BNE      CLFLSH    ;NO, LOOP.
2662 A5B3          LDA      SAVEX     ;GET OBJECT'S
2664 18            CLC                ;X POS. AND
2665 693D          ADC      #61       ;ADD 61 FOR
2667 8D01D0        STA      HPOSP1    ;FLASH HORIZ.
266A A5B4          LDA      SAVEY     ;GET Y POS AND
266C 18            CLC                ;ADD 26 FOR
266D 691A          ADC      #26       ;FLASH VERT.
266F A8            TAY                ;POSITION
2670 84B5          STY      FLASHY    ;AND SAVE
2672 A20D          LDX      #13       ;FLASH = 14 BYTES
2674 BD402E        SEFLSH LDA      FLBYTE,X    ;GET IMAGE
2677 990005        STA      FL1,Y    ;PUT IN PLAYER 1
267A C8            INY                ;NEXT P/M BYTE
267B CA            DEX                ;NEXT IMAGE BYTE
267C 10F6 ^2674    BPL      SEFLSH    ;LOOP.
267E A901          LDA      #1        ;SET FLASH
2680 85B6          STA      FLTIME    ;DURATION
2682 60          RTS                ;ALL DONE!

```

```

;-----
;
; TIME DELAY
;-----

```

```

2683 85A3          WAIT    STA      TIMER    ;SET TIMER
2685 A5A3          WAITLP LDA      TIMER    ;TIMER = 0?
2687 D0FC ^2685    BNE      WAITLP    ;NOPE!
2689 60          RTS                ;TIMER FINISHED!

```

```

;-----
;
; TURN SOUNDS OFF
;-----

```

```

268A A900          SNDOFF LDA      #0        ;ZERO OUT;

```

```

268C 85D1          STA      FIRSOU   ;FIRE SOUND
268E 85D2          STA      OBDSOU   ;OBJ DEATH SOUND
2690 85D3          STA      MOVSOU   ;PLYR MOVE SOUND
2692 A207           LDX      #7        ;ZERO ALL;
2694 9D00D2        SNDOF2   STA      AUDF1,X   ;AUDIO REGISTERS
2697 CA           DEX
2698 10FA ^2694    BPL      SNDOF2
269A 60            RTS          ;AND EXIT

; -----
; DRAW GRID
; -----

269B A901          DRGRID   LDA      #1        ;TELL INTERRUPT
269D 85A4          STA      INTRFG   ;IT'S INTRO
269F 208A26        JSR      SNDOFF   ;TURN OFF SOUND
26A2 A920          LDA      #*20     ;TURN OFF TOP
26A4 85C5          STA      DMAC1   ;OF SCREEN BY
26A6 A900          LDA      #0        ;SHUTTING OFF
26A8 85C6          STA      GRAC1   ;DMA & GRAPHICS
26AA A203          LDX      #3        ;TURN OFF SHORTS
26AC 9D582E        CLSHRT   STA      SHORF,X
26AF CA           DEX
26B0 10FA ^26AC    BPL      CLSHRT
26B2 A207          LDX      #7        ;TURN OFF
26B4 9D0C2E        CLPRJC   STA      PROJAC,X   ;ALL PROJECTILES
26B7 CA           DEX
26B8 10FA ^26B4    BPL      CLPRJC
26BA 208B2C        JSR      FMCLR    ;CLEAR P/M AREA
26BD 8593          STA      OFFSET   ;ZERO OFFSET
26BF A906          LDA      #6        ;SET 6 PROJECT.
26C1 85BE          STA      PAVAIL   ;AVAILABLE
26C3 A5C7          LDA      GRIDIX   ;GET GRID #
26C5 4A           LSR      A          ;DIVIDE
26C6 4A           LSR      A          ;BY
26C7 4A           LSR      A          ;8
26C8 AA           TAX          ;LOAD APPROPRIATE
26C9 BDBC2D        LDA      C0TBL,X   ;GRID COLOR
26CC 8DC402        STA      COLPF0
26CF BDC42D        LDA      C1TBL,X   ;OBJECT COLOR 1
26D2 8DC502        STA      COLPF1
26D5 BDC2D         LDA      C2TBL,X   ;OBJECT COLOR 2
26D8 8DC602        STA      COLPF2
26DB BDA92E        LDA      OBSTBL,X   ;OBJECT SPEED
26DE 85CD          STA      OBJSPD
26E0 A5C7          LDA      GRIDIX   ;GET GRID
26E2 2907          AND      #7        ;SHAPE INDEX
26E4 AA           TAX          ;LOAD:
26E5 BDD42D        LDA      OBCNT0,X   ;TYPE 0
26E8 85DF          STA      NUMOBJ   ;OBJECT COUNT
26EA BDDC2D        LDA      OBCNT1,X   ;TYPE 1
26ED 85E0          STA      NUMOBJ+1 ;OBJECT COUNT

```

```

26EF BDE42D          LDA      OBCNT2,X          ;TYPE 2
26F2 85E1           STA      NUMOBJ+2        ;OBJECT COUNT
26F4 BDEC2D          LDA      OBCNT3,X          ;TYPE 3
26F7 85E2           STA      NUMOBJ+3        ;OBJECT COUNT
26F9 BDF42D          LDA      OBCNT4,X          ;TYPE 4
26FC 85E3           STA      NUMOBJ+4        ;OBJECT COUNT
26FE A204            LDX      #4              ;ADJUST ALL
2700 B5DF           DIFFAD LDA      NUMOBJ,X          ;OBJECT COUNTS
2702 18             CLC                    ;BY ADDING
2703 65E4           ADC      DIFF            ;DIFFICULTY
2705 95DF           STA      NUMOBJ,X          ;AND SAVE
2707 CA            DEX
2708 10F6 ^2700     BPL      DIFFAD
270A A5CC           LDA      GRDNUM         ;GET GRID #
270C 0A            ASL      A              ;MULTIPLY
270D 0A            ASL      A              ;BY 16
270E 0A            ASL      A
270F 0A            ASL      A
2710 85C9           STA      GRDADJ         ;SAVE
2712 85CA           STA      GRDWK          ;SAVE
2714 AA            TAX                    ;SET X INDEX
2715 A910           LDA      #16           ;LOAD 16 BYTES
2717 85CB           STA      GRDWK2
2719 BD952F         GRDLIN LDA      CX,X          ;GET CLOSE X
271C 8582           STA      PLOTX
271E BDF52F         LDA      CY,X          ;GET CLOSE Y
2721 8583           STA      PLOTY
2723 BD5530         LDA      FX,X          ;GET FAR X
2726 8585           STA      DRAWX
2728 BDB530         LDA      FY,X          ;GET FAR Y
272B 8586           STA      DRAWY
272D ADC402         LDA      COLPF0        ;INVISIBLE?
2730 F006 ^2738     BEQ      NOGRD1        ;YES, DON'T DRAW
2732 20BC2C         JSR      PLOTCL        ;PLOT CLOSE POINT
2735 201F2D         JSR      DRAW          ;DRAW TO FAR
2738 C6CB           NOGRD1 DEC      GRDWK2        ;CONTINUE DRAWING
273A F007 ^2743     BEQ      GRDB01        ;UNTIL ALL 16
273C E6CA           INC      GRDWK         ;LINES ARE DONE
273E A6CA           LDX      GRDWK
2740 4C1927         JMP      GRDLIN
2743 A6C9           GRDB01 LDX      GRDADJ        ;NOW DRAW 15
2745 86CA           STX      GRDWK         ;CLOSE GRID
2747 A90F           LDA      #15           ;BORDER LINES
2749 85CB           STA      GRDWK2
274B BD952F         GRDBL1 LDA      CX,X          ;GET CLOSE X
274E 8582           STA      PLOTX
2750 BDF52F         LDA      CY,X          ;GET CLOSE Y
2753 8583           STA      PLOTY
2755 BD962F         LDA      CX+1,X        ;NEXT CLOSE X
2758 8585           STA      DRAWX
275A 18             CLC                    ;FIND POINT
275B 6582           ADC      PLOTX         ;BETWEEN THEM

```

```

275D 6A          ROR      A
275E 8590        STA      XWORK    ;AND SAVE IT!
2760 BDF62F      LDA      CY+1,X   ;NEXT CLOSE Y
2763 8586        STA      DRAWY
2765 18          CLC
2766 6583        ADC      PLOTY    ;FIND POINT
2768 6A          ROR      A          ;BETWEEN THEM
2769 8591        STA      YWORK    ;AND SAVE IT!
276B A90F        LDA      #15     ;SET UP A WORK
276D 38          SEC      ;AREA TO HOLD
276E E5CB        SBC      GRDWK2   ;THE POINTS
2770 8592        STA      GRID     ;BETWEEN LINES
2772 20BE28     JSR      GRIDSV   ;AND SAVE THEM
2775 ADC402      LDA      COLPF0  ;INVISIBLE GRID?
2778 F006 ^2780 BEQ      NOGRD2   ;YES, DON'T DRAW
277A 20BC2C     JSR      PLOTCL   ;PLOT CLOSE POINT1
277D 201F2D     JSR      DRAW     ;DRAW TO POINT 2
2780 C6CB          NOGRD2 DEC      GRDWK2   ;MORE LINES?
2782 F007 ^278B BEQ      GRDBO2   ;NO!
2784 E6CA        INC      GRDWK   ;INCREMENT TO
2786 A6CA        LDX      GRDWK   ;NEXT LINE
2788 4C4B27     JMP      GRDBL1   ;AND LOOP
278B A6C9          GRDBO2 LDX      GRDADJ   ;NOW DRAW 15
278D 86CA        STX      GRDWK   ;FAR GRID
278F A90F        LDA      #15     ;BORDER LINES
2791 85CB        STA      GRDWK2
2793 8593        STA      OFFSET  ;AND SET OFFSET
2795 BD5530     GRDBL2 LDA      FX,X     ;GET FAR X
2798 8582        STA      PLOTX
279A BDB530     LDA      FY,X     ;GET FAR Y
279D 8583        STA      PLOTY
279F BD5630     LDA      FX+1,X   ;NEXT FAR X
27A2 8585        STA      DRAWX
27A4 18          CLC
27A5 6582        ADC      PLOTX   ;AND FIND
27A7 6A          ROR      A          ;MIDPOINT
27A8 8590        STA      XWORK    ;BETWEEN THEM
27AA BDB630     LDA      FY+1,X   ;AND SAVE IT!
27AD 8586        STA      DRAWY   ;NEXT FAR Y
27AF 18          CLC
27B0 6583        ADC      PLOTY   ;AND FIND
27B2 6A          ROR      A          ;MIDPOINT
27B3 8591        STA      YWORK    ;BETWEEN THEM
27B5 A90F        LDA      #15     ;AND SAVE IT!
27B7 38          SEC      ;USE THE SAME
27B8 E5CB        SBC      GRDWK2   ;WORK AREA
27BA 8592        STA      GRID     ;TO HOLD THE
27BC 20BE28     JSR      GRIDSV   ;MIDPOINTS
27BF ADC402      LDA      COLPF0  ;AND SAVE THEM
27C2 F006 ^27CA BEQ      NOGRD3   ;INVISIBLE GRID?
27C4 20BC2C     JSR      PLOTCL   ;YES, DON'T DRAW
27C7 201F2D     JSR      DRAW     ;PLOT FAR POINT 1
                ;DRAW TO POINT 2

```

```

27CA C6CB      NOGRD3  DEC      GRDWK2  ;MORE LINES?
27CC F007 ^27D5 BEQ      GENCOO  ;NO!
27CE E6CA      INC      GRDWK   ;INCREMENT TO
27D0 A6CA      LDX      GRDWK   ;NEXT LINE
27D2 4C9527    JMP      GRDBL2  ;AND LOOP

;
; -----
;
; NOW GENERATE COORDINATE TABLE
;
;
; THIS SECTION BUILDS THE SEGX,
; SEGY, RIMX AND RIMY TABLES.
; THE SEGX&Y TABLES ARE POINTS
; UP AND DOWN THE GRID FOR PRO-
; JECTILES AND OBJECTS. THE
; RIMX&Y TABLES ARE FOR THE
; POSITIONING OF SHORTS.
;
; -----
;

