```
100|( SPACE INVADERS GAME )
101|( CRAB1A )
102|( CRAB1B )
103|( CRAB2A )
104|( CRAB2B )
105|( CRAB3A )
106|( CRAB3B )
107|( UFO ) DECIMAL DATA UFO 3 B, 18 B, BINARY 0 B, 0 B, 0 B,
108|( UFO DATA TABLE CONTINUED )
109|( ADDITIONAL UFO PATTERNS )
110|( YET ANOTHER UFO PATTERN )
111|( BOMB PATTERNS FOR SPACE INVADERS )
112|( BOMB PATTERNS STYLE 2 )
113|( SPACE MISSIONS INVADERS BACKGROUND SCORE ) HEX
114|( INVADERS- LARGE INVADER, IA ) HEX
115|( MISSIONS- TAKE-OFF- TO ) HEX
150|( SPACE INVADERS GAME )
151|( MORE GOODIES ) DECIMAL
152|( CONTINUED PATTERN MAKER )
153|( SPACE INVADERS RACK COORDINATE BUMPER ROUTINE )
154|( LOCAL FORCE FIELD GOODIES )
155|( FIREBASE STUFF FOR SPACE INVADERS )
156|( GOODIES TO EXPLODE A BOMB )
157|( CHECK FOR BOMB INTERCEPT ) HEX
158|( BOMB INTERCEPT CHECKER CONTINUED )
159|( PHASOR INTERCEPT CHECK ROUTINE )
160|( BOMB ANIMATION SCORES )
161|( SUBROUTINE TO DROP A BOMB IF POSSIBLE )
162|( BOMBER CONTINUED )
163|( GORF BOUNCE ANIMATION )
164|( UFOS ANIMATION )
165|( ANIMATION SEQUENCES FOR UFO )
166|( UFO ANIMATION CONTINUED )
167|( SUBROUTINE TO SEND OVER UFOS )
168|( SPACE INVADERS RACK SCORE TABLE )
169|( SPACE INVADERS INITIALIZATION ) HEX
170|( CRAB RACK ENTRY ANIMATION )
171|( SPACE INVADERS DUMPOUT SEQUENCE )
172|( TRANSITION FROM MISSION 1 TO MISSION 2 ) HEX
173|( CRUDE SPACE INVADERS SCAN LOOP )
```

```
   +--------Block     100--------
 0:( SPACE INVADERS GAME )
 1:DATA GSAB 0 B, 0 ,
 2:DECIMAL -->
 3:
 4:
 5:
 6:
 7:
 8:
 9:
10:
11:
12:
13:
14:
15:
   +--------Block     101--------
 0:( CRAB1A )
 1:DECIMAL DATA CRAB1A 3 B, 8 B,
 2:BINARY
 3:00010001 B, 01000000 B, 0 B,
 4:01000101 B, 01010000 B, 0 B,
 5:00000001 B, 10010100 B, 0 B,
 6:00000101 B, 01010101 B, 0 B,
 7:00000101 B, 01010101 B, 0 B,
 8:00000001 B, 10010100 B, 0 B,
 9:01000101 B, 01010000 B, 0 B,
10:00010001 B, 01000000 B, 0 B,
11:-->
12:
13:
14:
15:
   +--------Block     102--------
 0:( CRAB1B )
 1:DECIMAL DATA CRAB1B 3 B, 8 B,
 2:BINARY
 3:01000001 B, 01000000 B, 0 B,
 4:00010001 B, 01010000 B, 0 B,
 5:01000101 B, 10010100 B, 0 B,
 6:00010001 B, 01010101 B, 0 B,
 7:00010001 B, 01000001 B, 0 B,
 8:01000101 B, 10010100 B, 0 B,
 9:00010001 B, 01010000 B, 0 B,
10:01000001 B, 01000000 B, 0 B,
11:-->
12:
13:
14:
15:
```

```
   +--------Block     103--------
 0|( CRAB2A )
 1|DECIMAL DATA CRAB2A 3 B, 11 B, BINARY
 2|00000010 B, 10101000 B, 0 B,
 3|10001010 B, 10000000 B, 0 B,
 4|00101010 B, 10100010 B, 0 B,
 5|00001010 B, 01101000 B, 0 B,
