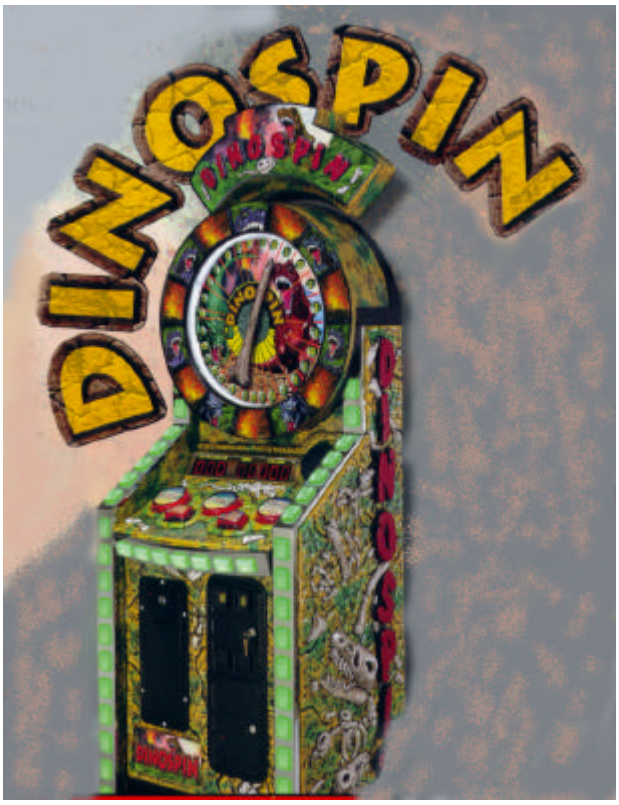
PLANET EARTH ENTERTAINMENT

OPERATION MANUAL

18 August 1997



Features:

- Bright attention grabbing graphics
- Hot looking neon ring lighting
- Exciting Super Fast Skill Stop and Go for Two play features
- Oversized high reliability buttons
- Operator programmable

Specifications:

Parameter	Value	Units
Voltage	115	VAC
Frequency	60	Hz
Weight	200	Pounds

Overview

Dinospin consists of a lighted clock face with motorized spinning bone, a player console with large buttons and numeric display for game play, speakers for sound effects, two coin acceptors, and a ticket dispenser. The objective is to skillfully stop the bone so that it points to a desirable position to maximize the number of points won. Especially noteworthy is a go for two feature which at times gives the player the opportunity to risk winnings to double their score.

Game Play

Dinospin offers very fast and interesting play and many different strategies for maximizing points won.

1) Insert coin(s) to ready the game for play.
2) Push the start button to begin the bone spinning.
3) There are several seconds in which to influence where the bone will stop by skillfully pushing the Stop and Super Fast Skill Stop buttons.
4) Points are awarded and displayed in addition to any accumulated points already won.
5) Depending upon the number of points won, the option to go for two and spin again may be given. If the go for two option is declined, points may be traded for tickets or additional coins may be inserted to play again.
6) When going for two, Dino is selected and the bone spun again.
   - If the bone lands on the chosen color, the points are doubled. Otherwise the points risked are lost.
   - This process of choosing whether or not to go for two is continued until one of three events occur: (1) Volcano is incorrectly chosen and the points risked are lost; (2) the maximum number of times allowed to go for two is reached and points won is added to the accumulated points; or, (3) the option to go for two is declined by the player and the points won so far are added to the accumulated points.
7) The total accumulated points may be traded for credits or tickets.

Sound effects play throughout game play apprising player of go for two options and acknowledging wins and loses.

Programming

Dinospin is controlled by a CPU board having several operator controllable options which are programmed by entering data through a four button operator keypad and by setting DIP switches. Both the four button keypad and the DIP switches are located on the CPU board.

Operator Keypad Programming:

Press the *Mode* button on the CPU board to begin keypad programming. The numeric display on the player console will show the mode number on the left with its value on the right. To change the mode's value, press the *Up* or *Dn* buttons on the CPU board to cycle through each of the allowable values. When the desired value is displayed, the *Mode* button may be pressed repeatedly to select other modes to modify. When all the modes have their values set as desired, press the *Reset* button to end the keypad programming mode and return the game to its normal playing mode.

All the mode values may be returned to their factory default settings by powering up the game while holding down the reset button on the CPU board. The reset button must remain held down for about ten seconds until the game begins running.