27D5 A900      GENCOO  LDA      #0
27D7 8597      STA      GRIDNO
27D9 AA        DIVCTL  TAX
27DA BDA031    LDA      SEGX,X  ;SET UP SEGWK
27DD 8D8F31    STA      SEGWK   ;WITH END
27E0 BDAF31    LDA      SEGX+15,X ;COORDINATES
27E3 8D9F31    STA      SEGWK+16
27E6 207728    JSR      DIVIDE  ;DIVIDE SEGWK
27E9 A697      LDX      GRIDNO
27EB A000      LDY      #0
27ED B98F31    COPY1   LDA      SEGWK,Y ;COPY SEGWK
27F0 9DA031    STA      SEGX,X  ;TABLE TO SEGX
27F3 E8        INX
27F4 C8        INY
27F5 C010      CPY      #16
27F7 D0F4 ^27ED BNE      COPY1

;NOW THE Y COORDS
27F9 A697      LDX      GRIDNO
27FB BDA032    LDA      SEGY,X  ;SET UP SEGWK
27FE 8D8F31    STA      SEGWK   ;WITH END
2801 BDAF32    LDA      SEGY+15,X ;COORDINATES
2804 8D9F31    STA      SEGWK+16
2807 207728    JSR      DIVIDE  ;DIVIDE SEGWK
280A A697      LDX      GRIDNO
280C A000      LDY      #0
280E B98F31    COPY2   LDA      SEGWK,Y ;COPY SEGWK
2811 9DA032    STA      SEGY,X  ;TABLE TO SEGY
2814 E8        INX
2815 C8        INY
2816 C010      CPY      #16
2818 D0F4 ^280E BNE      COPY2

;
; -----
;
; NOW GENERATE RIM COORDINATES

```

```

; -----
281A A697          LDX      GRIDNO
281C BDA033       LDA      RIMX,X   ;SET UP SEGWK
281F 8D8F31       STA      SEGWK   ;WITH END
2822 BDAF33       LDA      RIMX+15,X   ;COORDINATES
2825 8D9F31       STA      SEGWK+16
2828 207728       JSR      DIVIDE  ;DIVIDE SEGWK
282B A697          LDX      GRIDNO
282D A000          LDY      #0
282F B98F31       COPY3   LDA      SEGWK,Y   ;COPY SEGWK
2832 9DA033       STA      RIMX,X   ;TABLE TO RIMX
2835 EB           INX
2836 CB           INY
2837 C010          CPY      #16
2839 D0F4 ^282F   BNE      COPY3
;NOW THE RIM Y COORDS
283B A697          LDX      GRIDNO
283D BDA034       LDA      RIMY,X   ;SET UP SEGWK
2840 8D8F31       STA      SEGWK   ;WITH END
2843 BDAF34       LDA      RIMY+15,X   ;COORDINATES
2846 8D9F31       STA      SEGWK+16
2849 207728       JSR      DIVIDE  ;DIVIDE SEGWK
284C A697          LDX      GRIDNO
284E A000          LDY      #0
2850 B98F31       COPY4   LDA      SEGWK,Y   ;COPY SEGWK
2853 9DA034       STA      RIMY,X   ;TABLE TO RIMY
2856 EB           INX
2857 CB           INY
2858 C010          CPY      #16
285A D0F4 ^2850   BNE      COPY4
285C A597          LDA      GRIDNO   ;DO ALL 15
285E 18           CLC          ;GRID LINES
285F 6910          ADC      #16
2861 8597          STA      GRIDNO
2863 C9F0          CMP      #240   ;ALL DONE?
2865 F003 ^286A   BEQ      ENDDVC  ;YOU BET!
2867 4CD927       JMP      DIVCTL  ;LOOP BACK!
286A A93D          ENDDVC  LDA      ##3D   ;RESTART
286C 85C5          STA      DMAC1  ;THE DISPLAY
286E A903          LDA      ##03   ;AFTER GRID
2870 85C6          STA      GRAC1  ;IS DRAWN
2872 A900          LDA      #0     ;NO MORE
2874 85A4          STA      INTRFG ;INTRO STATUS
2876 60           RTS          ;FINIS!

```

```

; -----
; DIVIDE SEGWK TABLE
;
; THIS ROUTINE EXAMINES THE FIRST
; AND LAST BYTES IN THE SEGWK
; TABLE AND FILLS THE BYTES IN

```



```

;      BETWEEN WITH AN EVEN TRANSITION
;      FROM ONE ENDPOINT TO THE OTHER
;      -----

```

```

2877  A910      DIVIDE  LDA      #16
2879  859A      STA      STEP
287B  8599      STA      NEXT
287D  4A        LSR      A
287E  859B      STA      DEST
2880  A900      DIVLP2  LDA      #0
2882  8598      STA      LAST
2884  A698      DIVLP1  LDX      LAST
2886  BD8F31    LDA      SEGWK,X
2889  A699      LDX      NEXT
288B  18        CLC
288C  7D8F31    ADC      SEGWK,X
288F  6A        ROR      A
2890  A69B      LDX      DEST
2892  9D8F31    STA      SEGWK,X
2895  A598      LDA      LAST
2897  18        CLC
2898  659A      ADC      STEP
289A  8598      STA      LAST
289C  659A      ADC      STEP
289E  C911      CMP      #17
28A0  B00C ^28AE BCS      NOSTEP
28A2  8599      STA      NEXT
28A4  A59B      LDA      DEST
28A6  18        CLC
28A7  659A      ADC      STEP
28A9  859B      STA      DEST
28AB  4C8428    JMP      DIVLP1
28AE  A59A      NOSTEP  LDA      STEP
28B0  4A        LSR      A
28B1  859A      STA      STEP
28B3  8599      STA      NEXT
28B5  4A        LSR      A
28B6  F005 ^28BD  BEQ      ENDDIV
28B8  859B      STA      DEST
28BA  4C8028    JMP      DIVLP2
28BD  60        ENDDIV  RTS

```

```

;      -----
;      GRID COORDINATE SAVE
;      -----

```

```

28BE  A592      GRIDSV  LDA      GRID
28C0  0A        ASL      A      ;*2
28C1  0A        ASL      A      ;*4
28C2  0A        ASL      A      ;*8
28C3  0A        ASL      A      ;*16
28C4  18        CLC      ;ADD THE

```

```

28C5 6593          ADC      OFFSET    ;OFFSET VALUE
28C7 AA           TAX              ;SAVE IN INDEX
28C8 A590         LDA      XWORK      ;GET X WORK
28CA 9DA031       STA      SEGX,X    ;AND SAVE
28CD A591         LDA      YWORK      ;GET Y WORK
28CF 9DA032       STA      SEGY,X    ;AND SAVE
28D2 A593         LDA      OFFSET    ;DON'T CONTINUE
28D4 D014 ^28EA   BNE      SAVEND    ;IF OFFSET >0
28D6 A582         LDA      PLOTX     ;GET PLOTX
28D8 9DA033       STA      RIMX,X    ;AND SAVE
28DB A583         LDA      PLOTY     ;GET PLOTY
28DD 9DA034       STA      RIMY,X    ;AND SAVE
28E0 A585         LDA      DRAWX     ;GET DRAWX
28E2 9DAF33       STA      RIMX+15,X    ;AND SAVE
28E5 A586         LDA      DRAWY     ;GET DRAWY
28E7 9DAF34       STA      RIMY+15,X    ;AND SAVE
28EA 60           SAVEND   RTS      ;ALL DONE!

;
; -----
; VERTICAL BLANK ROUTINE
; -----
;

28EB A9CF          VBI      LDA      #DLI1&255    ;POINT TO
28ED 8D0002       STA      VDSSLST ;FIRST
28F0 A920          LDA      #DLI1/256    ;DISPLAY LIST
28F2 8D0102       STA      VDSSLST+1    ;INTERRUPT
28F5 D8           CLD              ;CLR DECIMAL MODE
28F6 A5A9         LDA      OBTIM1    ;THIS SECTION
28F8 F002 ^28FC   BEQ      NOOBTD    ;PROCESSES
28FA C6A9         DEC      OBTIM1    ;ALL TIMERS
28FC A5A3          NOOBTD  LDA      TIMER
28FE F002 ^2902   BEQ      NOTIMR
2900 C6A3         DEC      TIMER
2902 A5B6          NOTIMR  LDA      FLTIME
2904 F002 ^2908   BEQ      NOFTIM
2906 C6B6         DEC      FLTIME
2908 A5BD          NOFTIM  LDA      KILPLR ;PLAYER DEAD?
290A F003 ^290F   BEQ      CHKINT    ;NO, CONTINUE!
290C 4C002B       JMP      VBCONT    ;SKIP PLAYER STUFF
290F A5A4          CHKINT  LDA      INTRFG    ;IN INTRO?
2911 F003 ^2916   BEQ      NOTINT    ;NO, CONTINUE!
2913 4C62E4       JMP      XITVBV    ;EXIT IF INTRO
2916 ADFC02       NOTINT  LDA      KEY      ;GET KEYBOARD
2919 C91C         CMP      ##1C     ;PAUSE (ESC)?
291B D009 ^2926   BNE      CKZAP    ;NO, CHECK ZAP
291D A5B1         LDA      PAUFLG    ;GET PAUSE FLAG
291F 49FF         EOR      ##FF     ;AND FLIP
2921 85B1         STA      PAUFLG    ;AND STORE
2923 4C5229       JMP      ENDKEY    ;DONE W/KEY
2926 C921          CKZAP  CMP      ##21     ;SPACE BAR?
2928 D028 ^2952   BNE      ENDKEY    ;NAW, DONE W/KEY
292A A5B2         LDA      ZAP      ;USED ZAP YET?

```

```

292C F024 ^2952      BEQ      ENDKEY   ;YES, NO ZAP
292E C6B2           DEC      ZAP       ;ZAP NOW USED
2930 A205           LDX      #5        ;TIME TO KILL
2932 A901           LDA      #1        ;ALL OBJECTS
2934 9D682E        ZAPOBJ   STA      OBDEAD,X
2937 CA            DEX
2938 10FA ^2934     BPL      ZAPOBJ
293A A203           LDX      #3        ;AND KILL
293C BD582E        ZAPSHO   LDA      SHORTF,X   ;ALL SHORTS
293F F00E ^294F     BEQ      NOSKIL
2941 A5DE           LDA      MISCAD   ;ALSO SET
2943 F8            SED      ;MISCELLANEOUS
2944 18            CLC      ;SCORE ADD
2945 6904          ADC      #4        ;FOR 400 POINTS
2947 85DE          STA      MISCAD   ;FOR EACH SHORT
2949 DB           CLD
294A A900          LDA      #0        ;KILL
294C 9D582E        STA      SHORTF,X   ;SHORT
294F CA            NOSKIL  DEX
2950 10EA ^293C     BPL      ZAPSHO
2952 A900          ENDKEY   LDA      #0        ;CLEAR
2954 8DFC02        STA      KEY       ;KEYPRESS.
2957 A5B1          LDA      PAUFLG   ;PAUSED?
2959 F011 ^296C     BEQ      NOPAU    ;NO, CONTINUE
295B A900          LDA      #0        ;TURN OFF
295D 8D01D2        STA      AUDC1    ;ALL SOUNDS
2960 8D03D2        STA      AUDC2    ;DURING
2963 8D05D2        STA      AUDC3    ;THE
2966 8D07D2        STA      AUDC4    ;PAUSE
2969 4C62E4        JMP      XITVBV   ;THEN EXIT
296C A5D1          NOPAU    LDA      FIRSOU   ;FIRE SOUND ON?
296E F010 ^2980     BEQ      NOFSND   ;NO!
2970 C6D1          DEC      FIRSOU   ;DEC COUNTER
2972 A6D1          LDX      FIRSOU   ;PUT IN INDEX
2974 BD3E31        LDA      FIRFRQ,X  ;GET FREQUENCY
2977 8D02D2        STA      AUDF2
297A BD2931        LDA      FIRCTL,X  ;GET CONTROL
297D 8D03D2        STA      AUDC2
2980 A5D2          NOFSND   LDA      OBDSOU   ;OBJ DEATH SOUND?
2982 F010 ^2994     BEQ      NOOSND   ;NO!
2984 C6D2          DEC      OBDSOU   ;DEC COUNTER
2986 A6D2          LDX      OBDSOU   ;PUT IN INDEX
2988 BD6831        LDA      OBDFRQ,X  ;GET FREQUENCY
298B 8D04D2        STA      AUDF3
298E BD5331        LDA      OBDCTL,X  ;GET CONTROL
2991 8D05D2        STA      AUDC3
2994 A5D3          NOOSND   LDA      MOVSOU   ;MOVE SOUND?
2996 F010 ^29A8     BEQ      CYCCOL   ;NO!
2998 C6D3          DEC      MOVSOU   ;DEC COUNTER
299A A6D3          LDX      MOVSOU   ;PUT IN INDEX
299C BD8631        LDA      MOVFRQ,X  ;GET FREQUENCY
299F 8D06D2        STA      AUDF4