 6|00001010 B, 10100000 B, 0 B,
 7|00001010 B, 10100000 B, 0 B,
 8|00001010 B, 10100000 B, 0 B,
 9|00001010 B, 01101000 B, 0 B,
10|00101010 B, 10100010 B, 0 B,
11|10001010 B, 10000000 B, 0 B,
12|00000010 B, 10101000 B, 0 B,
13|-->
14|
15|
   +--------Block     104--------
 0|( CRAB2B )
 1|DECIMAL DATA CRAB2B 3 B, 11 B, BINARY 00101010 B, 0 ,
 2|00000010 B, 10000000 B, 0 B,
 3|00101010 B, 10100010 B, 0 B,
 4|10001010 B, 01101000 B, 0 B,
 5|10001010 B, 10100000 B, 0 B,
 6|00001010 B, 10100000 B, 0 B,
 7|10001010 B, 10100000 B, 0 B,
 8|10001010 B, 01101000 B, 0 B,
 9|00101010 B, 10100010 B, 0 B,
10|00000010 B, 10000000 B, 0 B, 00101010 B, 0 , HEX
11|-->
12|
13|
14|
15|
   +--------Block     105--------
 0|( CRAB3A )
 1|DECIMAL DATA CRAB3A 3 B, 12 B, BINARY
 2|11000011 B, 11110000 B, 0 B, 11000011 B, 11111100 B, 0 B,
 3|00110011 B, 11111100 B, 0 B, 00111111 B, 00111100 B, 0 B,
 4|00001111 B, 00111111 B, 0 B,
 5|00110011 B, 11111111 B, 0 B,
 6|00110011 B, 11111111 B, 0 B,
 7|00001111 B, 00111111 B, 0 B,
 8|00111111 B, 00111100 B, 0 B,
 9|00110011 B, 11111111 B, 0 B,
10|11000011 B, 11111100 B, 0 B,
11|11000011 B, 11110000 B, 0 B, DECIMAL
12|-->
13|
14|
15|
```

```
    +--------Block      106--------
 0|( CRAB3B )
 1|DECIMAL DATA CRAB3B 3 B, 12 B, BINARY
 2|00000011 B, 11110000 B, 0 B, 00110011 B, 11111100 B, 0 B,
 3|11111111 B, 11111100 B, 0 B, 11001111 B, 00111100 B, 0 B,
 4|00001111 B, 00111111 B, 0 B, 00110011 B, 11111111 B, 0 B,
 5|00110011 B, 11111111 B, 0 B, 00001111 B, 00111111 B, 0 B,
 6|11001111 B, 00111100 B, 0 B,
 7|11111111 B, 11111100 B, 0 B,
 8|00110011 B, 11111100 B, 0 B,
 9|00000011 B, 11110000 B, 0 B, HEX
10|-->
11|
12|
13|
14|
15|
    +--------Block      107--------
 0|( UFO ) DECIMAL DATA UFO 3 B, 18 B, BINARY 0 B, 0 B, 0 B,
 1|00001100 B, 00000000 B, 0 B,
 2|00001111 B, 00000000 B, 0 B,
 3|00011111 B, 11000000 B, 0 B,
 4|01011101 B, 11110000 B, 0 B,
 5|00011111 B, 11110000 B, 0 B,
 6|00001111 B, 11111100 B, 0 B,
 7|00001101 B, 11111100 B, 0 B,
 8|00111111 B, 11111100 B, 0 B,
 9|00111111 B, 11111100 B, 0 B,
10|00001101 B, 11111100 B, 0 B,
11|00001111 B, 11111100 B, 0 B,
12|00011111 B, 11110000 B, 0 B,
13|01011101 B, 11110000 B, 0 B,
14|00011111 B, 11000000 B, 0 B,
15|00001111 B, 00000000 B, 0 B,                                          -->
    +--------Block      108--------
 0|( UFO DATA TABLE CONTINUED )
 1|00001100 B, 00000000 B, 0 B,
 2|0 B, 0 B, 0 B,
 3|DECIMAL
 4|-->
 5|
 6|
 7|
 8|
 9|
10|
11|
12|
13|
14|
15|
```

```
  +--------Block     109--------