Mode Number	Description	Units	Factory Default Value
1	**Total Coins In Counter**—This number increments every time a coin is played and displays the total number of coins taken in.		n/a
2	**Maximum Number Of Times To Go for two**—The maximum number of times a player may go for two. This value is ignored if the *Go for two Enable* DIP Switch 8 is OFF, in which case the player is not allowed to go for two.		**3 Button=0** **7 Button=3**
3	**RPM Update Rate**—Update rate for the RPM readout on the numeric display	mSec (÷ 20)	**25** (0.5 Sec)
4	**Attract On**—The length of time audio is played during the continuous ON/OFF sequencing of attraction audio. This value is ignored if the *Attract Audio Disable* DIP Switch 1 is ON, in which case no attraction audio is played.	Seconds	**30**
5	**Attract Off**—The length of time audio is off during the ON/OFF sequencing of the attraction audio. Set this value to 0 for continuous attraction audio.	Seconds	**150**
6	**Coins Per Credit**—The number of coins required to give player one credit.		**1**

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Programming Modes (continued)

Mode Number	Description	Units	Factory Default Value
7	**Motor At Speed**—The minimum length of time from when the player pushes the Start button until the game will respond to the Stop or Super Fast Skill Stop buttons. This prevents the player from pushing the Super Fast Skill Stop button before or immediately after pushing the Start button. This value is ignored if the *Motor At Speed Enable* DIP Switch 4 is OFF, in which case the game will respond if the player immediately pushes either of the stop buttons.	mSec (÷ 20)	**80**
8	**Stop Buttons Maximum Wait Time**—The maximum length of time in which the game will respond to the player pushing the Stop or Super Fast Skill Stop buttons after having pushed the Start button. This prevents the player from waiting until the bone has slowed way down before pushing the Super Fast Skill Stop button.	mSec (÷ 20)	**400** (8 Sec)
9	**Target Lamp Timer**—The length of time the Target lamps are lit when the player doubles down.	Seconds	**8**
10	**Minimum Points to Allow Go for two**—The minimum number of points required to allow the player to go for two.	Points	**100**
11	**Maximum Ticket Score For Dispense**—The maximum number of tickets that can be won.	Points	**999**
12	**Ticket Motor Off Time**—The amount of time the ticket dispenser is off between tickets. This controls how fast tickets are dispensed (caution, setting this value too low may cause ticket dispenser to malfunction).	mSec (÷ 20)	**22**
13	**Dead Zone Value**—The number of points awarded the player when stopped in the dead zone.	Points	**0**
14	**Super Fast Skill Stop Time Limit**—If the player does not push the Super Fast Skill Stop button within this amount of time, the bone will automatically coast to a stop.	mSec (÷ 20)	**200** (4 Sec)
15	**On Line Consolation Points**—The number of points that are awarded when the bone stops on the line. This value is over ridden when the On Line Free Play Disable DIP Switch 7 is OFF, in which case the player is given a free spin in lieu of consolation points.	Points	**1**

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Programming Modes (continued)

Mode Number	Description	Units	Factory Default Value
16	**Points Per Ticket**—The number of points that are required for the player to receive one ticket.	Points	**1**
17	**Target Location 0**—The number of points for stopping on this location (See Figure 2).	Points	**200**
18	**Target Location 1**— The number of points for stopping on this location (See Figure 2).	Points	**0**
19	**Target Location 2**— The number of points for stopping on this location (See Figure 2).	Points	**15**
20	**Target Location 3**— The number of points for stopping on this location (See Figure 2).	Points	**0**
21	**Target Location 4**— The number of points for stopping on this location (See Figure 2).	Points	**25**
22	**Target Location 5**— The number of points for stopping on this location (See Figure 2).	Points	**0**
23	**Target Location 6**— The number of points for stopping on this location (See Figure 2).	Points	**10**
24	**Target Location 7**— The number of points for stopping on this location (See Figure 2).	Points	**0**
25	**Target Location 8**— The number of points for stopping on this location (See Figure 2).	Points	**10**
26	**Target Location 9**— The number of points for stopping on this location (See Figure 2).	Points	**0**
27	**Target Location 10**— The number of points for stopping on this location (See Figure 2).	Points	**25**
28	**Target Location 11**— The number of points for stopping on this location (See Figure 2).	Points	**0**
29	**Target Location 12**— The number of points for stopping on this location (See Figure 2).	Points	**40**
30	**Target Location 13**— The number of points for stopping on this location (See Figure 2).	Points	**0**
31	**Target Location 14**— The number of points for stopping on this location (See Figure 2).	Points	**50**
32	**Target Location 15**— The number of points for stopping on this location (See Figure 2).	Points	**10**
33	**Target Location 16**— The number of points for stopping on this location (See Figure 2).	Points	**15**
34	**Target Location 17**— The number of points for stopping on this location (See Figure 2).	Points	**0**
35	**Target Location 18**— The number of points for stopping on this location (See Figure 2).	Points	**10**
36	**Target Location 19**— The number of points for stopping on this location (See Figure 2).	Points	**0**
37	**Target Location 20**— The number of points for stopping on this location (See Figure 2).	Points	**40**
38	**Target Location 21**— The number of points for stopping on this location (See Figure 2).	Points	**0**