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29A2 BD7D31      LDA      MOVCTL,X          ;GET CONTROL
29A5 8D07D2      STA      AUDC4
29A8 ADC202      CYCCOL LDA      COLPM2      ;CYCLE
29AB 18          CLC              ;PLAYER 2
29AC 6910        ADC      #16          ;COLOR
29AE 8DC202      STA      COLPM2      ;SAVE IN P/M 2
29B1 8DC302      STA      COLPM3      ;AND IN P/M 3
29B4 29FC        AND      ##FC         ;ALSO PUT IN
29B6 8DC702      STA      COLPF3      ;PF3 FOR MISSILES
29B9 C6BF        DEC      TRANTM       ;TRANSIENT TIME
29BB D017 ^29D4    BNE     NOTRAN       ;NO CHANGE
29BD AD902E      LDA      OBJHUE+4     ;FLIP
29C0 D004 ^29C6    BNE     TRAN1        ;TRANSIENT
29C2 A902        LDA      #2           ;HUE
29C4 D002 ^29C8    BNE     STOTRN       ;TO EITHER
29C6 A900        TRAN1 LDA      #0           ;0 OR 2
29C8 8D902E      STOTRN STA      OBJHUE+4
29CB AD0AD2      LDA      RANDOM
29CE 091F        ORA      ##1F         ;RESET
29D0 293F        AND      ##3F         ;THE
29D2 85BF        STA      TRANTM       ;TRANSIENT TIME
29D4 E6BC        NOTRAN INC      PSCNT        ;INC PLYR TIMER
29D6 A5BC        LDA      PSCNT        ;READY TO
29D8 C903        CMP      #3           ;CHANGE SHAPE?
29DA D00A ^29E6    BNE     NOPSIN       ;NOT YET!
29DC A900        LDA      #0           ;BETTER RESET
29DE 85BC        STA      PSCNT        ;INDEX
29E0 E6B7        INC      SP1IX        ;AND INCREMENT
29E2 E6B8        INC      SP2IX        ;ALL SHAPE
29E4 E6B9        INC      SP3IX        ;INDEXES!
29E6 A59D        NOPSIN LDA      PFTIME       ;SEE IF WE'RE
29E8 F005 ^29EF    BEQ     FIRE         ;READY TO CHECK
29EA C69D        DEC      PFTIME       ;IF PLAYER IS
29EC 4C312A      JMP     CHKPMV        ;SHOOTING
29EF A904        FIRE  LDA      #4           ;RESET FIRE
29F1 859D        STA      PFTIME       ;TIMER
29F3 A5CE        LDA      JOYPAD       ;USING STICK?
29F5 F006 ^29FD    BEQ     RDSTRG        ;YES!
29F7 AD7C02      LDA      PTRIG0       ;GET PADL TRIGGER
29FA 4C002A      JMP     CMPTRG        ;CHECK IT
29FD AD8402      RDSTRG LDA      STRIG        ;GET STICK TRIGGER
2A00 D02F ^2A31    CMPTRG BNE     CHKPMV        ;NOT FIRING!
2A02 A5BE        LDA      PAVAIL       ;ANY PROJ AVAIL?
2A04 F02B ^2A31    BEQ     CHKPMV        ;NO!
2A06 A207        LDX     #7            ;FIND AN
2A08 BD0C2E      PRSCAN LDA      PROJAC,X     ;AVAILABLE
2A0B F003 ^2A10    BEQ     GOTPRN        ;PROJECTILE
2A0D CA         DEX
2A0E D0F8 ^2A08    BNE     PRSCAN
2A10 C6BE        GOTPRN DEC      PAVAIL       ;1 LESS AVAILABLE
2A12 A901        LDA      #1           ;IT'S NOW
2A14 9D0C2E      STA      PROJAC,X     ;ACTIVE

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2A17 A915          LDA      #21      ;START UP
2A19 85D1          STA      FIRSOU   ;FIRE SOUND
2A1B A900          LDA      #0       ;INITIALIZE
2A1D 9D2C2E        STA      PROJSG,X  ;SEGMENT # TO 0
2A20 A595          LDA      PLRGRD  ;SET UP
2A22 9D1C2E        STA      PROGRD,X  ;PROJ GRID#
2A25 0A           ASL      A        ;AND
2A26 0A           ASL      A        ;MULTIPLY
2A27 0A           ASL      A        ;BY 16
2A28 0A           ASL      A
2A29 9D242E        STA      PROJGN,X  ;FOR INDEX
2A2C A901          LDA      #1       ;INITIALIZE
2A2E 9D142E        STA      PROINC,X  ;PROJ INCREMENT
2A31 A5CE          LDA      JOYPAD  ;USING STICK?
2A33 F00F ^2A44    BEQ      GOSTIK   ;YES!
2A35 AD7002        LDA      POTO    ;GET PADDLE
2A38 4A           LSR      A        ;DIVIDE BY
2A39 4A           LSR      A        ;16 TO GET
2A3A 4A           LSR      A        ;USABLE VALUE
2A3B 4A           LSR      A
2A3C C90F          CMP      #15      ;> 14?
2A3E 3022 ^2A62    BMI      STOPOS  ;NO, GO STORE
2A40 A90E          LDA      #14      ;MAX. IS 14
2A42 D01E ^2A62    BNE      STOPOS  ;AND GO STORE
2A44 A594          LDA      PTIME   ;READY FOR STICK?
2A46 F005 ^2A4D    BEQ      RDSTIK   ;YES!
2A48 C694          DEC      PTIME   ;DEC TIMER
2A4A 4C002B        JMP      VBCONT   ;JMP TO CONTINUE
2A4D A902          LDA      #2       ;RESET STICK TIMER
2A4F 8594          STA      PTIME   ;TO 2 JIFFIES
2A51 AE7802        LDX      STICK    ;GET STICK
2A54 A595          LDA      PLRGRD  ;GET PLYR GRID #
2A56 18           CLC
2A57 7DFC2D        ADC      STKADD,X ;DIRECTION INC
2A5A 3004 ^2A60    BMI      SAMPOS  ;IF <0 REJECT
2A5C C90F          CMP      #15      ;IF <15...
2A5E D002 ^2A62    BNE      STOPOS  ;USE IT!
2A60 A595          LDA      PLRGRD  ;GET GRID#
2A62 C595          CMP      PLRGRD  ;SAME AS LAST?
2A64 F006 ^2A6C    BEQ      NOPSTO  ;YES, DON'T STORE
2A66 A209          LDX      #9       ;START UP
2A68 86D3          STX      MOVSOU  ;MOVE SOUND
2A6A 8595          STA      PLRGRD  ;SAVE GRID#
2A6C 0A           ASL      A        ;MULTIPLY
2A6D 0A           ASL      A        ;BY 16 FOR
2A6E 0A           ASL      A        ;POSITION
2A6F 0A           ASL      A        ;INDEX
2A70 AA           TAX
2A71 AD0CD0        LDA      P0PL
2A74 290C          AND      #*0C     ;HIT P2/P3?
2A76 F007 ^2A7F    BEQ      NOHSHO  ;NO!
2A78 A901          LDA      #1       ;OOPS! HIT SHORT!

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2A7A 85BD          STA      KILPLR    ;KILL PLAYER
2A7C 4C852C        JMP      VBEND     ;AND EXIT VBLANK
2A7F BDA031        NOHSHO LDA      SEGX,X    ;GET PLAYER'S
2A82 18           CLC          ;X POSITION AND
2A83 693D          ADC      #61      ;ADJUST FOR P/M
2A85 8D00D0       STA      HPOSP0   ;AND SAVE
2A88 A496          LDY      PLYR     ;HOLD OLD Y POS
2A8A BDA032        LDA      SEGY,X    ;GET NEW Y POS
2A8D 18           CLC          ;ADJUST FOR P/M
2A8E 6920          ADC      #32      ;BY ADDING 32
2A90 8596          STA      PLYR     ;SET Y POS
2A92 A900          LDA      #0       ;CLEAR OUT
2A94 A20F          LDX      #15      ;OLD PLAYER
2A96 99F803       CLRPS   STA      PL0-8,Y ;IMAGE
2A99 C8            INY
2A9A CA           DEX
2A9B 10F9 ^2A96   BPL      CLRPS
2A9D A90F          LDA      #15      ;NOW COPY
2A9F 85BA          STA      SPIX     ;16-BYTE
2AA1 A900          SPLLOOP LDA     #0       ;PLAYER IMAGE
2AA3 85BB          STA      PLTBYT  ;TO PLAYER 0
2AA5 A5B7          LDA      SP1IX
2AA7 290F          AND      #15
2AA9 AA           TAX
2AAA A5BA          LDA      SPIX
2AAC DD712F        CMP      SPTBL,X
2AAF 900B ^2ABC   BCC      NOSP1
2AB1 DD812F        CMP      EPTBL,X
2AB4 B006 ^2ABC   BCS      NOSP1
2AB6 AA           TAX
2AB7 BD412F        LDA      PN1,X    ;GET IMAGE 1
2ABA 85BB          STA      PLTBYT  ;AND SAVE
2ABC A5B8          NOSP1  LDA      SP2IX
2ABE 290F          AND      #15
2AC0 AA           TAX
2AC1 A5BA          LDA      SPIX
2AC3 DD712F        CMP      SPTBL,X
2AC6 900D ^2AD5   BCC      NOSP2
2AC8 DD812F        CMP      EPTBL,X
2ACB B008 ^2AD5   BCS      NOSP2
2ACD AA           TAX
2ACE BD512F        LDA      PN2,X
2AD1 05BB          ORA      PLTBYT  ;ADD IMAGE 2
2AD3 85BB          STA      PLTBYT  ;AND SAVE
2AD5 A5B9          NOSP2  LDA      SP3IX
2AD7 290F          AND      #15
2AD9 AA           TAX
2ADA A5BA          LDA      SPIX
2ADC DD712F        CMP      SPTBL,X
2ADF 900D ^2AEE   BCC      NOSP3
2AE1 DD812F        CMP      EPTBL,X
2AE4 B008 ^2AEE   BCS      NOSP3

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2AE6 AA TAX
2AE7 BD612F LDA FN3,X
2AEA 05BB ORA PLTBYT ;ADD IMAGE 3
2AEC 85BB STA PLTBYT ;AND SAVE
2AEE A596 NOSP3 LDA FLRY
2AF0 18 CLC
2AF1 65BA ADC SPIX
2AF3 38 SEC
2AF4 E908 SBC #8
2AF6 A8 TAY
2AF7 A5BB LDA PLTBYT ;GET IMAGE BYTE
2AF9 990004 STA PLO,Y ;PUT IN P/M AREA
2AFC C6BA DEC SPIX ;MORE IMAGE?
2AFE 10A1 ^2AA1 BPL SPLOOP ;YES!
2B00 A5A2 VBCONT LDA PRADV1 ;ADVANCE PROJ?
2B02 F005 ^2B09 BEQ SETPRA ;YES!
2B04 C6A2 DEC PRADV1 ;NO, DEC TIMER
2B06 4C0F2B JMP FLIPIT ;GO FLIP DISPLAY
2B09 E6A1 SETPRA INC PRADVT
2B0B A901 LDA #1 ;SET ADVANCE
2B0D 85A2 STA PRADV1 ;TIMER

