

G. Option Switch Settings

Tables 1-1 and 1-2 detail game options and their settings. Options are preset at the factory and shown by the \$ symbols. However, you may change the settings to suit your individual needs.

Table 1-1 Game Price and Bonus Option Settings

The 8-toggle switch at location 9N is accessible when the Dig Dug™ game PCB is mounted in place. To change switch settings, set the self-test switch to *on*. Verify the changes on the self-test screen. Then turn the self-test switch to *off*.

A "coin" is defined as 25¢, 1DM or 1Fr. If you have a 2DM/1DM or 2Fr/1Fr coin door with two coin counters, set switch 8 at PCB location 9P to *off*. Then different denominations are counted on the two coin counters.

| Settings of 8-Toggle Switch on Dig Dug PCB (at 9N) | | | | | | | Option | |
|--|-----|---|-----|-----|-----|-----|--------|--|
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | | 1 |
| On | On | | | | | | | 1 Dig Dug life |
| On | Off | | | | | | | 2 Dig Dug lives |
| Off | On | | | | | | | 3 Dig Dug lives \$ |
| Off | Off | | | | | | | 5 Dig Dug lives |
| Bonus lives awarded at the following point values: | | | | | | | | |
| | | | On | On | On | | | With 1, 2 or 3 Dig Dug lives |
| | | | Off | On | On | | | With 5 Dig Dug lives |
| | | | | | | | | No Bonus |
| | | | | | | | | First at 10,000, second at 40,000, and every 40,000 \$ |
| | | | On | Off | On | | | First at 20,000, second at 60,000, and every 60,000 |
| | | | | | | | | No Bonus |
| | | | | | | | | First at 10,000, second at 50,000, and every 50,000 |
| | | | Off | Off | On | | | First at 20,000, second at 80,000, and every 80,000 |
| | | | | | | | | First at 20,000, second at 50,000 |
| | | | | | | | | First at 20,000, second at 60,000, and every 60,000 |
| | | | On | On | Off | | | First at 20,000, second at 60,000 |
| | | | | | | | | First at 20,000, second at 60,000 |
| | | | Off | On | Off | | | First at 30,000, second at 70,000 |
| | | | | | | | | First at 30,000, second at 70,000 |
| | | | On | Off | Off | | | First at 20,000, second at 70,000 |
| | | | | | | | | First at 20,000 |
| | | | Off | Off | Off | | | First at 20,000, second at 60,000 |
| | | | | | | | | First at 30,000 |
| | | | | | | | | First at 30,000 |
| Right coin mech—coin doors with 1 or 2 coin counters* | | | | | | | | |
| | | | | | On | On | On | 1 coin for 7 credits |
| | | | | | Off | On | On | 1 coin for 6 credits |
| | | | | | On | Off | On | 1 coin for 3 credits |
| | | | | | Off | Off | On | 1 coin for 2 credits |
| | | | | | On | On | Off | 1 coin for 1 credit \$ |
| | | | | | Off | On | Off | 2 coins for 3 credits |
| | | | | | On | Off | Off | 2 coins for 1 credit |
| | | | | | Off | Off | Off | 3 coins for 1 credit |

\$Manufacturer's suggested settings
*See Table 1-2 for left coin mechanism.

Table 1-2 Game Difficulty, Price and Special Options

The table below contains the switch settings for options relating to game difficulty, price and special options. The switches are on the game PCB at location 9P, and are accessible when the PCB is mounted in place.

A special option allows for continuation of game play. If a player is at a more advanced round when his game ends, he has 16 seconds to begin the next game at the same round. Another special option allows you to freeze the game action.

| Settings of 8-Toggle Switch on Dig Dug PCB (at 9P) | | | | | | | Option | |
|--|-----|-----|-----|-----|-----|-----|--------|---|
| 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | |
| On | | | | | | | | One coin counter \$ |
| Off | | | | | | | | Two coin counters* |
| | On | On | | | | | | Left coin mech—coin doors with 2 coin counters |
| | Off | On | | | | | | 1 coin for 1 credit \$ |
| | On | Off | | | | | | 1 coin for 2 credits |
| | Off | Off | | | | | | 2 coins for 1 credit |
| | | | Off | | | | | 2 coins for 3 credits |
| | | | On | | | | | Normal game action \$ |
| | | | Off | On | | | | Freeze game action |
| | | | | Off | | | | Attract Mode sound \$ |
| | | | | | On | | | No Attract Mode sound |
| | | | | | Off | | | Continuation of game play \$ |
| | | | | | | On | On | No continuation of game play |
| | | | | | | On | On | A—Easy game difficulty |
| | | | | | | Off | On | B—Medium game difficulty \$ |
| | | | | | | On | Off | C—Hard game difficulty |
| | | | | | | Off | Off | D—Expert game difficulty |

\$ Manufacturer's recommended settings

* Coin doors with different denominations and two coin counters.