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Programming Modes (continued)

Mode Number	Description	Units	Factory Default Value
39	**Target Location 22**— The number of points for stopping on this location (See Figure 2).	Points	**15**
40	**Target Location 23**— The number of points for stopping on this location (See Figure 2).	Points	**0**
41	**Target Location 24**— The number of points for stopping on this location (See Figure 2).	Points	**50**
42	**Target Location 25**— The number of points for stopping on this location (See Figure 2).	Points	**0**
43	**Target Location 26**— The number of points for stopping on this location (See Figure 2).	Points	**25**
44	**Target Location 27**— The number of points for stopping on this location (See Figure 2).	Points	**0**
45	**Target Location 28**— The number of points for stopping on this location (See Figure 2).	Points	**5**
46	**Target Location 29**— The number of points for stopping on this location (See Figure 2).	Points	**0**
47	**Invalid Location**—This is not a valid target location.	points	**MUST BE 0**
48	**Invalid Location**—This is not a valid target location.	Points	**MUST BE 0**
49	**Target 1**—The type of Target on the game clock face. As viewed from the front, Targets are numbered counter clockwise with number 1 at top.	Vol=1 Dino=2	**1**
50	**Target 2**—The type of Target on the game clock face. Targets are numbered counter clockwise with number 1 at top when viewed from the front.	Vol=1 Dino=2	**2**
51	**Target 3**—The type of Target on the game clock face. As viewed from the front, Targets are numbered counter clockwise with number 1 at top.	Vol=1 Dino=2	**1**
52	**Target 4**—The type of Target on the game clock face. As viewed from the front, Targets are numbered counter clockwise with number 1 at top.	Vol=1 Dino=2	**2**
53	**Target 5**—The type of Target on the game clock face. As viewed from the front, Targets are numbered counter clockwise with number 1 at top.	Vol=1 Dino=2	**1**
54	**Target 6**—The type of Target on the game clock face. As viewed from the front, Targets are numbered counter clockwise with number 1 at top.	Vol=1 Dino=2	**2**
55	**Target 7**—The type of Target on the game clock face. As viewed from the front, Targets are numbered counter clockwise with number 1 at top.	Vol=1 Dino=2	**1**

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Programming Modes (continued)

Mode Number	Description	Units	Factory Default Value
56	**Target 8**—The type of Target on the game clock face. As viewed from the front, Targets are numbered counter clockwise with number 1 at top.	Vol=1 Dino=2	**2**
57	**Target 9**—The type of Target on the game clock face. As viewed from the front, Targets are numbered counter clockwise with number 1 at top.	Vol=1 Dino=2	**1**
58	**Target 10**—The type of Target on the game clock face. As viewed from the front, Targets are numbered counter clockwise with number 1 at top.	Vol=1 Dino=2	**2**
59	**Target 11**—The type of Target on the game clock face. As viewed from the front, Targets are numbered counter clockwise with number 1 at top.	Vol=1 Dino=2	**1**
60	**Target 12**—The type of Target on the game clock face. As viewed from the front, Targets are numbered counter clockwise with number 1 at top.	Vol=1 Dino=2	**2**
61	**Target 13**—The type of Target on the game clock face. As viewed from the front, Targets are numbered counter clockwise with number 1 at top.	Vol=1 Dino=2	**1**
62	**Target 14**—The type of Target on the game clock face. As viewed from the front, Targets are numbered counter clockwise with number 1 at top.	Vol=1 Dino=2	**2**
63	**Debug**—For factory use only	n/a	n/a
192	**Clock Face Diagnostic**—The number of points awarded for the bone's current position is displayed on the numeric display on the player console.	Points	n/a

Operator DIP Switch Programming:

Eight DIP switches numbered 1 through 8 are located on the CPU board. These switches control various aspects of game play. *The CPU board must be turned off and back on again for new DIP Switch settings to take effect.*