; -----
; THIS SECTION FLIP-FLOPS THE 4
; MISSILES IN ORDER TO ALLOW THE
; DISPLAY OF 8 PROJECTILES. AS
; A RESULT, SOME FLICKER CAN BE
; OBSERVED.
; -----

2B0F E6A0 FLIPIT INC PRFLIP ;INC FLIP INDEX
2B11 A5A0 LDA PRFLIP ;GET INDEX
2B13 2901 AND #1 ;MAKE 0/1
2B15 A8 TAY ;SAVE IN Y
2B16 B9362E LDA PREND,Y ;GET # OF LAST
2B19 859E STA ENDVAL ;PROJECTILE
2B1B BE342E LDX PRSTRT,Y ;GET # OF FIRST
2B1E 869C STX VBXHLD ;PROJECTILE
2B20 A903 LDA #3 ;START W/MISSILE
2B22 859F STA MISNUM ;NUMBER 3
2B24 BD0C2E PROJLP LDA PROJAC,X ;IS PROJ. ACTIVE?
2B27 D003 ^2B2C BNE GOTPRJ ;YOU BET.
2B29 4CE32B JMP CKPEND ;TRY ANOTHER
2B2C A69F GOTPRJ LDX MISNUM ;GET MISSILE #
2B2E B4D4 LDY PRYHLD,X ;GET LAST POSITION
2B30 B9FF02 LDA MISSLS-1,Y ;ERASE OLD
2B33 3D3C2E AND MISLOF,X ;PROJECTILE
2B36 99FF02 STA MISSLS-1,Y ;IMAGE
2B39 B90003 LDA MISSLS,Y
2B3C 3D3C2E AND MISLOF,X
2B3F 990003 STA MISSLS,Y
2B42 B90103 LDA MISSLS+1,Y

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2B45 3D3C2E      AND      MISLOF,X
2B48 990103      STA      MISSLS+1,Y
2B4B A69C         LDX      VEXHLD
2B4D A5A1         LDA      PRADVT ;READY TO
2B4F 2901         AND      #1 ;ADVANCE PROJ?
2B51 D00A ^2B5D   BNE      NOPADV ;NOT YET
2B53 BD2C2E      LDA      PROJSG,X ;GET PROJ SEG#
2B56 18         CLC      ;AND
2B57 7D142E      ADC      PROINC,X ;ADD INCREMENT
2B5A 9D2C2E      STA      PROJSG,X ;THEN SAVE
2B5D BD142E      NOPADV  LDA      PROINC,X ;ENEMY SHOT?
2B60 3043 ^2BA5 BMI      NOOHCK ;NO OBJ HIT CHECK
2B62 A005         LDY      #5
2B64 B9682E      OBKILP  LDA      OBDEAD,Y ;ALREADY DEAD?
2B67 D039 ^2BA2 BNE      NXTOCK ;YES!
2B69 B9E500      LDA      OBJPRS,Y ;OBJECT THERE?
2B6C F034 ^2BA2 BEQ      NXTOCK ;NO!
2B6E B9742E      LDA      OBJTYP,Y ;TRANSIENT?
2B71 C904         CMP      #4
2B73 D005 ^2B7A BNE      NOTRNC ;NO!
2B75 AD902E      LDA      OBJHUE+4 ;INVISIBLE?
2B78 F028 ^2BA2 BEQ      NXTOCK ;YES!
2B7A B9802E      NOTRNC  LDA      OBJGRD,Y ;SAME GRID #
2B7D DD1C2E      CMP      PROGRD,X ;AS PROJ?
2B80 D020 ^2BA2 BNE      NXTOCK ;NO!
2B82 B9862E      LDA      OBJSEG,Y ;SAME SEG #
2B85 4A         LSR      A
2B86 38         SEC
2B87 FD2C2E      SBC      PROJSG,X ;AS PROJ?
2B8A F004 ^2B90 BEQ      HITOBJ
2B8C C9FE         CMP      #254
2B8E 9012 ^2BA2 BCC      NXTOCK ;NO!
2B90 B9742E      HITOBJ  LDA      OBJTYP,Y ;RESISTOR?
2B93 F008 ^2B9D BEQ      CGPRDR ;YES!
2B95 A901         LDA      #1 ;KILL OBJECT
2B97 99682E      STA      OBDEAD,Y
2B9A 4CF02B      JMP      KILLPR ;AND PROJ.
2B9D A9FF         CGPRDR  LDA      #FF ;PROJ NOW HEADING
2B9F 9D142E      STA      PROINC,X ;FOR PLAYER!
2BA2 88         NXTOCK  DEY      ;NEXT OBJECT
2BA3 10BF ^2B64 BPL      OBKILP ;MORE TO DO!
2BA5 BD2C2E      NOOHCK  LDA      PROJSG,X ;IS PROJ SEG# =0?
2BA8 F046 ^2BF0 BEQ      KILLPR ;YES, KILL IT!
2BAA C910         CMP      #16 ;=16?
2BAC F042 ^2BF0 BEQ      KILLPR ;YES, KILL IT!
2BAE 18         CLC      ;NOW ADD PROJ
2BAF 7D242E      ADC      PROJGN,X ;GRID INDEX
2BB2 AA         TAX      ;AND GET
2BB3 BDA031      LDA      SEGX,X ;X COORD
2BB6 BCA032      LDY      SEGY,X ;AND Y COORD
2BB9 18         CLC      ;ADD 64 TO
2BBA 6940         ADC      #64 ;X COORD FOR

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2BBC A69F          LDX      MISNUM   ;P/M HORIZ
2BBE 9D04D0       STA      HPOSM0,X   ;AND SAVE
2BC1 98           TYA          ;GET Y
2BC2 18           CLC          ;ADD 32 TO
2BC3 6920        ADC      #32    ;Y COORD FOR
2BC5 A8           TAY          ;P/M VERT
2BC6 94D4        STY      PRYHLD,X   ;AND SAVE.
2BC8 B9FF02      LDA      MISSLS-1,Y  ;NOW DRAW
2BCB 1D382E      ORA      MISLON,X   ;PROJECTILE IN
2BCE 99FF02      STA      MISSLS-1,Y  ;NEW POSITION
2BD1 B90003      LDA      MISSLS,Y
2BD4 1D382E      ORA      MISLON,X
2BD7 990003      STA      MISSLS,Y
2BDA B90103      LDA      MISSLS+1,Y
2BDD 1D382E      ORA      MISLON,X
2BE0 990103      STA      MISSLS+1,Y
2BE3 C69F          CKPEND  DEC      MISNUM   ;NEXT MISSILE #
2BE5 C69C          DEC      VEXHLD   ;NEXT PROJ.
2BE7 A69C          LDX      VEXHLD
2BE9 E49E          CPX      ENDVAL   ;DONE?
2BEB F026 ^2C13   BEQ      SHORTS   ;YES!
2BED 4C242B      JMP      PROJLP   ;DO NEXT PROJ.
2BF0 A900          KILLPR  LDA      #0      ;KILL PROJ.
2BF2 9D0C2E      STA      PROJAC,X
2BF5 E002          CPX      #2      ;ENEMY PROJ?
2BF7 9002 ^2BFB   BCC      NOAVIN   ;YES DON'T INC
2BF9 E6BE          INC      PAVAIL   ;ANOTHER AVAIL
2BFB BD2C2E      NOAVIN  LDA      PROJSG,X   ;SEGMENT 0?
2BFE D010 ^2C10   BNE      NOKILF   ;NO!
2C00 BD142E      LDA      PROINC,X   ;TOWARD RIM?
2C03 100B ^2C10   BPL      NOKILF   ;NO!
2C05 BD1C2E      LDA      PROGRD,X   ;SAME GRID...
2C08 C595          CMP      PLRGRD   ;AS PLAYER?
2C0A D004 ^2C10   BNE      NOKILF   ;NO!
2C0C A901          LDA      #1      ;THE PLAYER
2C0E 85BD          STA      KILPLR   ;IS DEAD!
2C10 4CE32B      NOKILP  JMP      CKPEND   ;NEXT PROJ.

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;
; -----
; THIS SECTION HANDLES SHORTS.
; 2 PLAYERS ARE USED TO SHOW A
; MAXIMUM OF 4 SHORTS, SO SOME
; FLICKER MAY BE OBSERVED.
; -----
;

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2C13 E6C2          SHORTS  INC      SHFLIP   ;TOGGLE FLIP
2C15 A5C2          LDA      SHFLIP   ;MASK FLIP
2C17 4A           LSR      A        ;TO EITHER
2C18 2901          AND      #1      ;0 OR 1
2C1A A8           TAY          ;PUT IN Y
2C1B B92331      LDA      CPYSTN,Y  ;AND GET IMAGE
2C1E 85C4          STA      CPYST    ;TO USE (+/X)

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2C20 A5C2          LDA      SHFLIP    ;GET FLIP,
2C22 2901          AND       #1        ;MASK AND
2C24 A8            TAY          ;PUT IN Y
2C25 A907          LDA      #PL3/256      ;PUT PLAYER 3
2C27 85C1          STA      DESTHI    ;IN DESTINATION
2C29 A900          LDA      #PL3&255     ;ADDRESS
2C2B 85C0          STA      DESTLO    ;HI & LO
2C2D A901          LDA      #1        ;SET DEST #
2C2F 85C3          STA      DESTNM
2C31 B91531        LDA      SHSTRT,Y    ;GET START
2C34 859C          STA      VBXHLD    ;SHORT #
2C36 A900          SHORLP  LDA      #0
2C38 A6C3          LDX      DESTNM
2C3A BC1731        LDY      SHYHLD,X    ;GET LAST INDEX
2C3D A209          LDX      #9        ;NOW ERASE
2C3F 91C0          ERSSHO  STA      (DESTLO),Y  ;PREVIOUS
2C41 C8            INY          ;SHORT
2C42 CA            DEX
2C43 10FA ^2C3F    BPL      ERSSHO
2C45 A69C          LDX      VBXHLD
2C47 BD582E        LDA      SHORTF,X    ;SHORT ALIVE?
2C4A F02E ^2C7A    BEQ      NXTSHO    ;NO!
2C4C BD5C2E        LDA      SHORTX,X    ;GET INDEX OF
2C4F AA            TAX          ;SHORT'S POS.
2C50 BDA033        LDA      RIMX,X    ;GET X COORD
2C53 BCA034        LDY      RIMY,X    ;AND Y COORD
2C56 18            CLC
2C57 693E          ADC      #62       ;ADJUST X
2C59 A6C3          LDX      DESTNM    ;GET PLAYER#
2C5B 9D02D0        STA      HPOSP2,X    ;AND STORE
2C5E 98            TYA
2C5F 18            CLC
2C60 691C          ADC      #28       ;ADJUST Y
2C62 9D1731        STA      SHYHLD,X    ;SAVE IT
2C65 A8            TAY
2C66 A6C4          LDX      CPYST
2C68 A904          LDA      #4
2C6A 85CF          STA      CPYCNT
2C6C BD1931        SHOCOP  LDA      SHOIMG,X    ;NOW COPY
2C6F 91C0          STA      (DESTLO),Y  ;SHORT IMAGE
2C71 C8            INY          ;TO P/M
2C72 91C0          STA      (DESTLO),Y  ;AREA
2C74 C8            INY
2C75 CA            DEX
2C76 C6CF          DEC      CPYCNT
2C78 10F2 ^2C6C    BPL      SHOCOP
2C7A C6C3          NXTSHO  DEC      DESTNM    ;MORE?
2C7C 3007 ^2C85    BMI      VBEND     ;NO, EXIT!
2C7E C6C1          DEC      DESTHI    ;NEXT PLAYER
2C80 E69C          INC      VBXHLD
2C82 4C362C        JMP      SHORLP    ;LOOP BACK.
2C85 8D1ED0        VBEND   STA      HITCLR    ;CLEAR COLLISION

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2C88 4C62E4          JMP      XITVBV  ;VBI DONE! (WHEW!)

