To Check Add Decoder Circuit

1. IC 2G/H LS 138

   Output Pin 10 6800 Chip enable for 3 B/c
              9 7000   I/O

2. 3 B/C   LS 138

Output Pin		
15	6800	$\overline{W}$
14	6810	$\overline{W}$
13	6820	$\overline{W}$
12	6830	$\overline{W}$

3. IC 1 6/H   LS 259

Output PIN					
4	6820	$\overline{W}$	01	IRQ 1
5	6821		01	IRQ 2
6	6822		01	NMION
7	6823		01	RESET
9	6824		01	
10	6825		01	MODE 0
11	6826		01	MODE 1
12	6827		01	MODE 2

HIGH SCORE CIRCUIT

—— TO CHECK 10 E/F 74LS374 ——

B800 AA   PINS 19, 15, 9, 5   LOW
            PINS 16, 12, 6, 2   HIGH

      55   PINS 16, 12, 6, 2   LOW
            19, 15, 9, 5   HIGH

NOTE:
You must latch in value O.A.
in I.C. 9E to get PIN 1 LOW on
I.C. 10 E/F

—— TO CHECK IC HE 74LS244 ——

B800 R   Poll input pins low with
           jumper

HIGH SCORE CIRCUIT

— TO CHECK 10 H/J 74LS174 —

B800   ω   1   Byte to Enable Clock (Pin 9)
       All Outputs should now be low

B815   ω   pins   2, 7, 12   Low
               pins   5, 10, 15   HIGH

B82A   ω   pins   5, 10, 15   LOW
               pins   2, 7, 12   HIGH

TO CHECK 9E   74LS175

B840   R   ENABLE CLOCK (Pin 9)

B840   O5   pins 2, 6, 10, 14   LOW
              pins 3, 7, 11, 15   HIGH

          OA   pins 3, 7, 11, 15   LOW
              pins 2, 6, 10, 14   HIGH

MOTION OBJECT TEST

CLEAR SCREEN: 8000 – 9FFF   FF   1K   DATA
               8800 – 8BFF   00   1K   DATA

	ADDR	DATA	MODE	BYTE		
1.	8B80	90	W̄	1		OBJECT CODE
		↖ VARY DATA FOR OTHER OBJECTS				
2.	8B81	00	W̄	1		COLOR CODE
3	9380	77	W̄	1	VARY DATA	VERT. POST.
					FROM	
4.	9381	77	W̄	1	00 – FF	HORZ POST.
5.	9B80	01	W̄	1	OBJECT should	HORZ FLIP
6.	9B80	02	W̄	1	MOVE SmoothIy	VERT FLIP

IF YOU HAVE PROBLEMS VERTICALLY CHECK :
   1. ADDERS 4P , 3 C/D AND
     ASSOCIATED CIRCUITRY

IF YOU HAVE PROBLEMS HORIZONTALLY CHECK:
   1. HORZ MOTION CIRCUIT – SHEET 8A
     AND ASSOCIATED CIRCUITRY

A003   00   W̄   1 BYTE   ENABLES BACKROUND
A003   01   W̄   1 BYTE   DISABLES BACKROUND

MOTION OBJECT TEST

CLEAR SCREEN: 8000 - 9FFF   FF 1K   DATA
8800 - 8BFF 00 1K   DATA

ADDR	DATA	MODE	BYTE		
1. 8B80	90	W	1		OBJECT CODE
2. 8B81	00	W	1		COLOR CODE
3 9380	77	W	1	VARY DATA	VERT. POST.
4. 9381	77	W	1	FROM 00 - FF	HORZ POST.
5. 9B80	01	W	1	OBJECT should	HORZ FLIP
6. 9B80	02	W	1	MOVE Smoothly	VERT FLIP