DIP Switch Number	Description of DIP Switch Function	Factory Default Setting
1	**Attract Audio Disable** ON = No attract audio is played (*Attract On* Mode 4 value is ignored) OFF =Attract mode audio is sequenced on and off according to the timing parameters specified by the *Attract On* Mode 4 and the *Attract Off* Mode 5 values	**OFF**
2	(not used)	**ON**
3	**Instruction Audio Disable** (Note, the Instruction Audio feature is not presently implemented) ON = No instruction audio is played OFF = Instruction audio is played	**ON**
4	**Motor At-Speed Enable** ON = The amount of time specified by the *Motor At Speed* Mode 7 value must elapse before the game will respond to the player pushing the Stop or Super Fast Skill Stop buttons OFF =Game will not wait the amount of time specified by the *Motor At Speed* Mode 7 value before responding to the Stop or Super Fast Skill Stop buttons	**ON**
5	**Super Fast Skill Stop Mode** ON = Brake is activated by the Super Fast Skill Stop button as long as button is pushed or pulsed OFF =Brake is activated and locked on by the Super Fast Skill Stop button the first time it is pushed (this prevents pulsing the Super Fast Skill Stop button)	**OFF**

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Operator DIP Switch Programming (continued)

6	**Brake Disable** ON = The brake will not be activated at any time (including when the Super Fast Skill Stop button is pushed) OFF =The brake will be activated when the Super Fast Skill Stop button is pushed	**OFF**
7	**On Line Free Play Disable** ON = No free play awarded when bone lands on a line (points are awarded according to *Consolation Points* Mode 15 value) OFF =Free play awarded when bone lands on a line (in lieu of any points specified by the *Consolation Points* Mode 15 value)	**ON**
8	**Go for two Enable** OFF = Allow player to go for two (up to the maximum number of times allowed by the *Maximum Number of Times To Go for two* Mode 2 value) ON =Do not allow player to go for two	**OFF** **3 button** **ON**

Input/Output Signals

Description	CPU or Vend Expansion Board Connector Number	Signal Source	Signal Destination
Target Inputs			
Sensor F	1	Shaft Encoder Board	CPU Board
Sensor E	2	Shaft Encoder Board	CPU Board
Sensor D	3	Shaft Encoder Board	CPU Board
Sensor C	4	Shaft Encoder Board	CPU Board
Sensor B	5	Shaft Encoder Board	CPU Board
Sensor A	6	Shaft Encoder Board	CPU Board
(not used)	7		
Super Fast Skill Stop Button	8	Player Console	CPU Board
Coin 1	9	Coin Acceptor	CPU Board
Coin 2	10	Coin Acceptor	CPU Board
Start Button	11	Player Console	CPU Board
Stop Button	12	Player Console	CPU Board
Take Chance Button	13	Player Console	CPU Board
Take Tickets Button	14	Player Console	CPU Board
Go		Player Console	CPU Board
Go		Player Console	CPU Board
Main Vend Outputs			
Start Lamp	1	CPU Board	Player Console
Stop Lamp	2	CPU Board	Player Console
Take Chance Lamp	3	CPU Board	Player Console
Take Tickets Lamp	4	CPU Board	Player Console
Go		CPU Board	Player Console
Go		CPU Board	Player Console
Super Fast Skill Stop Lamp	7	CPU Board	Player Console
Call Attendant Lamp	8	CPU Board	LED on Ticket Dispenser
(not used)	9	CPU Board	
(not used)	10	CPU Board	
Brake On Relay	11	CPU Board	Speed/Brake Control
Motor On Relay	12	CPU Board	Speed/Brake Control

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Input/Output Singals (continued)

Description	CPU or Vend Expansion Board Connector Number	Signal Source	Signal Destination
Vend Expansion Outputs			
Target 1 Lamp (Dino)	1	Vend Expansion Board	Clock Face
Target 2 Lamp (Vol)	2	Vend Expansion Board	Clock Face
Target 3 Lamp (Dino)	3	Vend Expansion Board	Clock Face
Target 4 Lamp (Vol)	4	Vend Expansion Board	Clock Face
Target 5 Lamp (Dino)	5	Vend Expansion Board	Clock Face
Target 6 Lamp (Vol)	6	Vend Expansion Board	Clock Face
Target 7 Lamp (Dino)	7	Vend Expansion Board	Clock Face
Target 8 Lamp (Vol)	8	Vend Expansion Board	Clock Face
Target 9 Lamp (Dino)	9	Vend Expansion Board	Clock Face
Target 10 Lamp (Vol)	10	Vend Expansion Board	Clock Face
Target 11 Lamp (Dino)	11	Vend Expansion Board	Clock Face
Target 12 Lamp (Vol)	12	Vend Expansion Board	Clock Face
Target 13 Lamp (Dino)	13	Vend Expansion Board	Clock Face
Target 14 Lamp (Vol)	14	Vend Expansion Board	Clock Face
	15		
	16	Modular Cab Lead (leave plugged in)	

Notes: (1) Targets are numbered counter clockwise starting at top (as viewed from the front).