;-----
; CLEAR PLAYER-MISSILES
;-----

2C88 A900          PMCLR  LDA      #0          ;PUT 255
2C8D AA           TAX          ;ZEROS IN
2C8E 9D0003       PMCLP  STA      MISSLS,X      ;EACH P/M
2C91 9D0004       STA      PL0,X      ;AREA
2C94 9D0005       STA      PL1,X
2C97 9D0006       STA      PL2,X
2C9A 9D0007       STA      PL3,X
2C9D CA           DEX
2C9E D0EE ^2C8E   BNE      PMCLP
2CA0 60           RTS          ;FINIS!

;-----
; CLEAR SCREEN
;-----

2CA1 A908          CLRSC  LDA      #DISP/256      ;INITIAL
2CA3 8581          STA      HI          ;DISPLAY
2CA5 A900          LDA      #DISP&255      ;ADDRESS
2CA7 8580          STA      LO          ;WORK AREA
2CA9 A214          LDX      #20          ;CLEAR 20 GROUPS
2CAB A000          CLRSC2 LDY      #0          ;OF 256 BYTES
2CAD 98           TYA          ;(5120 BYTES)
2CAE 9180          CLRSC3 STA      (LO),Y
2CB0 88           DEY
2CB1 D0FB ^2CAE   BNE      CLRSC3
2CB3 CA           DEX
2CB4 D001 ^2CB7   BNE      CLRSC4
2CB6 60           RTS
2CB7 E681          CLRSC4 INC      HI
2CB9 4CAB2C       JMP      CLRSC2

;-----
; GR. 7+ PLOTTER ROUTINE
; (SEE A.N.A.L.O.G. #11)
;-----

2CBC A583          PLOTCL LDA      PLOTY      ;MULT. Y BY 32;
2CBE 0A           ASL      A
2CBF 8580          STA      LO
2CC1 A900          LDA      #0
2CC3 2A           ROL      A
2CC4 8581          STA      HI          ;*2
2CC6 0680          ASL      LO
2CC8 2681          ROL      HI          ;*4
2CCA 0680          ASL      LO
2CCC 2681          ROL      HI          ;*8
2CCE 0680          ASL      LO

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2CD0 2681          ROL      HI          ;*16
2CD2 0680          ASL      LO
2CD4 2681          ROL      HI          ;*32
2CD6 A900          LDA      #DISP&255 ;ADD THE DISPLAY
2CD8 18            CLC
2CD9 6580          ADC      LO          ;THE ACTUAL
2CDB 8580          STA      LO          ;ADDRESS OF THE
2CDD A908          LDA      #DISP/256 ;BYTE THAT WILL
2CDF 6581          ADC      HI          ;BE ALTERED FOR
2CE1 8581          STA      HI          ;THE PLOT.
2CE3 A582          LDA      PLOTX      ;MASK PLOTX FOR
2CE5 2903          AND      #3          ;PLOT INDEX,
2CE7 AA           TAX
2CE8 A582          LDA      PLOTX      ;GET PLOTX AND
2CEA 4A           LSR      A          ;DIVIDE
2CEB 4A           LSR      A          ;BY 4,
2CEC 85A8          STA      YOFSET
2CEE A8           TAY
2CEF B180          LDA      (LO),Y
2CF1 3D172D        AND      BMASK2,X
2CF4 DD1B2D        CMP      COLOR1,X
2CF7 F015 ^2D0E    BEQ      PABORT
2CF9 A484          LDY      COLOR      ;GET COLOR
2CFB BD172D        LDA      BMASK2,X      ;AND MASK OFF
2CFE 390F2D        AND      COLORS,Y      ;PIXEL POSITION
2D01 858F          STA      HOLD      ;SAVE IT,
2D03 BD132D        LDA      BMASK1,X      ;MASK OFF PIXEL
2D06 A4A8          LDY      YOFSET      ;OF THE ADDRESS
2D08 3180          AND      (LO),Y      ;TO BE ALTERED
2D0A 058F          ORA      HOLD      ;SET THE PLOT
2D0C 9180          STA      (LO),Y      ;BITS AND STORE!
2D0E 60            PABORT  RTS          ;FINIS!

```

```

; -----
; PLOT MASK TABLES
; -----

```

```

2D0F 0055AAFF      COLORS  DB      $00,$55,$AA,$FF
2D13 3FCFF3FC      BMASK1   DB      $3F,$CF,$F3,$FC
2D17 C0300C03      BMASK2   DB      $C0,$30,$0C,$03
2D1B 40100401      COLOR1   DB      $40,$10,$04,$01

```

```

; -----
; DRAW HANDLER
; -----

```

```

2D1F A586          DRAW    LDA      DRAWY
2D21 C583          CMP      PLOTY      ;IS DRAWY>PLOTY?
2D23 900B ^2D30    BCC      YMINUS     ;NO!
2D25 38           SEC
2D26 E583          SBC      PLOTY      ;PLOTY FROM DRAWY
2D28 858A          STA      DELTAY     ;AND SAVE DIFFERENCE.

```

```

2D2A A901          LDA      #1          ;Y INCREMENT
2D2C 858C          STA      INCY          ;= 1 (DOWN)
2D2E D00B ^2D3B   BNE      XVEC          ;BRANCH!
2D30 A583          LDA      PLOTY         ;SUBTRACT
2D32 38           SEC           ;DRAWY
2D33 E586          SBC      DRAWY         ;FROM PLOTY
2D35 858A          STA      DELTAY        ;AND SAVE DIFFERENCE.
2D37 A9FF          LDA      #255         ;Y INCREMENT
2D39 858C          STA      INCY          ;= -1 (UP)
2D3B A585          LDA      XVEC          ;IS DRAWX
2D3D C582          CMP      PLOTX         ;> PLOTX?
2D3F 900B ^2D4C   BCC      XMINUS        ;NO!
2D41 38           SEC           ;SUBTRACT
2D42 E582          SBC      PLOTX         ;PLOTX FROM DRAWX
2D44 8589          STA      DELTAX        ;AND SAVE DIFFERENCE.
2D46 A901          LDA      #1          ;X INCREMENT
2D48 858B          STA      INCX          ;IS 1 (RIGHT)
2D4A D00B ^2D57   BNE      VECSET        ;BRANCH!
2D4C A582          LDA      XMINUS        ;SUBTRACT
2D4E 38           SEC           ;DRAWX FROM
2D4F E585          SBC      DRAWX         ;PLOTX
2D51 8589          STA      DELTAX        ;AND SAVE DIFFERENCE.
2D53 A9FF          LDA      #255         ;X INCREMENT
2D55 858B          STA      INCX          ;IS -1 (LEFT)
2D57 A900          LDA      #0          ;ZERO OUT;
2D59 8588          STA      ACCY          ;Y ACCUMULATOR
2D5B 8587          STA      ACCX          ;X ACCUMULATOR
2D5D A589          LDA      DELTAX        ;IS DELTAX>
2D5F C58A          CMP      DELTAY        ;DELTAY?
2D61 900A ^2D6D   BCC      YMAX          ;NO!
2D63 858D          STA      COUNTR        ;SAVE DELTAX
2D65 858E          STA      ENDPT         ;IN COUNTR, ENDPT.
2D67 4A           LSR      A             ;DIVIDE BY 2 AND
2D68 8588          STA      ACCY          ;STORE IN Y ACCUM.
2D6A 4C762D        JMP      DRAWGO        ;START DRAW
2D6D A58A          LDA      YMAX          ;DELTAY LARGER,
2D6F 858D          STA      COUNTR        ;STORE IT IN
2D71 858E          STA      ENDPT         ;COUNTR, ENDPT.
2D73 4A           LSR      A             ;DIVIDE BY 2 AND
2D74 8587          STA      ACCX          ;STORE IN X ACCUM.

```

```

; -----
; NOW WE START THE ACTUAL
; DRAWTO FUNCTION!
; -----

```

```

2D76 A58D          LDA      DRAWGO        ;IF COUNTR=0...
2D78 F039 ^2DB3   BEQ      DRWEND        ;NO DRAW!
2D7A A588          LDA      BEGIN        ;ADD DELTAY
2D7C 18           CLC           ;TO Y ACCUMULATOR
2D7D 658A          ADC      DELTAY
2D7F 8588          STA      ACCY

```

```

2D81 C58E          CMP      ENDPT    ;AT ENDPOINT YET?
2D83 900E ^2D93   BCC      BEGIN2  ;NO, GO DO X.
2D85 A588          LDA      ACCY    ;SUBTRACT ENDPT
2D87 38           SEC      ;FROM Y ACCUMULATOR
2D88 E58E          SBC      ENDPT
2D8A 8588          STA      ACCY
2D8C A583          LDA      PLOTY  ;AND INCREMENT
2D8E 18           CLC      ;THE Y POSITION!
2D8F 658C          ADC      INCY
2D91 8583          STA      PLOTY
2D93 A587          LDA      ACCX  ;ADD DELTAX TO
                BEGIN2
2D95 18           CLC      ;X ACCUMULATOR
2D96 6589          ADC      DELTAX
2D98 8587          STA      ACCX
2D9A C58E          CMP      ENDPT  ;AT ENDPOINT YET?
2D9C 900E ^2DAC   BCC      PLOTIT  ;NO, GO PLOT.
2D9E A587          LDA      ACCX  ;SUBTRACT ENDPT
2DA0 38           SEC      ;FROM X ACCUMULATOR
2DA1 E58E          SBC      ENDPT
2DA3 8587          STA      ACCX
2DA5 A582          LDA      PLOTX  ;AND INCREMENT
2DA7 18           CLC      ;PLOT X
2DAB 658B          ADC      INCX
2DAA 8582          STA      PLOTX
2DAC 20BC2C       PLOTIT  JSR      PLOTCL  ;PLOT THE POINT!
2DAF C68D          DEC      COUNTR  ;MORE TO DRAW?
2DB1 D0C7 ^2D7A   BNE      BEGIN  ;YES!
2DB3 60           DRWEND  RTS      ;NO, EXIT!

```

```

;
; -----
; MISCELLANEOUS DATA
; -----
;

```

```

2DB4 0001020304  GRDTBL  DB      0,1,2,3,4,1,5,3
                ;
                L,I,V,E,W,I,R,E
                ;
                COLORS (0=GRID, 1=OBJ1 2=OBJ2)

```

```

2DBC C43674F6     C0TBL  DB      $C4,$36,$74,$F6
2DC0 54060026     DB      $54,$06,$00,$26
2DC4 860C3656     C1TBL  DB      $86,$0C,$36,$56
2DC8 26C69818     DB      $26,$C6,$98,$18
2DCC 9846A836     C2TBL  DB      $98,$46,$A8,$36
2DD0 8418C638     DB      $84,$18,$C6,$38

```

```

; OBJECT COUNT TABLES (DIFFICULTY)

```

```

2DD4 0000000004  OBCNT0 DB      0,0,0,0,4,6,8,10
2DDC 0000000608  OBCNT1 DB      0,0,0,6,8,9,10,11
2DE4 080A0C0E10  OBCNT2 DB      8,10,12,14,16,18,20,22
2DEC 06080A0B0C  OBCNT3 DB      6,8,10,11,12,14,15,16
2DF4 000004080A  OBCNT4 DB      0,0,4,8,10,12,14,16

```

; STICK ADD VALUES