← VARY DATA FOR OTHER OBJECTS

IF YOU HAVE PROBLEMS VERTICALLY CHECK :
    1. ADDERS 4P , 3 C/D AND
    ASSOCIATED CIRCUITRY

IF YOU HAVE PROBLEMS HORIZONTALLY CHECK:
    1. HORZ MOTION CIRCUIT - SHEET 8A
    AND ASSOCIATED CIRCUITRY

A003   00   W   1 BYTE   ENABLES BACKROUND
A003   01   W   1 BYTE   DISABLES BACKROUND

PLAYFIELD TEST

CLEAR SCREEN: 8000-9FFF   FF   1K $\frac{13}{13}$
              8800-8BFF   00   1K $\frac{13}{13}$

ADDR	DATA	MODE	BYTE	
A003	01	W	1	DISABLES BACKROUND
A003	00	W	1	ENABLES BACKROUND
8000	1A	W	1K	"A"
8000	1B	W	1K	"B"
8000	FF	W	1K	BLANK

BACKROUND TEST

ADDR	DATA	MODE	BYTE	
A003	00	W	1 BYTE	
A000	00	W	1 ⎫	GAME BACKROUND
A001	00	W	1 ⎭	
A000	01	W	1 ⎫	CROSS HATCH
A001	00	W	1 ⎭	
A000	00	W	1 ⎫	TUNNEL PATTERN
A001	01	W	1 ⎭	
A000	01	W	1 ⎫	ATTRACT BACKROUND
A001	01	W	1 ⎭	

Color Test

A002   01 $\overline{w}$ 1 Byte

8000   – 9FFF   FF $\overline{w}$ Data
8800   – 8BFF   00 $\overline{w}$ Data

8000   0C $\overline{w}$ 1K
8400   01 $\overline{w}$ 1K   Yellow
8400   02 $\overline{w}$ 1K   White
8400   04 $\overline{w}$ 1K   Green
8400   08 $\overline{w}$ 1K   Blue
8400   0A $\overline{w}$ 1K   Red

Will give you a solid screen of the color that you pick

Audio Test

6800   00 $\overline{w}$ 256 Bytes
681D   01   – 0F   Tone
681F   01   – 0F   Volume

DIG-DUG
BACKGROUND SCREEN

CODES

```
10 = 0        34 = SEMICOLON        CODES REPEAT SEQUENCES AT
 ↓   ↓        35 = PERIOD           Following HEX VALUES
19 = 9
1A = A        36 = COMMA            $10 = $50 = $90 = $D0
 ↓   ↓
1F = F        37 = BLANK
20 = G        38 = COPYRIGHT ©
 ↓
33   Z
```

COLOR SHADING ADDRESSES

$8400 $8500 $8600 $8700
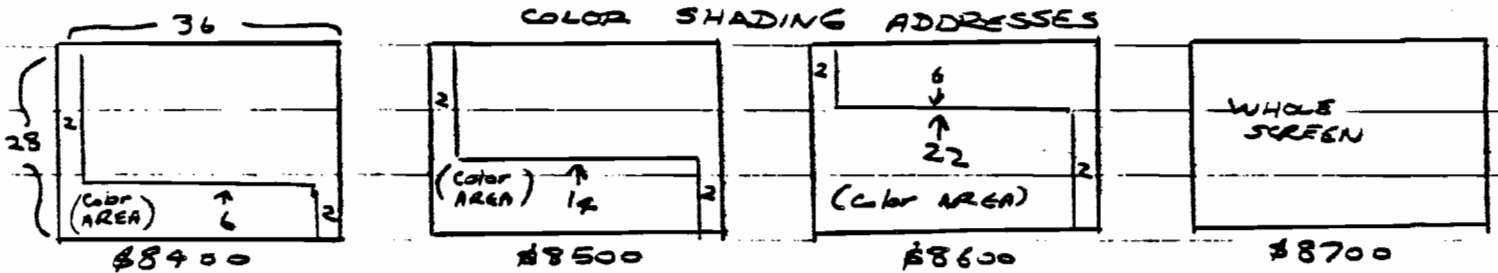
BACKGROUND CHARACTERS ARE DISPLAYED AS 28 (HIGH IN ABOVE DIAGRAMS) BY 36 WIDE. NUMBERS IN DIAGRAM REFER TO # OF CHARACTERS. IT APPEARS THAT THIS RAM AREA SET UP COLOR REGIONS (SIMILAR TO THE DIFFERENT COLOR SHADES OF THE SAND AT DIFFERENT ROUNDS) BY WRITING THE FOLLOWING #'S INTO RAM BEGINNING AT THE ABOVE ADDRESS, A CHANGE IN THE COLOR OF THE CHARACTERS WAS SEEN.