RAM FAILURE is indicated by the word RAM and a pair of alphanumeric characters displayed at the top of the screen. The following table lists the bad RAM chip and its location.

| Screen Display | Bad RAM chip location on game PCB |
|-----------------------|--|
| RAM 0L | 4K |
| RAM 0H | 4K |
| RAM 1L | 4K |
| RAM 1H | 4K |
| RAM 2L | 7R |
| RAM 2H | 7P |
| RAM 3L | 7L |
| RAM 3H | 7K |
| RAM 4L | 7N |
| RAM 4H | 7M |

ROM FAILURE is indicated by the word ROM and a number displayed at the top of the screen. The following table lists the bad ROM chip and its location.

| Screen Display | Bad ROM chip location on game PCB |
|-----------------------|--|
| ROM 1 | 2C/D |
| ROM 2 | 2E |
| ROM 3 | 2B/C |
| ROM 4 | 2A |
| ROM 5 | 2P |
| ROM 6 | 2N |
| ROM 7 | 2K/L |

Figure 3-10 Dig Dug™ Game PCB Assembly, continued Parts List

| Part No. | Description (Reference Designations and Locations in Bold) |
|------------|--|
| A038575-21 | Dig Dug Game PCB Assembly |
| 24-250106 | 10 μ F 25V Aluminum Electrolytic Fixed Axial-Lead Capacitor (C8, 9) |
| 24-250107 | 100 μ F 25V Aluminum Electrolytic Fixed Axial-Lead Capacitor (C1) |
| 24-500476 | 47 μ F 50V Aluminum Electrolytic Fixed Axial-Lead Capacitor (C3, 4, 71, 77) |
| 29-088 | 0.1 μ F 50V Ceramic-Disc Axial-Lead Capacitor (C2, 5, 10, 29-70, 75) |
| 31-1N4002 | Type-1N4002 100V Switching Diode (CR2, 6, 7) |
| 31-1N914 | Type-1N914 75V Switching Diode (CR4, 5) |
| 34-2N3904 | Type-2N3904 NPN 60V 1W Transistor (Q1, 2) |
| 34-2N6044 | Type-2N6044 Darlington NPN Transistor (Q3-5) |
| 37-4066 | Type-4066 Quad Analog Switch Integrated Circuit (12F) |
| 37-7406 | Type-7406 Integrated Circuit (11K) |
| 37-74LS00 | Type-74LS00 Integrated Circuit (6H) |
| 37-74LS08 | Type-74LS08 Integrated Circuit (6K) |
| 37-74LS20 | Type-74LS20 Integrated Circuit (7C, 8K) |
| 37-74LS32 | Type-74LS32 Integrated Circuit (7D, 1E, 1L) |
| 37-74LS74 | Type-74LS74 Integrated Circuit (4B, 6C) |
| 37-74LS86 | Type-74LS86 Integrated Circuit (6F, 7H, 6J, 5P) |
| 37-74LS139 | Type-74LS139 Integrated Circuit (1D, 6D, 1F, 1M) |
| 37-74LS157 | Type-74LS157 Integrated Circuit (6A, 10C, 5E, 6E) |
| 37-74LS161 | Type-74LS161 Integrated Circuit (8A, 9A, 7B, 8B) |
| 37-74LS166 | Type-74LS166 Integrated Circuit (5J) |
| 37-74LS174 | Type-74LS174 Integrated Circuit (12A, 5N, 8H) |
| 37-74LS175 | Type-74LS175 Integrated Circuit (9J) |
| 37-74LS241 | Type-74LS241 Integrated Circuit (4M) |
| 37-74LS244 | Type-74LS244 Integrated Circuit (10K) |
| 37-74LS245 | Type-74LS245 Integrated Circuit (7E, 4L, 6L, 8P) |
| 37-74LS259 | Type-74LS259 Integrated Circuit (5R, 8R) |
| 37-74LS273 | Type-74LS273 Integrated Circuit (12D, 4H, 5H, 5L) |
| 37-74LS367 | Type-74LS367 Integrated Circuit (3D, 3E, 3H, 3J, 3K, 3L) |
| 37-74LS374 | Type-74LS374 Integrated Circuit (10J) |
| 37-74LS377 | Type-74LS377 Integrated Circuit (7F) |
| 37-74LS393 | Type-74LS393 Integrated Circuit (3R) |
| 37-74S04 | Type-74S04 Integrated Circuit (3B) |
| 37-LM324 | Type-LM324 Integrated Circuit (11H) |
| 38-MV5053 | Type-MV5053 Light-Emitting Diode (CR1) |
| 66-118P1T | 8-Station Single-Throw, Dual-Inline-Package Switch (9N, 9P) |
| 72-6810S | #8 \times $\frac{5}{8}$ -Inch Cross-Recessed Pan-Head Screw (for mounting PCB to cabinet wall) |
| 78-24012 | 5-Inch Beaded Nylon Tie Wrap |
| 79-42C22 | 22-Contact Medium-Insertion-Force Integrated Circuit Socket (10H) |
| 79-42C24 | 24-Contact Medium-Insertion-Force Integrated Circuit Socket (2A, 5A, 5B, 2B/C, 5C, 2C/D, 5D, 2E, 4F, 4J, 4K, 5K, 2K/L, 2N, 2P) |
| 79-42C28 | 28-Contact Medium-Insertion-Force Integrated Circuit Socket (10B, 4C, 4D, 2F, 5F, 2H, 2L/M, 10L/M, 6N) |
| 79-42C40 | 40-Contact Medium-Insertion-Force Integrated Circuit Socket (1B/C, 1J, 1N/P) |
| 79-42C42 | 42-Contact Medium-Insertion-Force Integrated Circuit Socket (10P, 11P) |
| 81-4302 | Nylon Snap-In Fastener |