```

2DFC 0000000000 STKADD DB 0,0,0,0,0,1,1,1
2E04 00FFFFFF00 DB 0,$FF,$FF,$FF,0,0,0,0

```

; PROJECTILE DATA

```

2E0C 0000000000 PROJAC DB 0,0,0,0,0,0,0,0
2E14 = 0008 PROINC DS 8
2E1C = 0008 PROGRD DS 8
2E24 = 0008 PROJGN DS 8
2E2C = 0008 PROJSG DS 8
2E34 0307 PRSTRT DB 3,7
2E36 FF03 PREND DB $FF,3
2E38 030C30C0 MISLON DB $03,$0C,$30,$C0
2E3C FCF3CF3F MISLOF DB $FC,$F3,$CF,$3F

```

; FLASH (OBJECT DEATH) DATA

```

2E40 2828289254 FLBYTE DB $28,$28,$28,$92,$54,$28,$10
2E47 1028549228 DB $10,$28,$54,$92,$28,$28,$28
; OBJECT POINTS (250,200,50,100,150)

```

```

2E4E 0202000101 POINT1 DB $02,$02,$00,$01,$01
2E53 5000500050 POINT2 DB $50,$00,$50,$00,$50

```

; SHORT DATA

```

2E58 = 0004 SHORTF DS 4
2E5C = 0004 SHORTX DS 4
2E60 = 0004 SHORTD DS 4
2E64 = 0004 SHORTT DS 4

```

; OBJECT DATA

```

2E68 = 0006 OBDEAD DS 6
2E6E = 0006 OBDED2 DS 6
2E74 = 0006 OBJTYP DS 6
2E7A = 0006 OBJINC DS 6
2E80 = 0006 OBJGRD DS 6
2E86 = 0006 OBJSEG DS 6
2E8C 0203020302 OBJHUE DB 2,3,2,3,2
2E91 0000000000 SIZEWK DB 0,0,0,0,0,0,0,0
2E99 000001FF01 PXINC DB 0,0,1,$FF,1,$FF,1,$FF
2EA1 FF010000FF PYINC DB $FF,1,0,0,$FF,1,1,$FF
2EA9 120F0E0C OBSTBL DB 18,15,14,12
2EAD 0B0A0907 DB 11,10,9,7
2EB1 0403010200 OBJDIR DB 4,3,1,2,0,5,$FF,0
2EB9 0405000600 DB 4,5,0,6,0,$FF,0,0
2EC1 0005060407 DB 0,5,6,4,7,1,$FF,0
2EC9 0600030102 DB 6,0,3,1,2,7,$FF,0

```

```

2ED1  0406050705      DB      4,6,5,7,5,6,4,$FF
2ED9  0307070707      OBJLEN DB      3,7,7,7,7,7,0,0
2EE1  0307070707      DB      3,7,7,7,7,0,0,0
2EE9  0303030303      DB      3,3,3,3,3,7,0,0
2EF1  0203030303      DB      2,3,3,3,3,3,0,0
2EF9  0101010301      DB      1,1,1,3,1,1,3,0
2F01  0000000000      SIZTBL DB      0,0,0,0,0,1,1,1
2F09  0000000101      DB      0,0,0,1,1,2,2,2
2F11  0000010101      DB      0,0,1,1,1,2,2,2
2F19  0001010202      DB      0,1,1,2,2,2,2,3
2F21  0001010202      DB      0,1,1,2,2,2,3,3
2F29  0102020202      DB      1,2,2,2,2,2,3,3
2F31  0102020203      DB      1,2,2,2,3,3,3,4
2F39  0102020303      DB      1,2,2,3,3,3,4,4

;      PLAYER SHAPES

2F41  1010101010      PN1    DB      $10,$10,$10,$10,$10,$10,$10,$10
2F49  0808080808      DB      $08,$08,$08,$08,$08,$08,$08,$08
2F51  0000000080      PN2    DB      $00,$00,$00,$00,$80,$40,$20,$10
2F59  0804020100      DB      $08,$04,$02,$01,$00,$00,$00,$00
2F61  0000010102      PN3    DB      $00,$00,$01,$01,$02,$02,$04,$08
2F69  1020404080      DB      $10,$20,$40,$40,$80,$80,$00,$00

;      SHAPE START/END POINTS

2F71  0001020304      SPTBL  DB      0,1,2,3,4,5,6,7
2F79  0807060504      DB      8,7,6,5,4,3,2,1
2F81  11100F0E0D      EPTBL  DB      17,16,15,14,13,12,11,10
2F89  090A0B0C0D      DB      9,10,11,12,13,14,15,16

;      JOYSTICK/PADDLE MESSAGE POINTERS

2F91  4353            JPLO   DB      JOYMSG&255,PADMSG&255
2F93  2121            JPFI   DB      JOYMSG/256,PADMSG/256

;GRID DATA TABLES

2F95  0E0E0E0E0E      CX     DB      14,14,14,14,14,14,14,14
2F9D  1A2733404B      DB      26,39,51,64,75,88,100,113
2FA5  0E0E0E0E0E      DB      14,14,14,14,14,14,14,14
2FAD  0E0E0E0E0E      DB      14,14,14,14,14,14,14,14
2FB5  0E141A2026      DB      14,20,26,32,38,43,49,59
2FBD  454E54595F      DB      69,78,84,89,95,101,107,113
2FC5  715840270E      DB      113,88,64,39,14,14,14,27
2FCD  1B0E0E0E27      DB      27,14,14,14,39,64,88,113
2FD5  0E0E0E0E0E      DB      14,14,14,14,14,29,43,58
2FDD  4654627171      DB      70,84,98,113,113,113,113,113
2FE5  716A647171      DB      113,106,100,113,113,100,82,65
2FED  30200E0E0E      DB      48,32,14,14,14,14,14,14

```



```

2FF5 1222344658  CY      DB      18,34,52,70,88,105,123,141
2FFD 8D8D8D8D8D      DB      141,141,141,141,141,141,141,141,141
3005 1219222A32      DB      18,25,34,42,50,58,67,75
300D 535B646C74      DB      83,91,100,108,116,125,133,141
3015 12273B5065      DB      18,39,59,80,101,121,141,141
301D 8D8D796550      DB      141,141,121,101,80,59,39,18
3025 1212121212      DB      18,18,18,18,18,35,53,71
302D 596A7C8D8D      DB      89,106,124,141,141,141,141,141
3035 1231506F8D      DB      18,49,80,111,141,132,123,114
303D 727B848D6F      DB      114,123,132,141,111,80,49,18
3045 8D6E503D26      DB      141,110,80,61,38,18,18,18
304D 1212122B44      DB      18,18,18,43,68,92,117,141

3055 3737373737      FX      DB      55,55,55,55,55,55,55,55
305D 3A3C3E4042      DB      58,60,62,64,66,68,70,73
3065 3737373737      DB      55,55,55,55,55,55,55,55
306D 3737373737      DB      55,55,55,55,55,55,55,55
3075 37393A3B3B      DB      55,57,58,59,59,60,61,63
307D 4143444545      DB      65,67,68,69,69,70,71,73
3085 4944403C37      DB      73,68,64,60,55,55,55,57
308D 393737373C      DB      57,55,55,55,60,64,68,73
3095 3737373737      DB      55,55,55,55,55,58,61,63
309D 4143464949      DB      65,67,70,73,73,73,73,73
30A5 4948464949      DB      73,72,70,73,73,70,67,64
30AD 3D3A373737      DB      61,58,55,55,55,55,55,55

30B5 43474A4D51      FY      DB      67,71,74,77,81,84,87,90
30BD 5A5A5A5A5A      DB      90,90,90,90,90,90,90,90
30C5 3C3E414447      DB      60,62,65,68,71,73,76,78
30CD 515356595C      DB      81,83,86,89,92,94,97,99
30D5 43494D5054      DB      67,73,77,80,84,88,90,90
30DD 5A5A585450      DB      90,90,88,84,80,77,73,67
30E5 4343434343      DB      67,67,67,67,67,71,74,77
30ED 5053565A5A      DB      80,83,86,90,90,90,90,90
30F5 434A50565A      DB      67,74,80,86,90,89,87,86
30FD 5657595A56      DB      86,87,89,90,86,80,74,67
3105 5A55504B47      DB      90,85,80,75,71,67,67,67
310D 434343494E      DB      67,67,67,73,78,82,86,90

3115 0002          SHSTRT DB      0,2
3117 = 0002      SHYHLD DS      2
3119 8850205088    SHOIMG DB      $88,$50,$20,$50,$88
311E 2020F82020      DB      $20,$20,$F8,$20,$20
3123 0409          CPYSTN DB      4,9

3125 02FE          ADDSUB DB      2,$FE    ;ADD/SUB. 2
3127 01FF          ADDSB1 DB      1,$FF    ;ADD/SUB. 1

;          SOUND DATA

3129 00A1A1A2A2    FIRCTL DB      $00,$A1,$A1,$A2,$A2,$A3
312F A3A4A4A5A5      DB      $A3,$A4,$A4,$A5,$A5,$A6

```

```

3135 A6A7A7A8A8      DB      $A6,$A7,$A7,$A8,$A8,$A9
313B A9AAAA          DB      $A9,$AA,$AA
313E 00C2A6B498    FIRFRQ  DB      0,194,166,180,152,166
3144 8A987C8A6E    DB      138,152,124,138,110,124
314A 606E526044    DB      96,110,82,96,68,82
3150 364428         DB      54,68,40

3153 0041414242    OBDCTL  DB      $00,$41,$41,$42,$42,$43
3159 4344444545    DB      $43,$44,$44,$45,$45,$46
315F 4647474848    DB      $46,$47,$47,$48,$48,$49
3165 494A4A         DB      $49,$4A,$4A
3168 0050287850    OBDFRQ  DB      0,80,40,120,80,160
316E 78C8A0F0C8    DB      120,200,160,240,200,24
3174 F040186840     DB      240,64,24,104,64,144
317A 68CC90         DB      104,204,144

317D 00A1A1A2A2    MOVCTL  DB      $00,$A1,$A1,$A2,$A2,$A3
3183 A3A4A4          DB      $A3,$A4,$A4
3186 00141E141E    MOVFRQ  DB      0,20,30,20,30,20,30,20,30

```

```

;      DATA TABLES

```

```

318F = 0011      SEGWK  DS      17
31A0 = 0100      SEGX   DS      256
32A0 = 0100      SEGY   DS      256
33A0 = 0100      RIMX   DS      256
34A0 = 0100      RIMY   DS      256