 0|( ADDITIONAL UFO PATTERNS )
 1|DATA UFO2 3 B, 11 B, QUAD
 2|0033 B, 0000 B, 0000 B,
 3|3033 B, 0000 B, 0000 B,
 4|0333 B, 3000 B, 0000 B,
 5|0311 B, 3000 B, 0000 B,
 6|3333 B, 3300 B, 0000 B,
 7|3311 B, 3300 B, 0000 B,
 8|3333 B, 3300 B, 0000 B,
 9|0311 B, 3000 B, 0000 B,
10|0333 B, 3000 B, 0000 B,
11|3033 B, 0000 B, 0000 B,
12|0033 B, 0000 B, 0000 B,
13|DECIMAL --)
14|
15|
  +--------Block     110--------
 0|( YET ANOTHER UFO PATTERN )
 1|DATA UFO3 2 B, 8 B, QUAD
 2|0300 B, 0000 B,
 3|0320 B, 0000 B,
 4|1320 B, 0000 B,
 5|0323 B, 0000 B,
 6|0323 B, 0000 B,
 7|1320 B, 0000 B,
 8|0320 B, 0000 B,
 9|0300 B, 0000 B,
10|DECIMAL --)
11|
12|
13|
14|
15|
  +--------Block     111--------
 0|( BOMB PATTERNS FOR SPACE INVADERS )
 1|QUAD DATA BOMB1 3 B, 3 B, 0010 B, 0010 B, 0 B,
 2|0101 B, 0100 B, 0 B, 1000 B, 1000 B, 0 B,
 3|DATA BOMB2 3 B, 3 B, 0001 B, 0000 B, 0 B,
 4|1010 B, 1010 B, 0 B, 0100 B, 0100 B, 0 B,
 5|DATA BOMB3 3 B, 3 B, 0100 B, 0100 B, 0 B,
 6|1010 B, 1010 B, 0 B, 0001 B, 0000 B, 0 B,
 7|DATA BOMB4 3 B, 3 B, 1000 B, 1000 B, 0 B,
 8|0101 B, 0100 B, 0 B, 0010 B, 0010 B, 0 B,
 9|DECIMAL --)
10|
11|
12|
13|
14|
15|
```

```
   +--------Block     112--------
 0|( BOMB PATTERNS STYLE 2 )
 1|QUAD
 2|DATA TOMB1 3 B, 3 B, 0010 B, 0100 B, 0 B, 1111 B, 1110 B, 0 B,
 3|0001 B, 0010 B, 0 B,
 4|DATA TOMB2 3 B, 3 B, 0100 B, 1000 B, 0 B, 1111 B, 1110 B, 0 B,
 5|1001 B, 0000 B, 0 B,
 6|DATA TOMB3 3 B, 3 B, 1001 B, 0000 B, 0 B, 1111 B, 1110 B, 0 B,
 7|1010 B, 0000 B, 0 B,
 8|DATA TOMB4 3 B, 3 B, 1000 B, 0000 B, 0 B, 1111 B, 1110 B, 0 B,
 9|1000 B, 0000 B, 0 B,
10|DECIMAL -->
11|
12|
13|
14|
15|
   +--------Block     113--------
 0|( SPACE MISSIONS INVADERS BACKGROUND SCORE ) HEX
 1|DATA THUMPSCORE
 2| FF 0F 6 -1 0 0F MOVEVOLS 0F HITMO
 3| 7 0 0 MOVESOUND ( no step size ! )
 4| #C1 #CS1 0D1 TONES
 5| 80 MASTER 36 4 8C 80 RAMP
 6| PLAY
 7|: TH THUMPSCORE B2MUSIC ;
 8|-->
 9|
10|
11|
12|
13|
14|
15|
   +--------Block     114--------
 0|( INVADERS- LARGE INVADER, IA ) HEX
 1|DATA IASCORE
 2|            3 1 0 MOVESOUND
 3|      24 MASTER 1 2 30 20  RAMBLE
 4|      10 -1 12 MOVELOWLIM
 5|      10 -1 2 MOVEHIGHLIM
 6| #C2 #E2 #G2 TONES
 7| DD A3VOLS 8D MCVOLR
 8| PLAY QUINT
 9|DECIMAL -->
10|
11|
12|
13|
14|
15|
```

```
 +--------Block    115--------
0|( MISSIONS- TAKE-OFF- TO ) HEX
1|DATA TO1SCORE
2| 7 9 10 TONES 1 5 0 MOVESOUND 2 MASTER 3 0A 90 2 RAMP
3| 1 COUNTLIMITS 3 1 3 73 MOVENOISE 1C MCVOLS CC ABVOLS PLAY
4| 90 MASTER 3E 44 11 TONES 4 -1 90 74 RAMBLE 1 COUNTLIMITS