(2) Target types (Dino's or Volcano's) are the factory default settings. These types will be different if the Target modes 49-62 have been programmed to values other than the factory default settings.

Technical Assistance

Most distributors provide technical assistance for the products they sell. If your distributor cannot solve your problem, assistance can be obtained through Planet Earth Entertainment. Call (818) 773-6056 between the hours of 8:00 AM and 4:00 PM pacific time, Monday through Friday and ask for the service department.

Please have the following information available:

1. Type of Game
2. Serial Number
3. Distributor's Name
4. Description of Problem

The service technician may ask you to perform some tests on your machine, so it is preferable to call from the game's location if possible.

Planet Earth Entertainment
8835 Shirley
Northridge, CA 91424

Appendix A—Wiring Diagram

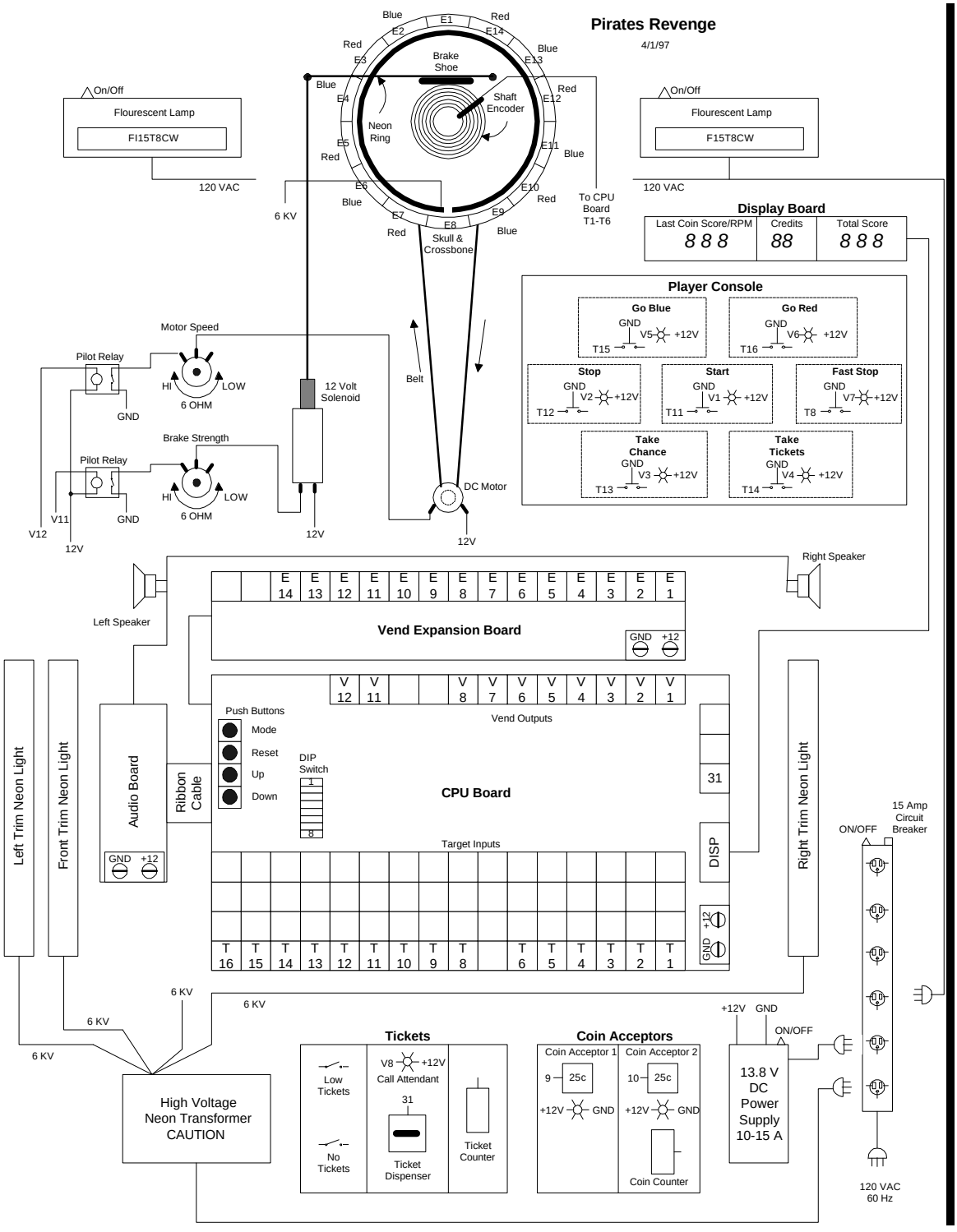
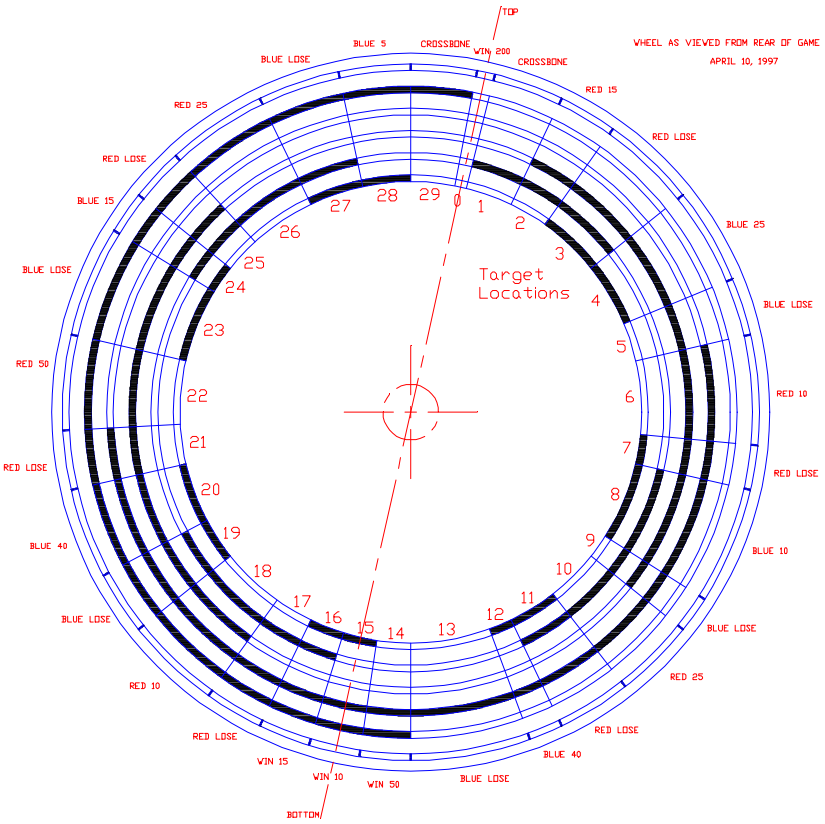