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Figure 3-10 Dig Dug™ Game PCB Assembly, continued Parts List

| <i>Part No.</i> | <i>Description (Reference Designations and Locations in Bold)</i> |
|-----------------|--|
| 90-7005 | Random-Access Memory (11C, 12C) |
| 90-7036 | Random-Access Memory (7K, 7L, 7M, 7N, 7P, 7R) |
| 110000-101 | 100 Ohm, ± 5%, ¼ W Resistor (R17, 87) |
| 110000-102 | 1K Ohm, ± 5%, ¼ W Resistor (R1, 2, 7, 8, 14-16, 18-21, 26-37, 39, 42-47, 49-52, 55-65, 74-77, 82, 85, 86, 88-103, 105, 116-131, 148-157, 160-172, 176-178, 181-185) |
| 110000-103 | 10K Ohm, ± 5%, ¼ W Resistor (R12, 13, 53, 54, 66-73, 111, 179, 180) |
| 110000-104 | 100K Ohm, ± 5%, ¼ W Resistor (R108, 113-115) |
| 110000-151 | 150 Ohm, ± 5%, ¼ W Resistor (R3) |
| 110000-221 | 220 Ohm, ± 5%, ¼ W Resistor (R78, 80, 83, 158, 159, 175) |
| 110000-222 | 2.2K Ohm, ± 5%, ¼ W Resistor (R106, 132-147) |
| 110000-223 | 22K Ohm, ± 5%, ¼ W Resistor (R110) |
| 110000-331 | 330 Ohm, ± 5%, ¼ W Resistor (R9, 10) |
| 110000-333 | 33K Ohm, ± 5%, ¼ W Resistor (R112) |
| 110000-471 | 470 Ohm, ± 5%, ¼ W Resistor (R79, 81, 84, 104) |
| 110000-472 | 4.7K Ohm, ± 5%, ¼ W Resistor (R22-25, 107) |
| 110000-473 | 47K Ohm, ± 5%, ¼ W Resistor (R109) |
| 110001-152 | 1.5K Ohm, ± 5%, ½ W Resistor (R4) |
| 122005-103 | 0.01 µF, ± 10%, 25V Minimum Ceramic-Disc Axial-Lead Capacitor (C12-28) |
| 122008-224 | 0.22 µF 25V Minimum Ceramic-Disc Axial-Lead Capacitor (C11) |
| 128002-101 | 100 pF 100V Epoxy-Dipped Radial-Lead Mica Capacitor (C6) |
| 128002-330 | 33 pF 100V Epoxy-Dipped Radial-Lead Mica Capacitor (C7, 74) |
| 131003-001 | Type-1N5257B 6.2V 1W Zener Diode (CR3) |
| 136007-101 | Programmable Read-Only Memory, ROM0 (2C/D) |
| 136007-102 | Programmable Read-Only Memory, ROM1 (2E) |
| 136007-103 | Programmable Read-Only Memory, ROM2 (2B/C) |
| 136007-104 | Programmable Read-Only Memory, ROM3 (2A) |
| 136007-105 | Programmable Read-Only Memory, ROM4 (2P) |
| 136007-106 | Programmable Read-Only Memory, ROM5 (2N) |
| 136007-107 | Programmable Read-Only Memory, ROM6 (2K/L) |
| 136007-108 | Programmable Read-Only Memory (5K) |
| 136007-109 | Programmable Read-Only Memory (10A) |