5| 1 1 20 MOVESOUND PLAY 74 MASTER 1 -1 74 2 RAMBLE
6| 6B 1 -1 3 MOVENOISE RERAMBLE 1 COUNTLIMITS PLAY QUIET
7|DATA TO2SCORE
8| 3 5 14 TONES 1 -5 3F MOVESOUND 2 MASTER 3 0A 90 2 RAMP
9| 1 COUNTLIMITS 3 1 3 73 MOVENOISE 1C MCVOLS CC ABVOLS PLAY
10| 2 MASTER 54 31 13 TONES 1 1 22 2 RAMBLE 1 COUNTLIMITS
11| 1 -1 20 MOVESOUND PLAY 22 MASTER 1 1 70 22 RAMBLE
12| 6B 1 -2 3 MOVENOISE RERAMBLE 1 COUNTLIMITS PLAY QUIET
13|: TO TO2SCORE P2MUSIC TO1SCORE PMUSIC ;
14|DECIMAL ;S
15|
 +--------Block    150--------
0|( SPACE INVADERS GAME )
1|TIMER0 C= UFOTIMER
2|-->
3|
4|
5|
6|
7|
8|
9|
10|
11|
12|
13|
14|
15|
 +--------Block    151--------
0|( MORE GOODIES ) DECIMAL
1|4 ARRAY INVADERPAT 4 ARRAY INVADERDROPAT
2|32 BARRAY CRAB1AB 100 BARRAY CRAB1ABD 42 BARRAY CRAB2AB
3|100 BARRAY CRAB2ABD 44 BARRAY CRAB3AB 120 BARRAY CRAB3ABD
4|HEX : MAKEPATS CL 1000 1000 CRAB1A 20 WRITEP 1000 1200 CRAB1B
5|20 WRITEP 6 A 0 CRAB1AB 1000 1000 SNAP 0 CRAB1AB 3 INVADERPAT !
6|1300 2000 CRAB1A 20 WRITEP 1000 2200 CRAB1B 20 WRITEP
7|14 A 0 CRAB1ABD 1000 2000 SNAP 0 CRAB1ABD 3 INVADERDROPAT !
8|2000 1000 CRAB2A 20 WRITEP 2000 1200 CRAB2B 20 WRITEP
9|6 D 0 CRAB2AB 2000 1000 SNAP 0 CRAB2AB 2 INVADERPAT !
10|2300 2000 CRAB2A 20 WRITEP 2000 2200 CRAB2B 20 WRITEP
11|14 D 0 CRAB2ABD 2000 2000 SNAP 0 CRAB2ABD 2 INVADERDROPAT !
12|3000 1000 CRAB3A 20 WRITEP 3000 1200 CRAB3B 20 WRITEP
13|6 E 0 CRAB3AB 3000 1000 SNAP 0 CRAB3AB DUP 0 INVADERPAT !
14|1 INVADERPAT !
15|-->
```

```
   +---------Block     152---------
 0|( CONTINUED PATTERN MAKER )
 1|3300 2000 CRAB3A 20 WRITEP 3000 2200 CRAB3B 20 WRITEP
 2|14 E 0 CRAB3ABD 3000 2000 SNAP 0 CRAB3ABD DUP 0 INVADERDROPAT !
 3|1 INVADERDROPAT ! ;
 4|( SPACE INVADER NORMAL PATTERN TABLE )
 5|DATA INVNORMLPAT CRAB3A , CRAB3A , CRAB2A , CRAB1A , 0 , 0 ,
 6|0 , 0 , CRAB3B , CRAB3B , CRAB2B , CRAB1B , 0 , 0 , 0 , 0 ,
 7|DECIMAL ( MORE GOODIES ) 0 V= UGL
 8|: DRGS UGL ! DO 3 RND 1 - + DUP 0 = IF DROP 1
 9|ELSE DUP UGL @ = IF 1 - THEN THEN DUP 0 I ROT 4 2 BOX
10|4 +LOOP ;
11|: DRAWGROUND 4 56 0 5 DRGS 192 56 14 DRGS DROP ;
12|--)
13|
14|
15|
   +---------Block     153---------
 0|( SPACE INVADERS RACK COORDINATE BUMPER ROUTINE )
 1|SUBR INVBUMPER
 2|MASTERY LHLD, DMASTERY LDED, 7 D BIT, 0=, IF, INVUL LBCD,
 3|ELSE, INVLL LBCD, THEN, FLIPCHECK CALL,
 4|0=, IF, DMASTERY SDED, DMASTERX LDED, MASTERX LHLD,
 5|D DAD, MASTERX SHLD, H A MOV, 5 CPI, CY, IF,
 6|1 A MVI, GAMEOVER STA, THEN, 0 INVADERDROPAT H LXI,
 7|ELSE, D DAD, MASTERY SHLD, 0 INVADERPAT H LXI,