Figure 1—Wiring Diagram

Appendix B—Encoding Wheel Details



Note: Targets (red, blue, or cross bone) are the factory default settings. These types will be different if the Target modes 49-62 have been programmed to values other than the factory default settings.

Figure 2—Encoding Wheel (Rear View)

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Pirates Revenge Encoder Wheel Geometry

Ring #	Inner Radius	Outer Radius
Smallest 1	4.16	4.28
2	4.56	4.68
3	4.96	5.08
4	5.36	5.48
5	5.76	5.88
Largest 6	6.16	6.28

Target Location	Small Angle	Large Angle	Jewel Location	Points Won		Ring 1	Ring 2	Ring 3	Ring 4	Ring 5
27	334.3	348.0	Blue Lose			■	■			■
28	348.0	0.0	Blue Win	5						■
29	0.0	11.0	Crossbone							■
0	11.0	14.0	Win	200						
1	14.0	25.7	Crossbone				■			
2	25.7	35.5	Red Win	15			■	■		
3	35.5	51.4	Red Lose			■	■	■		
4	51.4	67.5	Blue Win	25		■		■		
5	67.5	77.1	Blue Lose					■		
6	77.1	95.5	Red Win	10				■	■	
7	95.5	102.9	Red Lose			■		■	■	
8	102.9	122.5	Blue Win	10		■	■	■	■	
9	122.5	128.6	Blue Lose				■	■	■	
10	128.6	142.0	Red Win	25			■		■	
11	142.0	154.3	Red Lose			■	■		■	
12	154.3	160.0	Blue Win	40		■			■	
13	160.0	180.0	Blue Lose						■	
14	180.0	188.5	Win 2X	50						■
15	188.5	197.0	Win 2X	10		■				■
16	197.0	205.7	Win 2X	15		■	■			■
17	205.7	215.5	Red Lose				■			■
18	215.5	231.4	Red Win	10			■	■	■	■
19	231.4	242.0	Blue Lose			■	■	■	■	■
20	242.0	257.1	Blue Win	40		■		■	■	■
21	257.1	267.0	Red Lose					■	■	■
22	267.0	282.9	Red Win	50				■		■
23	282.9	301.5	Blue Lose			■		■		■
24	301.5	308.6	Blue Win	15		■	■	■		■
25	308.6	317.5	Red Lose				■	■		■
26	317.5	334.3	Red Win	25			■			■

