Schematic Package Supplement
to
Kangaroo™

Operation, Maintenance and Service Manual

NOTE
This staple temporarily holds the schematic package together. Remove the staple before using the schematics.
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NOTES

1. POWER CORD ASSY MAY HAVE WIRE COLORS AS SHOWN OR WIRE COLORS AS FOLLOWS: ONE BLACK WIRE (AC), ONE GREEN WIRE (GND) AND ONE WHITE WIRE (NEUTRAL).

2. USE 4 AMP, 250V FUSE AT F1 WITH 220V OR 240V (EUROPEAN ONLY).

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Kangaroo Power Supply

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SP-204  Sheet 2B
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Kangaroo Reg/Audio II PCB Schematic Diagram

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The service switch, located on the CPU PCB, allows you to enter credits without tripping the coin counter.
Block Diagram (CPU PCB)

- Z80 Game Microprocessor
  - RAM
    - Program ROM
      - I/O
        - Sound RAM
CPU Power Input

NOTES:
1. □ = CONNECTOR CN2
2. ○ = CONNECTOR CN1

Kangaroo CPU PCB Schematic Diagram

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### Memory Map

<table>
<thead>
<tr>
<th>HEXA-DECIMAL ADDRESS</th>
<th>R/W</th>
<th>DATA D7 D6 D5 D4 D3 D2 D1 D0</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Game Microprocessor Memory Space (IC15)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000-5FFF</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Z80 24K Program ROM</td>
</tr>
<tr>
<td>E000-E3FF</td>
<td>R/W</td>
<td>D D D D D D D D D D D D</td>
<td>1K Working RAM</td>
</tr>
<tr>
<td>E400</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Option Switch</td>
</tr>
<tr>
<td>E800</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>Low Byte 1 Start Address of Data in Picture</td>
</tr>
<tr>
<td>E801</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>High Byte 1 ROM for DMA</td>
</tr>
<tr>
<td>E802</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>Low Byte 1 Start Address in Bit Map RAM (where picture is to be written) During DMA</td>
</tr>
<tr>
<td>E803</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>High Byte 1 and DMA Start</td>
</tr>
<tr>
<td>E804</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>Low Byte 1 Picture Size for DMA</td>
</tr>
<tr>
<td>E805</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>Vertical Start Address in Bit Map</td>
</tr>
<tr>
<td>E806</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>Horizontal Start Address in Bit Map</td>
</tr>
<tr>
<td>E807</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>Internal ROM Chip Serial Number</td>
</tr>
<tr>
<td>E808</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>Bank Select Latch</td>
</tr>
<tr>
<td>E809</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>A &amp; B Bit Map Control Latch (A = playfield, B = motion)</td>
</tr>
<tr>
<td>E80A</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>Color-Shading Latch</td>
</tr>
<tr>
<td>EC00</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>Sound DATA to Sound Microprocessor</td>
</tr>
<tr>
<td>EC01</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>Utility Coin Switch</td>
</tr>
<tr>
<td>EC02</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>1 Player Start</td>
</tr>
<tr>
<td>EC03</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>2 Player Start</td>
</tr>
<tr>
<td>EC04</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Left Coin Input</td>
</tr>
<tr>
<td>EC05</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Right Coin Input</td>
</tr>
<tr>
<td>ED00</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>Coin Counter 1</td>
</tr>
<tr>
<td>ED00</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>Coin Counter 2 (European games)</td>
</tr>
<tr>
<td>ED00</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Player 1 Right</td>
</tr>
<tr>
<td>ED00</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Player 1 Left</td>
</tr>
<tr>
<td>ED00</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Player 1 Up</td>
</tr>
<tr>
<td>ED00</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Player 1 Down</td>
</tr>
<tr>
<td>ED00</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Player 1 Punch</td>
</tr>
<tr>
<td>EE00</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Player 2 Right</td>
</tr>
<tr>
<td>EE00</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Player 2 Left</td>
</tr>
<tr>
<td>EE00</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Player 2 Up</td>
</tr>
<tr>
<td>EE00</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Player 2 Down</td>
</tr>
<tr>
<td>EE00</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Player 2 Punch</td>
</tr>
<tr>
<td>EFXX</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>Output to Custom Microcomputer</td>
</tr>
<tr>
<td>EFXX</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Input from Custom Microcomputer</td>
</tr>
<tr>
<td><strong>Sound Microprocessor Memory Space (IC34)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000-0FFF 4000-43FF</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>4K Program ROM</td>
</tr>
<tr>
<td>R/W</td>
<td>D D D D D D D D D D D D</td>
<td>1K Working RAM</td>
<td></td>
</tr>
<tr>
<td>6000</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Read DATA from Game Microprocessor</td>
</tr>
<tr>
<td>7000</td>
<td>W</td>
<td>D D D D D D D D D D D D</td>
<td>Write to Sound Chip (GI-Ay-3-8910)</td>
</tr>
<tr>
<td>8000</td>
<td>R</td>
<td>D D D D D D D D D D D D</td>
<td>Read from Sound Chip</td>
</tr>
</tbody>
</table>
Custom Microcomputer
Block Diagram (Video PCB)
Video Power Input

NOTES:
1. ○ = CONNECTOR CN1
2. □ = CONNECTOR CN4
Dynamic RAM Timing Diagram (Video PCB)
Address Decoding

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Kangaroo Video PCB Schematic Diagram

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SP-204 Sheet 8B
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DMA Control
Picture ROM

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Dynamic RAM Address from CPU and for DMA

Kangaroo Video PCB Schematic Diagram

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Dynamic RAM Data Selector

Dynamic RAM
Control Latches