 8|THEN, INVPATAB SHLD, RET,
 9|--)
10|
11|
12|
13|
14|
15|
   +---------Block     154---------
 0|( LOCAL FORCE FIELD GOODIES )
 1|SUBR eraseff FFLAG LDA, A ANA, RZ, A XRA, FFLAG STA,
 2|20 A MVI, FFTIMER STA, FIELDRAW CALL, RET,
 3|DECIMAL --)
 4|
 5|
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 8|
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```

```
   +--------Block      155--------
 0|( FIREBASE STUFF FOR SPACE INVADERS )
 1|HEX SUBR SIFBINTER EXPLODEFB CALL, RET,
 2|HEX DATA SIFBA SIFBINTER SETI 0C05 B005 SETDDC
 3|PLAYERANIM AJMP
 4|DECIMAL -->
 5|
 6|
 7|
 8|
 9|
10|
11|
12|
13|
14|
15|
   +--------Block      156--------
 0|( GOODIES TO EXPLODE A BOMB )
 1|DATA BOMBEXP 2 B, 5 B, QUAD 1010 B, 0000 B, 0100 B, 0000 B,
 2|1111 B, 0000 B, 0100 B, 0000 B, 1001 B, 0000 B,
 3|DECIMAL
 4|DATA ABEXP 0 0 SETDC BOMBEXP SETP 6 SWAIT NULPAT
 5|SETP AHALT
 6|( ROUTINE TO EXPLODE A BOMB )
 7|SUBR BANGBANG ABEXP H LXI, CRASHA CALL, XAWRITE H LXI,
 8|L PQRL X STX, H PQRH X STX, RET,
 9|DECIMAL -->
10|
11|
12|
13|
14|
15|
   +--------Block      157--------
 0|( CHECK FOR BOMB INTERCEPT ) HEX
 1|F= CKPHASOR F= CKFF F= FFSL F= FFOK F= FFZL
 2|SUBR INTERBOMB <ASSEMBLE
 3|0 FBVECTOR Y LXIX, CHECKVEC CALL, CKPHASOR JRZ,
 4|Y PUSHX, XTIX, EXPLODEFB CALL, X POPX, BANGBANG JMP,
 5|LABEL CKPHASOR PV1 LIYD, CHECKVEC CALL, CKFF JRZ,
 6|PQSRH PQS Y RESY, BANGBANG JMP,
 7|LABEL CKFF FFLAG LDA, A ANA, BANGBANG JZ, VYH X C LDX, 0 B MVI,
 8|0 FIELDADR H LXI, D DAD, L E MOV, H D MOV, 3 B MVI,
 9|LABEL FFSL M A MOV, A ANA, FFOK JRNZ, H INX, FFSL DJNZ,
10|BANGBANG JMP,
11|LABEL FFOK PQS, DCR, 3F ANI, VXH X SUBX,
12|4 ADI, 7 CPI, BANGBANG JNC, C DCR, D DCX, D PUSH,
13|C L MOV, 0 H MVI, H DAD, H DAD, H DAD, H DAD,
14|L C MOV, H B MOV, H DAD, H DAD, B DAD, -->
15|
```

```
   +--------Block     158--------
 0|( BOMB INTERCEPT CHECKER CONTINUED )
 1|5 B MVI,
 2|LABEL FFZL XTHL, M A MOV, A ANA, 0<>, IF,
 3|A C MOV, 3 ANI, 20 ORI, MAGIC OUT, A XRA, A M MOV,
 4|H INX, XTHL, C A MOV, RRC, RRC,
 5|3F ANI, A E MOV, 0 D MVI, XCHG, D DAD, 0FF M MVI,
 6|H INX, 0 M MVI, XCHG, ELSE, H INX, XTHL, THEN,
 7|50 D LXI, D DAD, FFZL DJNZ,
 8|H POP, BANGBANG JMP,
 9|ASSEMBLE>
10|DECIMAL -->
11|
12|
13|
14|
15|
   +--------Block     159--------
 0|( PHASOR INTERCEPT CHECK ROUTINE )
 1|DECIMAL F= INTLOG
 2|SUBR PINTER <ASSEMBLE
 3|PINTERFLAG LDA, A ANA, RNZ,
 4|3 C MVI, CHECKALL CALL, 0<>, IF,
 5|VIDENT Y A LDX, 2 ANI, 0<>, IF, Y PUSHX, XTIX, BANGBANG CALL,