| 136007-110 | Programmable Read-Only Memory (11A) |
| 136007-111 | Programmable Read-Only Memory (8F) |
| 136007-112 | Programmable Read-Only Memory (4N) |
| 136007-113 | Programmable Read-Only Memory (8L) |
| 136007-114 | Programmable Read-Only Memory (4J) |
| 136007-115 | Programmable Read-Only Memory (4F) |
| 136007-116 | Programmable Read-Only Memory (5D) |
| 136007-117 | Programmable Read-Only Memory (5C) |
| 136007-118 | Programmable Read-Only Memory (5A) |
| 136007-119 | Programmable Read-Only Memory (5B) |
| 137161-001 | Electrically Alterable Read-Only Memory (10H) |
| 137168-001 | Type-74LS368 Integrated Circuit (4E) |
| 137169-001 | Type-74LS107 Integrated Circuit (3A, 3P) |
| 137177-001 | Type-74LS138 Integrated Circuit (8E, 9E, 9F) |

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Figure 3-10 Dig Dug™ Game PCB Assembly, continued Parts List

| <i>Part No.</i> | <i>Description (Reference Designations and Locations in Bold)</i> |
|-----------------|---|
| 137186-001 | Multi-CPU Bus Controller Custom Chip 08 (2F, 2H, 2L/M) |
| 137187-001 | Coin and I/O Controller Custom Chip 51 (11P) |
| 137188-001 | Steering Controller Custom Chip 53 (10P) |
| 137189-001 | Video Ram Addresser Custom Chip 00 (4D) |
| 137190-001 | Universal Shift Register Custom Chip 02 (5F) |
| 137191-001 | Motion Object Controller Custom Chip 04 (6N) |
| 137192-001 | Controller Custom Chip 06 (10L/M) |
| 137193-001 | Sync Generator Custom Chip 07 (10B, 4C) |
| 137194-001 | 4.0 MHz Z80A Central Processing Unit (1B/C, 1J, 1N/P) |
| 137199-001 | Random-Access Memory (7A, 9B) |
| 137200-001 | Type-74LS365 Integrated Circuit (8C, 9C) |
| 137201-001 | Type-74LS298 Integrated Circuit (8D, 5M, 4P) |
| 137202-001 | Type-74128 Integrated Circuit (2R) |
| 137203-001 | Type-74LS158 Integrated Circuit (11B) |
| 137204-001 | Type-74LS283 Integrated Circuit (6B, 12B, 6P) |
| 137209-001 | Type-74S174 Integrated Circuit (8M) |
| 137211-001 | Static Random-Access Memory (4K) |
| 137217-001 | Type-74S257 Integrated Circuit (6M) |
| 144000-002 | 18.432 MHz Crystal (Y1) |
| 175004-706 | #6 Spacer for Mounting Printed Circuit Board |
| 179051-002 | Test Point <i>Acceptable substitute is part no. 020670-01</i> |