$00 = BLACK $03 = BROWN $06 = YELLOW $09 = DARK GREY

$01 = YELLOW $04 = GREEN $07 = DARK DARK BROWN $0A = RED

$02 = WHITE $05 = DARK BROWN $08 = BLUE $0B = GREY

$0C = DARK GREY $0D = GREY $0E = TAN-BROWN $0F = BLANK

WRITING CHARACTERS TO PORTION OF SCREEN


```
        ↑
     $8300
        ↑
     $8200
        ↑
     $8100
        ↑
     $8000
```
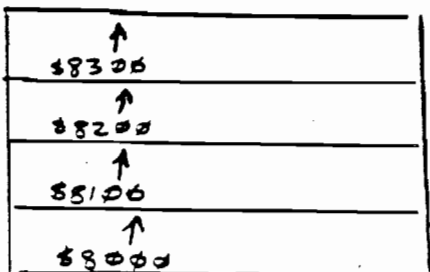
DIG-DUG
MOTION OBJECT CHARACTERS

SYMBOLS: ⌂=MAN →=DIGGING DIRECTION ▬=SCORE WINDOW MO=ALTERATE CHARACTER FOR OBJECT ABOVE

00 = ⌂ DIGGING ↑

01 = ⌂ " " MO

02 = ⌂ DIGGING →

03 = " " " MO

04 = MAN FALLING ←

05 = " " " MO

06 = MAN STANDING →

07 = " " " MO

08 = MAN PUMP STARTING ↑

09 = " " " MO

0A = ? BLANK

0B = ? BLANK

0C = MAN PUMPING →

0D = " " " MO

0E = ? BLANK

0F = ? BLANK

10 = MAN STANDING ↑

11 = " " →

12 = SCORE WINDOW ⌂ BLANK

13 = SCORE WINDOW ▭ "

14 = MAN CAUGHT ▱

15 = " " ⬠

16 = " " ▯

17 = ☀

18 = MAN CAUGHT ◯

19 = MAN CAUGHT ▱

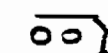1A = MAN CAUGHT ▭

1B = ☀

1C = SQUISHED POOKA

1D = ?

40 = (25

41 = (40

42 = (60

43 = (80

44 = (100

45 = (120

46 = BLANK

47 = (00)

48 = ⋔

49 = A OF ATARI

4A = BLANK

4B = RI OF ATARI

4C = ▭ MAN FALLING

4D = ⌂

4E = (20)

4F = (30)

50 = (50)

51 = (70)

To Check Add And DATA LINES StatieAlly

1. Ground   IC 6H PIN 15 for 1st PRIORITY

2. Ground   IC 5D PIN 15 for 2nd PRIORITY

3. Ground   IC 5F PIN 15 for 3rd PRIORITY

4. Pull out IC 7R (Custom)

        CAT BOX SETUP FOR STATIC ADD
        AND DATA LINE TEST

1. AAAA   AA $\overline{W}$ 1 Byte   STATIC

        Check output of Buffers for High/Low

2. 5555   55 $\overline{W}$ 1 Byte   STATIC

    Note: 1. Low outputs will hAVE
            SOME NOISE ON them.
            2. IF RAMS Check good
            Add And DATA lines Are
            O.K.