 6|X POPX, A XRA, INTLOG JMPR, THEN,
 7|PQSRH PQS Y RESX, PQSDW PQS Y SETX,
 8|VYL Y L LDX, VYH Y H LDX, PINTERY SHLD,
 9|VXL Y L LDX, VXH Y H LDX, PINTERX SHLD,
10|VRACK Y C LDX, 6 C BIT, 0=, IF, XALIVEBITS CALL, M XRA,
11|A M MOV, THEN, 1 A MVI, INTLOG JMPR,
12|THEN, RACKCHECK CALL, RZ, 2 A MVI,
13|LABEL INTLOG PINTERFLAG STA, C A MOV, PINTERN STA,
14|verase CALL, PQSRH PQS X RESX,
15|RET, ASSEMBLE> -->
   +--------Block     160--------
 0|( BOMB ANIMATION SCORES )
 1|HEX
 2|DATA AB1TBL BOMB1 , BOMB2 , BOMB3 , BOMB4 ,
 3|DATA AB2TBL TOMB1 , TOMB2 , TOMB3 , TOMB4 ,
 4|DATA ABOMBSUB XIWRITE SETR NULPAT SETFP INTERBOMB SETI
 5|-80 0 SETDC
 6|FOREVER 0 PATI 6 SWAIT 2 PATI 6 SWAIT 4 PATI 6 SWAIT
 7|6 PATI 6 SWAIT 4 PATI 6 SWAIT 2 PATI 6 SWAIT EVERFOR
 8|DATA AB01 AB1TBL SHIFT ABOMBSUB AJMP
 9|DATA AB02 AB2TBL SETFP ABOMBSUB AJMP
10|DECIMAL -->
11|
12|
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```

```
   +--------Block     161--------
 0|( SUBROUTINE TO DROP A BOMB IF POSSIBLE )
 1|HEX F= BITSCL F= BITFND
 2|SUBR BOMBCHECK <ASSEMBLE BOMBTIMER LDA, A ANA, RNZ,
 3|LDAR, 0F ANI, A C MOV, 8 ANI, 0<>, IF, MASTERY 1 + LDA,
 4|A B MOV, VYH FBVECTOR LDA, B SUB, CY~, IF, RRC, RRC,
 5|RRC, RRC, 7 ANI, A C MOV, ELSE, 3 C RES, THEN, THEN,
 6|0 B MVI, 0 RACKBITS H LXI, B DAD, M A MOV, A ANA, RZ,
 7|LABEL BITSCL RRC, BITFND JRC, B INR, BITSCL JMPR,
 8|LABEL BITFND C A MOV, RLC, RLC, RLC, B ORA, A C MOV,
 9|CALCINVX CALL, BOMBDX D LXI, D DAD, MASTERX LDED, D DAD,
10|H PUSH, L RALR, H A MOV, RAL, A B MOV,
11|C A MOV, CALCINVY CALL, BOMBDY D LXI, D DAD,
12|MASTERY LDED, D DAD, H PUSH,
13|-->
14|
15|
   +--------Block     162--------
 0|( BOMBER CONTINUED )
 1|LDAR, 1 ANI, 0=, IF, ABD1 H LXI, ELSE, ABD2 H LXI, THEN,
 2|H PUSH, ( ALIST ) 3 A MOV, 8 SUI, A L MOV, 0 H MVI, H PUSH,
 3|2A4 H LXI, H PUSH,
 4|INVADERSLEFT LDA, A C MOV, SKILLFACTOR LDA, A ANA, 0=, IF,
 5|LDAR, 1F ANI, ELSE, A XRA, THEN,
 6|6 ADI, C ADD, BOMBTIMER STA,
 7|XYVSTART JMP, ASSEMBLE>
 8|CODE BOMBER X PUSHX, Y PUSHX, EXX, BOMBCHECK CALL,
 9|EXX, Y POPX, X POPX, ( SHOVEL INVADERS LEFT )
10|
11|INVADERSLEFT LDA, 5 ADI, TIMEBASE MB2 + STA,
12|
13|NEXT
14|DECIMAL -->
15|
   +--------Block     163--------
 0|( GORF BOUNCE ANIMATION )
 1|HEX
 2|DATA BOUNCER 0 100 SETDC -10 0 SETDDC GORF SETP 11 SWAIT
 3|GORFB SETP 120 100 SETDC 11 SWAIT ARET
 4|DATA BOUNCEL 0 -100 SETDC -10 0 SETDDC GORF SETP 11 SWAIT
 5|GORFB SETP 120 -100 SETDC 11 SWAIT ARET
 6|DATA BR3 3 AREPEAT BOUNCER ACALL ALOOP ARET