35A0                                END      LIVE

```

no ERRORS, 411 Labels, \$20FA free.

ACCX	0087	1#27	37/31	37/44	38/15	38/18	38/21	38/24
ACCY	0088	1#28	37/30	37/38	37/53	37/56	38/ 7	38/10
ADDSB1	3127	12/34	41#51					
ADDSCO	255A	9/36	12/ 7	15#52				
ADDSUB	3125	15/33	41#50					
ATTRAC	004D	3#49	9/12					
AUDC1	D201	3#39	17/55	18/11	27/30			
AUDC2	D203	3#40	27/31	27/42				
AUDC3	D205	3#41	27/32	27/50				
AUDC4	D207	3#42	27/33	28/ 6				
AUDCTL	D208	3#47	6/38					
AUDF1	D200	3#43	18/ 6	20/ 9				
AUDF2	D202	3#44	27/40					
AUDF3	D204	3#45	27/48					
AUDF4	D206	3#46	27/56					
AUTHOR	2133	5/12	6# 7					
BCDLVL	00A5	1#57	6/29	10/46	10/49	18/45		
BEGIN	2D7A	37#53	38/31					
BEGIN2	2D93	38/ 6	38#15					
BMASK1	2D13	36/31	36#43					
BMASK2	2D17	36/24	36/28	36#44				
BONUS	00D0	2#48	7/21	16/18	16/22	16/26		
C0TBL	2DBC	20/42	38#43					
C1TBL	2DC4	20/44	38#45					
C2TBL	2DCC	20/46	38#47					
CGPRDR	2B9D	32/38	32#42					
CHKINT	290F	26/42	26#44					
CHKPMV	2A31	28/38	28/46	28/48	29#18			
CKOBLV	22DF	9#41	9/43					
CKOBWT	22E6	9#45	9/47					
CKPEND	2BE3	31/47	33#21	33/41				
CKPRLV	25B6	17#17	17/19					
CKSEL	2256	8/16	8#21					
CKSHOR	2441	12/53	12#57					
CKZAP	2926	26/49	26#54					
CLFLSH	265B	19#20	19/23					
CLPRJC	26B4	20#30	20/32					
CLRDED	21AB	6#46	6/48					
CLRPRJ	21BC	6#55	6/57					
CLRPS	2A96	30#18	30/21					
CLRSC	2CA1	8/51	35#25					

CLRSC2	2CAB	35#30	35/39				
CLRSC3	2CAE	35#32	35/34				
CLRSC4	2CB7	35/36	35#38				
CLRSCO	21B3	6#50	6/53				
CLRSH0	21A3	6#42	6/44				
CLSHRT	26AC	20#26	20/28				
CMFTRG	2A00	28/44	28#46				
COLBK	02C8	3#34	6/40				
COLOR	0084	1#24	8/49	11/47	12/41	17/37	36/27
COLOR1	2D1B	36/25	36#45				
COLORS	2D0F	36/29	36#42				

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D1:LIVEWIRE.AS

COLPF0	02C4	3#35	7/40	20/43	21/36	22/18	22/53
COLPF1	02C5	3#36	7/42	20/45			
COLPF2	02C6	3#37	7/44	20/47			
COLPF3	02C7	3#38	7/46	28/13			
COLPM0	02C0	3#54	8/ 8	17/54	18/ 9	18/10	18/22
COLPM1	02C1	3#55	7/56				
COLPM2	02C2	3#56	7/57	28/ 7	28/10		
COLPM3	02C3	3#57	8/ 6	28/11			
CONSOL	D01F	3#29	8/14	8/17	8/21	10/30	
CONTRL	20CA	5#14	6/32	6/34	8/31	8/33	
CONWT	22A2	9# 7	9/ 8	10/34			
COPDED	22C0	9#26	9/31				
COPY1	27ED	23#33	23/38				
COPY2	280E	23#48	23/53				
COPY3	282F	24#15	24/20				
COPY4	2850	24#30	24/35				
COPYSZ	24C9	14#24	14/29				
COUNTR	008D	1#33	37/35	37/41	37/51	38/30	
CPAGE0	217B	6#25	6/27				
CPYCNT	00CF	2#47	34/42	34/49			
CPYST	00C4	2#36	33/56	34/40			
CPYSTN	3123	33/55	41#48				
CX	2F95	21/28	21/49	21/53	40#43		
CY	2FF5	21/30	21/51	22/ 7	40#57		
CYCCOL	29A8	27/52	28# 7				
DEAD	2627	18/14	18#24				
DECLIV	25AF	9/11	17# 9				
DELTAx	0089	1#29	37/19	37/26	37/32	38/17	
DELTAy	008A	1#30	36/56	37/11	37/33	37/40	37/55
DEST	009B	1#47	25/13	25/22	25/32	25/35	25/43
DESTHI	00C1	2#33	34/ 9	34/53			
DESTLO	00C0	2#32	34/11	34/20	34/44	34/46	
DESTNM	00C3	2#35	34/13	34/17	34/33	34/51	
DIFF	00E4	2#57	10/43	10/44	21/14		
DIFFAD	2700	21#12	21/17				
DIGIN	227B	8/20	8#42				
DISP	0800	3#18	4/23	4/33	35/25	35/27	36/ 8 36/12
DIVCTL	27D9	23#25	24/42				
DIVIDE	2877	23/30	23/45	24/12	24/27	25# 9	
DIVLP1	2884	25#16	25/36				

DIVLP2	2880	25#14	25/44					
DLI1	20CF	5#22	26/27	26/29				
DLI2	20E9	5/28	5/30	5#35				
DLIST	2000	4#22	4/50	8/42	8/44			
DLISTL	0230	3#51	7/29	7/31	8/43	8/45		
DMAC1	00C5	2#37	5/26	20/22	24/44			
DMACTL	022F	3#50	6/36	7/48				
DOBLP	24E3	14#38	15/20					
DRAW	2D1F	21/39	22/21	22/56	36#51			
DRAWG0	2D76	37/39	37#51					
DRAWX	0085	1#25	21/33	21/54	22/37	26/17	37/14	37/25
DRAWY	0086	1#26	21/35	22/ 8	22/43	26/19	36/51	37/10

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DRGRID	269B	9/ 6	20#18					
DRWEND	2DB3	37/52	38#32					
DRWOBJ	2479	11/48	12/42	13#32	17/40			
ENDDIV	28BD	25/42	25#45					
ENDDVC	286A	24/41	24#43					
ENDKEY	2952	26/53	26/55	26/57	27#25			
ENDOBJ	252B	14/41	15#21					
ENDPT	008E	1#34	37/36	37/42	37/57	38/ 9	38/19	38/23
ENDVAL	009E	1#50	31/40	33/24				
EPTBL	2F81	30/32	30/43	30/55	40#33			
ERSOBJ	25D0	17#40	17/52					
ERSSH0	2C3F	34#20	34/23					
FIRCTL	3129	27/41	41#55					
FIRE	29EF	28/36	28#39					
FIRFRQ	313E	27/39	42# 7					
FIRSOU	00D1	2#49	11/43	19/57	27/35	27/37	27/38	29/ 6
FLASH	2655	11/52	19#17					
FLASHY	00B5	2#21	19/17	19/32				
FLBYTE	2E40	19/34	39#25					
FLIPIT	2B0F	31/22	31#35					
FLTIME	00B6	2#22	9/13	19/40	26/38	26/40		
FOREVR	2289	8#48	10/51					
FX	3055	21/32	22/32	22/36	41#18			
FY	30B5	21/34	22/34	22/42	41#31			
GENCOO	27D5	23/ 6	23#23					
GENNOL	22F1	9#52	10/25					
GOCHK	224C	8#17	8/19					
GOSTIK	2A44	29/19	29#29					
GOTPRJ	2B2C	31/46	31#48					
GOTPRN	2A10	28/51	28#54					
GRAC1	00C6	2#38	5/23	20/24	24/46			
GRACTL	D01D	3#52	5/25	7/50				
GRDADJ	00C9	2#41	21/23	21/45	22/27			
GRDBL1	274B	21#49	22/26					
GRDBL2	2795	22#32	23/ 9					
GRDBO1	2743	21/41	21#45					
GRDBO2	278B	22/23	22#27					
GRDLIN	2719	21#28	21/44					
GRDNUM	00CC	2#44	8/56	21/18				

GRDTBL	2DB4	8/55	38#38					
GRDWK	00CA	2#42	21/24	21/42	21/43	21/46	22/24	22/25
		22/28	23/ 7	23/ 8				
GRDWK2	00CB	2#43	21/27	21/40	21/48	22/15	22/22	22/30
		22/50	22/57					
GRID	0092	1#38	22/16	22/51	25/51			
GRIDIX	00C7	2#39	8/52	10/35	10/40	20/37	20/50	
GRIDNO	0097	1#43	23/24	23/31	23/40	23/46	24/ 7	24/13
		24/22	24/28	24/36	24/39			
GRIDSV	28BE	22/17	22/52	25#51				
HANNXS	2556	15/29	15/38	15#44				
HI	0081	1#21	35/26	35/38	35/51	35/53	35/55	35/57
		36/ 7	36/13	36/14				

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HITCLR	D01E	4#11	6/39	34/56				
HITOBJ	2B90	32/34	32#37					
HLDRD	00B0	2#16	13/38	13/43	13/53			
HOLD	008F	1#35	36/30	36/34				
HPOSM0	D004	4#10	33/ 6					
HPOSP0	D000	4# 6	30/10					
HPOSP1	D001	4# 7	9/15	19/27				
HPOSP2	D002	4# 8	34/34					
n HPOSP3	D003	4# 9						
INCLIV	25A3	16/20	16#50					
INCX	008B	1#31	37/21	37/28	38/27			
INCY	008C	1#32	37/ 6	37/13	38/13			
INFOLN	2103	4/48	5#52	7/ 7	18/55	19/10		
INIOBS	21D1	7#13	7/15					
INISH0	2454	13/10	13#14					
INTRFG	00A4	1#56	6/30	8/47	20/19	24/48	26/44	
INTRO	2245	8#14	8/23	8/36				
JCONWT	2339	10/32	10#34					
JOBHAN	2476	12/50	12/56	13/ 7	13/13	13#30		
JOYMSG	2143	5/14	6#10	6/31	6/33	40/38	40/39	
JOYPAD	00CE	2#46	8/24	8/28	28/41	29/18		
JPHI	2F93	8/32	40#39					
JPLO	2F91	8/30	40#38					
n JVBC	2A4A	29#32						
KEY	02FC	3#28	26/47	27/26				
KILLPR	2BF0	32/41	32/47	32/49	33#27			
KILOBJ	2427	12/ 9	12/14	12/18	12#45			
KILPLR	00BD	2#29	9/ 9	12/55	18/20	26/41	29/57	33/40
LAST	0098	1#44	25/15	25/16	25/24	25/27		
LASTSC	2163	5/ 6	6#14	7/ 8				
LENGTH	00AC	2#12	14/49	15/16				
LIVE	2173	6#21	10/33	18/26	42/33			
LIVES	00C8	2#40	7/22	16/50	16/53	18/13	18/15	18/34
LO	0080	1#20	35/28	35/32	35/48	35/52	35/54	35/56
		36/ 6	36/10	36/11	36/23	36/33	36/35	
LVLEND	233C	9/49	10#35					
MAGMSG	2113	5/ 8	5#54					
MISCAD	00DE	2#55	9/33	9/38	27/15	27/19		

MISLOF	2E3C	31/51	31/54	31/57	39#21			
MISLON	2E38	33/13	33/16	33/19	39#20			
MISNUM	009F	1#51	31/44	31/48	32/57	33/21		
MISSLS	0300	3#13	31/50	31/52	31/53	31/55	31/56	32/ 6
		33/12	33/14	33/15	33/17	33/18	33/20	35/13
MOREWT	25F7	17#56	18/12					
MOVCTL	317D	27/57	42#21					
MOVFRQ	3186	27/55	42#23					
MOVSCO	21C4	7# 7	7/10					
MOVSOU	00D3	2#51	20/ 7	27/51	27/53	27/54	29/46	
NEWGRD	230E	10#14	10/17					
NEXT	0099	1#45	25/11	25/18	25/31	25/40		
NMIEN	D40E	3#53	6/37	7/52				
NOAVIN	2BFB	33/30	33#32					

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NOBONS	258C	16/19	16#27					
NODIFI	234F	10/42	10#45					
NOFEND	22B6	9/14	9#16					
NOFSND	2980	27/36	27#43					
NOFTIM	2908	26/39	26#41					
NOGRD1	2738	21/37	21#40					
NOGRD2	2780	22/19	22#22					
NOGRD3	27CA	22/54	22#57					
NOGRDI	2358	10/37	10#51					
NOHSHO	2A7F	29/55	30# 7					
NOKILP	2C10	33/33	33/35	33/38	33#41			
NOMOLV	25AE	16/52	16#55					
NOMSCO	22DB	9/34	9#39					