 7|DATA BL3 3 AREPEAT BOUNCEL ACALL ALOOP ARET
 8|DATA BL5 5 AREPEAT BOUNCEL ACALL ALOOP ARET
 9|DATA SETLVL NULPAT SETP XADDWRITE SETR 4200 SETXC ARET
10|DATA BOUNCE SETLVL ACALL 3000 SETYC BL5 ACALL
11|BR3 ACALL BL5 ACALL BR3 ACALL BL3 ACALL NULPAT SETP AHALT
12|DATA GORFL SETLVL ACALL 3000 SETYC BL5 ACALL AHALT
13|DATA GORFR SETLVL ACALL 0 SETYC 5 AREPEAT BOUNCER ACALL ALOOP
14|AHALT
15|DECIMAL -->
```

```
   +--------Block      164--------
 0|( UFO1 ANIMATION )
 1|HEX
 2|DATA UFO1L XADDWRITE SETR 4280 SETXC 0 SETYC
 3|NULPAT SETFP
 4|UFO2 SETP 0 200 SETDC 20 SWAIT 0 -8 SETDDC 40 SWAIT 0 0 SETDC
 5|0 0 SETDDC 18 SWAIT 0 -8 SETDDC 40 SWAIT 0 0 SETDDC 3F SWAIT
 6|AHALT
 7|DATA UFO1R XADDWRITE SETR 4280 SETXC B400 SETYC
 8|NULPAT SETFP UFO2 SETP 0 -200 SETDC 20 SWAIT 0 8 SETDDC
 9|40 SWAIT 0 0 SETDC 0 0 SETDDC 18 SWAIT 0 8 SETDDC 40 SWAIT
10|0 0 SETDDC 3F SWAIT AHALT
11|DECIMAL -->
12|
13|
14|
15|
   +--------Block      165--------
 0|( ANIMATION SEQUENCES FOR UFO )
 1|HEX
 2|DATA UFOL UFO SETP NULPAT SETFP 4100 SETXC 0 SETYC
 3|0 100 SETDC 78 SWAIT 3C SWAIT AHALT
 4|DATA UFOR UFO SETP NULPAT SETFP 4100 SETXC 0B400 SETYC
 5|0 -100 SETDC 78 SWAIT 3C SWAIT AHALT
 6|-->
 7|
 8|
 9|
10|
11|
12|
13|
14|
15|
   +--------Block      166--------
 0|( UFO ANIMATION CONTINUED )
 1|HEX DATA UFOATBL
 2|43 B, UFOL , 43 B, UFOL , 43 B, UFOR , 43 B, UFOR ,
 3|45 B, UFO1L , 45 B, UFO1L , 45 B, UFO1R , 43 B, UFOR ,
 4|44 B, GORFL , 44 B, GORFR , 45 B, UFO1R , 43 B, UFOL ,
 5|44 B, GORFL , 44 B, GORFR , 43 B, UFOL , 43 B, UFOR ,
 6|DECIMAL -->
 7|
 8|
 9|
10|
11|
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```

```
  +--------Block      167--------
 0¦( SUBROUTINE TO SEND OVER UFOS )
 1¦HEX SUBR UFOCHECKSUBR
 2¦UFOTIMER LDA, A ANA, RNZ,
 3¦LDAR, 7F ANI, 80 ADI, UFOTIMER STA, LDAR, 0F ANI,
 4¦A C MOV, RLC, C ADD, A C MOV, 0 B MVI, UFOATBL H LXI,
 5¦B DAD, M C MOV, H INX, M E MOV, H INX, M D MOV,
 6¦0 H LXI, H PUSH, H PUSH, D PUSH, B PUSH, 1A6 H LXI,
 7¦H PUSH, XYVSTART JMP,
 8¦CODE UFOCHECK X PUSHX, Y PUSHX, EXX, UFOCHECKSUBR CALL,
 9¦EXX, Y POPX, X POPX, NEXT
10¦DECIMAL -->
11¦
12¦
13¦
14¦
15¦
  +--------Block      168--------
 0¦( SPACE INVADERS RACK SCORE TABLE )
 1¦HEX
 2¦DATA SIRSTBL 10 , 10 , 20 , 30 ,
 3¦DECIMAL -->
 4¦
 5¦
 6¦
 7¦
 8¦
 9¦
10¦
11¦
12¦
13¦
14¦
15¦
  +--------Block      169--------
 0¦( SPACE INVADERS INITIALIZATION ) HEX
 1¦DATA INVCOLORS 8 B, 7D B, E4 B, A3 B, 8 B, 7D B, 5A B, 0F B,
 2¦: INITSPACEINV 8 FLOOD INITMISSIONRAM CL MAKEPATS 31 MISSION !
 3¦DRAWMISSIONSCREEN 0D 9 OUTP INVCOLORS COLOR
 4¦DRAWGROUND RESETRACK 20 INVADERSLEFT ! SKILLFACTOR @ IF 2400
 5¦ELSE 2800 THEN MASTERX ! FD00 DMASTERX !
 6¦8 0 DO 0 I RACKBITS B! 0F I ALIVEBITS B! LOOP
 7¦80 0 DO MASTERY @ I ANIMSTATE ! MASTERX @ I 1+
 8¦ANIMSTATE ! 0 +LOOP
 9¦0 FFLAG ! -2 INITFF
10¦INVBUMPER JMPMASTERROUTINE ! 0 INVADERPAT INVPATAB !
11¦' TH REINIT ! PINTER PHASINTR ! eraseff FIREACTION !
12¦SIRSTBL RSTBL ! SITTA FBANIM ! PINTERFLAG ZERO
13¦INVNORMLPAT NORMLPA ! GETNODE DUP PV! 0 SWAP !
14¦DRAWFF ACT !? ;
15¦DECIMAL -->
```

```
   +--------Block     170--------
 0|( CRAB RACK ENTRY ANIMATION )
 1|DATA RENT 11 SWAIT 0 0 SETDC RENTGAL SETR 120 SWAIT AHALT
 2|DATA ACRAB1 CRAB1A SETP RENT AJMP
 3|DATA ACRAB2 CRAB2A SETP RENT AJMP
 4|DATA ACRAB3 CRAB3A SETP RENT AJMP
 5|TABLE SIDOTBL ACRAB3 , ACRAB3 , ACRAB2 , ACRAB1 ,
 6|-->
 7|
 8|
 9|
10|
11|
12|
13|
14|
15|
   +--------Block     171--------
 0|( SPACE INVADERS DUMPOUT SEQUENCE )
 1|HEX 0 V= GORFV
 2|: SIWAIT WTIMER ! BEGIN FIRECHECK PHASORINTERCEPTCHECK
 3|BMS WTIMER @ 0 = END ;
 4|: SIDO GETNODE GORFV ! IASCORE B2MUSIC
 5|BOUNCE 47 1B2 GORFV @ XVSTART 0AA SIWAIT
 6|4 0 DO 8 0 DO
 7|I 8 * J + VXL GORFV @ + @ VYL GORFV @ + @ 400 +
 8|J 400 * MASTERX @ + I 1000 *
 9|J SIDOTBL @ 0C 1A2 VMOVE 0A SIWAIT
10|LOOP LOOP 60 SIWAIT ;
11|DECIMAL -->
12|
13|
14|
15|
   +--------Block     172--------
 0|( TRANSITION FROM MISSION 1 TO MISSION 2 ) HEX
 1|DATA GLTCOLORS 8 B, 7D B, 0B B, 5A B, 8 B, 7D B, 0B B, 5A B,
 2|DECIMAL
 3|: TRANS1T2 TO
 4|ERASEFF GLTCOLORS COLOR DI 0 0 4 56 0 BOX
 5|0 56 14 136 0 BOX EI
 6|44 HORCB OUTP 0 0 OUTP 8 4 OUTP
 7|0 44 DO I HORCB WVI OUTP EI 3 PWAIT -1 +LOOP
 8|WVI 0 4 OUTP EI ;
 9|DECIMAL -->
10|
11|
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```

```
   +--------Block    173--------
 0|( CRUDE SPACE INVADERS SCAN LOOP )
 1|: SISCAN BMS WRTINV FIRECHECK PHASORINTERCEPTCHECK BOMBER
 2|DRAWFF UFOCHECK PLAYERHITCHECK ;
 3|: SI  INITSPACEINV SIDO TH
 4|BEGIN SISCAN ENDOFFRAME @ END EMUSIC E2MUSIC
 5|GAMEOVER @ 0= IF TRANSITZ THEN EMUSIC E2MUSIC ;
 6|HEX A5 GSAB U! ' SI GSAB 1+ U!
 7|: BEGINGAME STARTGAME SKILLFACTOR ! GSAB 1+ @ DOIT ;
 8|DECIMAL ;S
 9|
10|
11|
12|
13|
14|
15|
```