NOOBFI	23B1	11/19	11/22	11/28	11#46			
NOOBTD	28FC	26/33	26#35					
NOOHAN	232F	9/17	10#30					
NOOHCK	2BA5	32/16	32#46					
NOOKIL	23D9	11/51	12#10					
NOOSND	2994	27/44	27#51					
NOPADV	2B5D	32/10	32#15					
NOPAU	296C	27/28	27#35					
NOPLT1	2513	15/ 7	15# 9					
NOPLT2	2521	15/14	15#16					
NOP SIN	29E6	28/29	28#35					
NOPSTO	2A6C	29/44	29#48					
NOSKIL	294F	27/14	27#23					
NOSP1	2ABC	30/31	30/33	30#37				
NOSP2	2AD5	30/42	30/44	30#49				
NOSP3	2AEE	30/54	30/56	31# 9				
NOSTEP	28AE	25/30	25#37					
NOTIMR	2902	26/36	26#38					
NOTINT	2916	26/45	26#47					
NOTOT3	23ED	12/16	12#19					
NOTRAN	29D4	28/15	28#26					
NOTRNC	2B7A	32/24	32#27					
NUMOBJ	00DF	2#56	9/45	10/ 7	10/11	12/17	20/54	20/56
		21/ 6	21/ 8	21/10	21/12	21/15		

NXTOCK	2BA2	32/19	32/21	32/26	32/29	32/36	32#44	
NXTOGN	2326	9/53	10/ 8	10#24				
NXTSH0	2C7A	34/26	34#51					
OBCNT0	2DD4	20/53	38#52					
OBCNT1	2DDC	20/55	38#53					
OBCNT2	2DE4	20/57	38#54					
OBCNT3	2DEC	21/ 7	38#55					
OBCNT4	2DF4	21/ 9	38#56					
OBCTL	3153	27/49	42#12					
OBDEAD	2E68	6/46	9/26	9/29	27/ 9	32/18	32/40	39#41
OBDED2	2E6E	9/27	11/50	39#42				
OBDFRQ	3168	27/47	42#16					
OBDSOU	00D2	2#50	12/48	20/ 6	27/43	27/45	27/46	
n OBHLP1	236B	11#14						
OBHLP2	23FD	12/20	12/23	12#26				

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OBJDIR	2EB1	14/39	39#53					
OBJGRD	2E80	10/18	11/33	12/32	12/37	12/51	13/14	13/33
		17/50	32/27	39#45				
OBJHAN	235B	10/27	10#57	11/16	12/43	13/30		
OBJHUE	2E8C	12/40	28/16	28/21	32/25	39#47		
OBJINC	2E7A	10/22	12/12	12/25	17/45	39#44		
OBJLEN	2ED9	14/46	40# 6					
OBJNUM	00AA	2#10	10/57	11/11	11/13	11/14	11/49	11/53
		12/ 8	13/32	14/30	17/39	17/41	17/51	
OBJPRS	00E5	3# 6	9/41	9/52	10/23	11/15	12/46	32/20
OBJSEG	2E86	7/13	10/20	11/17	11/30	12/10	12/13	12/49
		13/39	14/17	17/43	32/30	39#46		
OBJSPD	00CD	2#45	9/18	20/49				
OBJTYP	2E74	10/13	11/54	12/21	12/26	12/38	12/57	14/31
		32/22	32/37	39#43				
OBJKILP	2B64	32#18	32/45					
n OBLIVE	2371	11#17						
OBSTBL	2EA9	20/48	39#51					
OBTIM1	00A9	2# 9	9/16	9/19	26/32	26/34		
ODDSEG	249F	13/41	13#52					
ODDSKP	24BB	13/51	14#15					
OFFSET	0093	1#39	20/34	22/31	25/57	26/11		
POPL	D00C	4#12	29/53					
PABORT	2D0E	36/26	36#36					
PADMSG	2153	6#12	40/38	40/39				
PAUFLG	00B1	2#17	9/ 7	26/50	26/52	27/27		
PAVAIL	00BE	2#30	7/19	20/36	28/47	28/54	33/31	
PFTIME	009D	1#49	28/35	28/37	28/40			
PL0	0400	3#14	30/18	31/16	35/14			
PL1	0500	3#15	19/20	19/35	35/15			
PL2	0600	3#16	35/16					
PL3	0700	3#17	34/ 8	34/10	35/17			
PLIVE	22AD	9/10	9#12					
PLOTCL	2CBC	15/ 8	15/15	21/38	22/20	22/55	35#46	38/29
PLOTIT	2DAC	38/20	38#29					
PLOTDB	24FE	14#50	15/17					

PLOTX	0082	1#22	13/46	14/ 7	14/50	14/53	21/29	21/50
		21/56	22/33	22/39	26/13	36/15	36/18	37/15
		37/18	37/23	38/25	38/28			
PLOTY	0083	1#23	13/49	14/13	14/54	14/57	15/ 9	15/12
		21/31	21/52	22/10	22/35	22/45	26/15	35/46
		36/52	36/55	37/ 8	38/11	38/14		
PLRGRD	0095	1#41	12/52	29/ 9	29/36	29/42	29/43	29/47
		33/37						
PLRY	0096	1#42	30/11	30/15	31/ 9			
PLTBYT	00BB	2#27	30/25	30/36	30/47	30/48	31/ 7	31/ 8
		31/15						
PMAREA	0000	3#12	3/13	3/14	3/15	3/16	3/17	7/36
PMBASE	D407	3#30	7/37					
PMCLP	2C8E	35#13	35/19					
PMCLR	2C8B	7/38	20/33	35#11				
PMTIME	0094	1#40	29/29	29/31	29/34			

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PN1	2F41	30/35	40#22					
PN2	2F51	30/46	40#24					
PN3	2F61	31/ 6	40#26					
POINT1	2E4E	11/55	39#29					
POINT2	2E53	11/57	39#30					
POT0	0270	3#27	29/20					
PRADV1	00A2	1#54	31/19	31/21	31/25			
PRADVT	00A1	1#53	31/23	32/ 8				
PREND	2E36	31/39	39#19					
PRFLIP	00A0	1#52	31/35	31/36				
PRIOR	026F	3#48	7/54					
PROGRD	2E1C	11/34	29/10	32/28	33/36	39#15		
PROINC	2E14	11/41	29/17	32/13	32/15	32/43	33/34	39#14
PROJAC	2E0C	6/55	11/23	11/27	11/45	17/17	20/30	28/50
		28/56	31/45	33/28	39#13			
PROJGN	2E24	11/39	29/15	32/51	39#16			
PROJLP	2B24	31#45	33/26					
PROJSG	2E2C	11/32	29/ 8	32/11	32/14	32/33	32/46	33/32
		39#17						
PRSCAN	2A08	28#50	28/53					
PRSTRT	2E34	31/41	39#18					
PRYHLD	00D4	2#52	31/49	33/11				
PSCNT	00BC	2#28	28/26	28/27	28/31			
PTRIG0	027C	3#26	28/43					
PXINC	2E99	14/42	39#49					
PYINC	2EA1	14/44	39#50					
RANDOM	D20A	3#31	9/54	10/14	11/20	12/29	13/24	13/27
		15/39	17/46	17/56	28/22			
RDSTIK	2A4D	29/30	29#33					
RDSTRG	29FD	28/42	28#45					
RESSHD	2549	15/35	15#39					
RIMX	33A0	24/ 8	24/10	24/16	26/14	26/18	34/29	42#30
RIMY	34A0	24/23	24/25	24/31	26/16	26/20	34/30	42#31
RNDOBG	25DF	17#46	17/49					
SAMPOS	2A60	29/39	29#42					

SAVEND	28EA	26/12	26#21					
SAVEX	00B3	2#19	13/47	14/ 8	19/24			
SAVEY	00B4	2#20	13/50	14/14	19/28			
SCOADD	00DB	2#54	6/51	9/35	11/56	12/ 6	15/56	16/ 6
		16/ 8	16/10	16/12	16/14			
SCORE	00D8	2#53	6/50	15/54	15/57	16/ 7	16/ 9	16/11
		16/13	16/17	16/37				
SEFLSH	2674	19#34	19/38					
SEGWK	318F	23/27	23/29	23/33	23/42	23/44	23/48	24/ 9
		24/11	24/15	24/24	24/26	24/30	25/17	25/20
		25/23	42#27					
SEGX	31A0	13/45	13/55	13/57	23/26	23/28	23/34	26/ 8
		30/ 7	32/53	42#28				
SEGY	32A0	13/48	14/ 9	14/11	23/41	23/43	23/49	26/10
		30/12	32/54	42#29				
SETHUE	2418	12/28	12/36	12#38				
SETPRA	2B09	31/20	31#23					

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SETVBV	E45C	3#32	7/35					
SHAPCT	00AF	2#15	14/37	15/19				
SHAPIX	00AB	2#11	14/35	14/38	15/ 6	15/13	15/18	
SHCOLR	00A6	2# 6	16/34	18/33	18/44	18/54	19/ 9	
SHFLIP	00C2	2#34	33/50	33/51	33/57			
SHHANL	252E	15#28	15/45					
SHOBCD	2640	16/38	18/36	18#52				
SHOBYT	00A7	2# 7	18/52	18/56				
SHOCOP	2C6C	34#43	34/50					
SHOHAN	252C	10/28	15#27					
SHOIMG	3119	34/43	41#46					
SHOLIV	262C	7/23	16/54	18/16	18#32			
SHOLVL	2638	8/57	18#43					
SHORLP	2C36	34#16	34/55					
SHORTD	2E60	13/26	15/30	15/43	39#36			
SHORTF	2E58	6/42	13/ 9	13/23	15/28	17/28	20/26	27/13
		27/22	34/25	39#34				
SHORTS	2C13	33/25	33#50					
SHORTT	2E64	13/29	15/37	15/41	39#37			
SHORTX	2E5C	13/21	15/31	15/36	34/27	39#35		
SHOSCO	258D	7/16	16/16	16#33				
SHSTRT	3115	34/14	41#44					
SHYHLD	3117	34/18	34/38	41#45				
SIZWK	2E91	14/25	14/48	39#48				
SIZTBL	2F01	14/24	40#11					
SNDOF2	2694	20# 9	20/11					
SNDOFF	268A	7/17	17/ 9	19#56	20/20			
SP1IX	00B7	2#23	28/32	30/26				
SP2IX	00B8	2#24	7/25	28/33	30/37			
SP3IX	00B9	2#25	7/27	28/34	30/49			
SPIX	00BA	2#26	30/23	30/29	30/40	30/52	31/11	31/17
SPLLOOP	2AA1	30#24	31/18					
SPTBL	2F71	30/30	30/41	30/53	40#31			
SSCOLP	2595	16#37	16/43					

STEP	009A	1#46	25/10	25/26	25/34	25/37	25/39
STICK	0278	4#13	29/35				
STKADD	2DFC	29/38	39# 8				
STOBF1	238F	11/26	11#30				
STONUM	2369	11/ 9	11#13				
STOPOS	2A62	29/26	29/28	29/41	29#43		
STOTRN	29C8	28/19	28#21				
STPSHO	25C2	17#28	17/30				
STRIG	0284	4#14	28/45				
TIMER	00A3	1#55	19/47	19/48	26/35	26/37	
TITLDL	20AF	4#56	5/16	7/28	7/30		
TITLE	2123	5/10	5#57				
TRAN1	29C6	28/17	28#20				
TRANTM	00BF	2#31	28/14	28/25			
TRYPR1	2388	11/24	11#27				
TRYSHO	244A	13# 9	13/12				
TRYTYP	22F5	9#54	9/57				
VBCONT	2B00	26/43	29/32	31#19			

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VBEND	2C85	30/ 6	34/52	34#56				
VBI	28EB	7/32	7/33	26#27				
VBXHLD	009C	1#48	31/42	32/ 7	33/22	33/23	34/15	34/24
		34/54						
VDSLST	0200	3#24	5/29	5/31	26/28	26/30		
VECSET	2D57	37/22	37#29					
WAIT	2683	8/35	18/ 8	18/18	19#47			
WAITLP	2685	19#48	19/49					
WAITPD	25B2	17#15	17/21					
WSYNC	D40A	3#25	5/24	5/37				
XI	00AD	2#13	14/43	14/52				
XITVBV	E462	3#33	26/46	27/34	34/57			
XMINUS	2D4C	37/16	37#23					
XVEC	2D3B	37/ 7	37#14					
XWORK	0090	1#36	22/ 6	22/41	26/ 7			
YI	00AE	2#14	14/45	14/56	15/11			
YMAX	2D6D	37/34	37#40					
YMINUS	2D30	36/53	37# 8					
YOFFSET	00A8	2# 8	36/21	36/32				
YWORK	0091	1#37	22/12	22/47	26/ 9			
ZAP	00B2	2#18	8/50	26/56	27/ 6			
ZAPOBJ	2934	27# 9	27/11					
ZAPSHO	293C	27#13	27/24					