NOTES: (1) Target locations on encoding wheel are numbered clockwise from 0 at top as viewed from rear of game (See Figure 2)
(2) Encoding wheel small and large angles are measured clockwise as viewed from rear of game starting with the line between positions 0 and 29.
(3) Rings 1-5 blacked out areas indicate cut-out portions of encoding wheel

Figure 3—Encoding Wheel Geometry and Codes

Targets (red, blue, or cross bone) shown in Figure 3 are the factory default settings. These types will be different if the Target modes 49-62 have been programmed to values other than the factory default settings.

Appendix C—Assembly Drawings

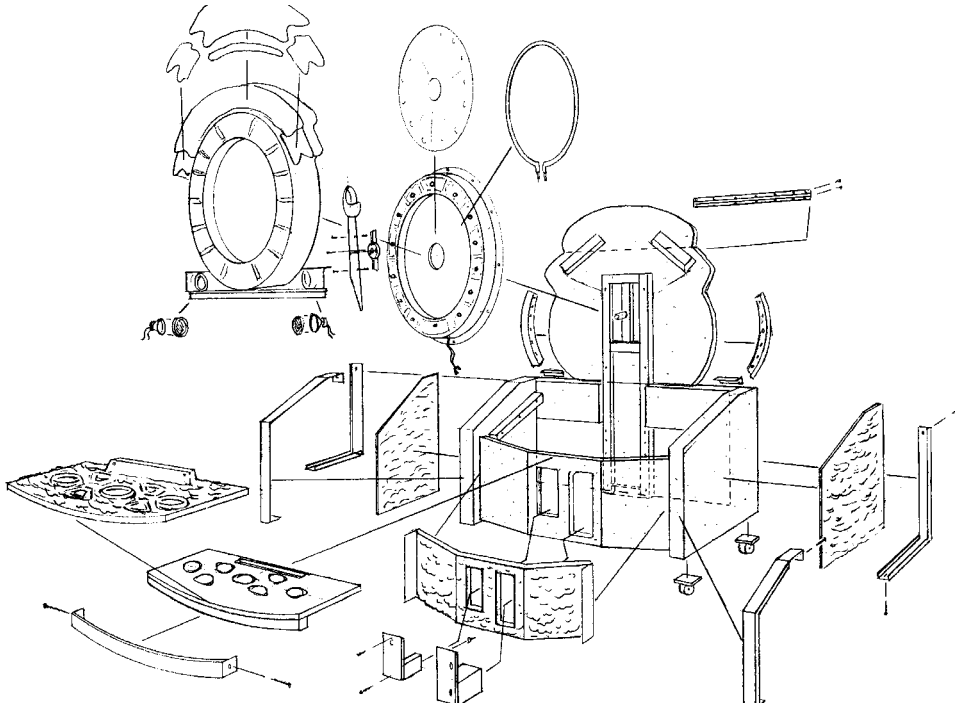


Figure 4—Top Assembly Drawing

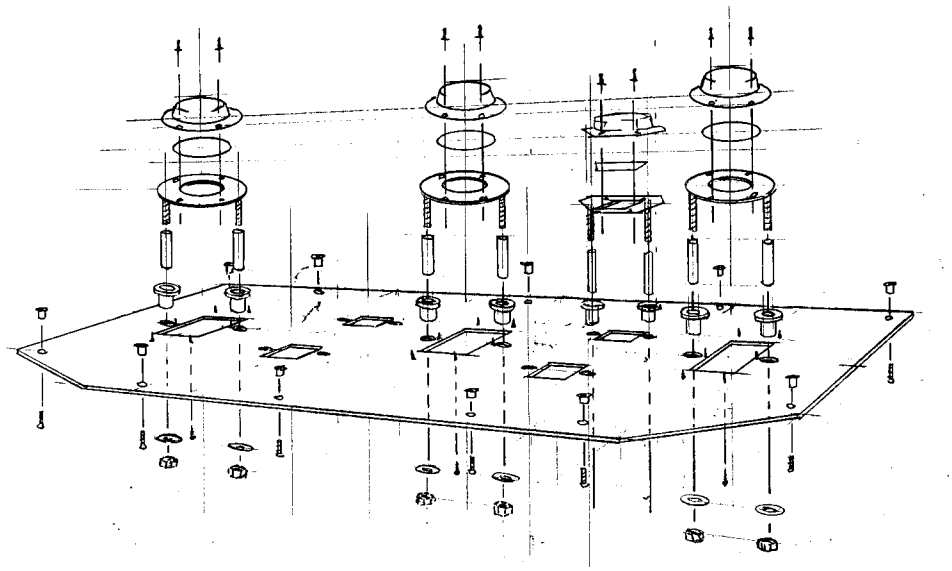


Figure 5—Player Console Assembly Drawing

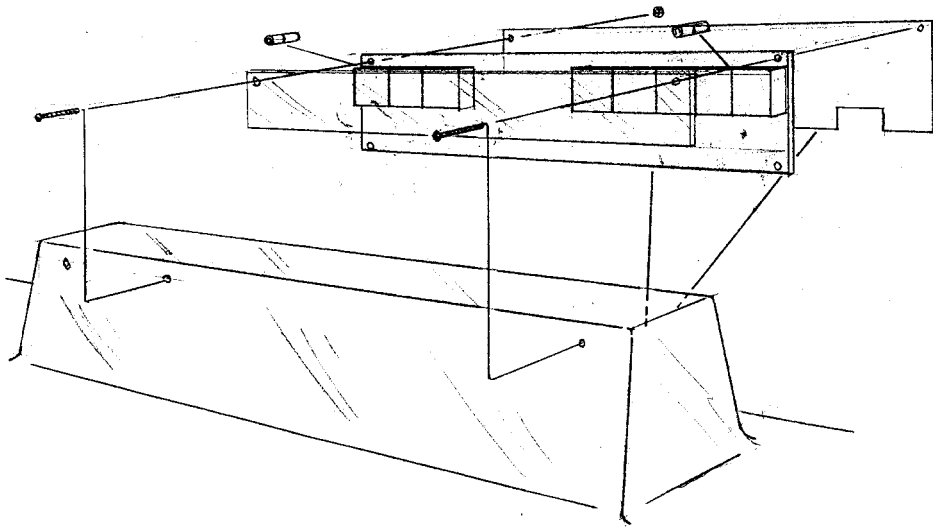


Figure 6—Numeric Display Assembly Drawing

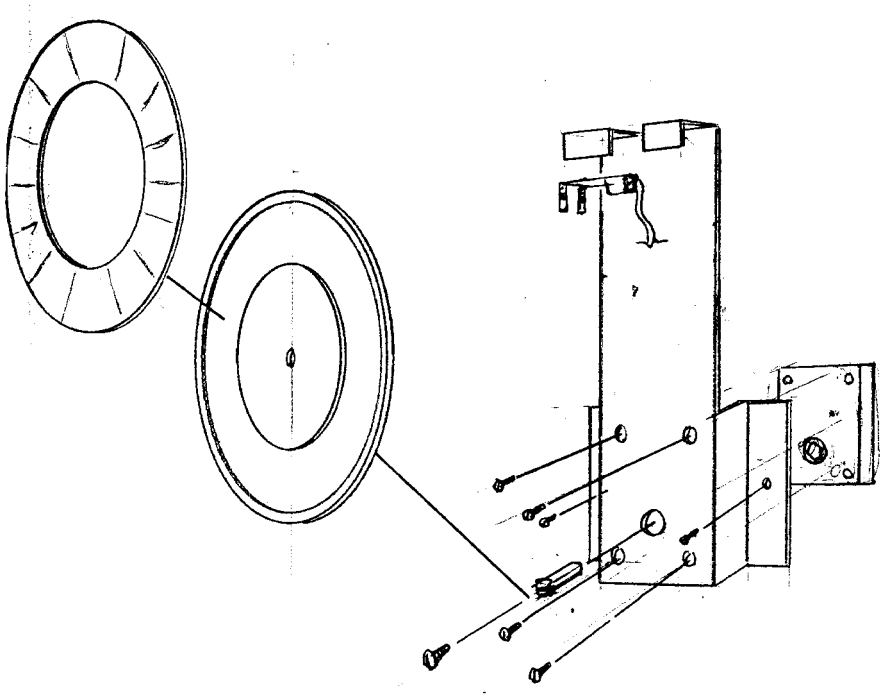


Figure 7—Clock Face Assembly Drawing

Appendix C (continued)

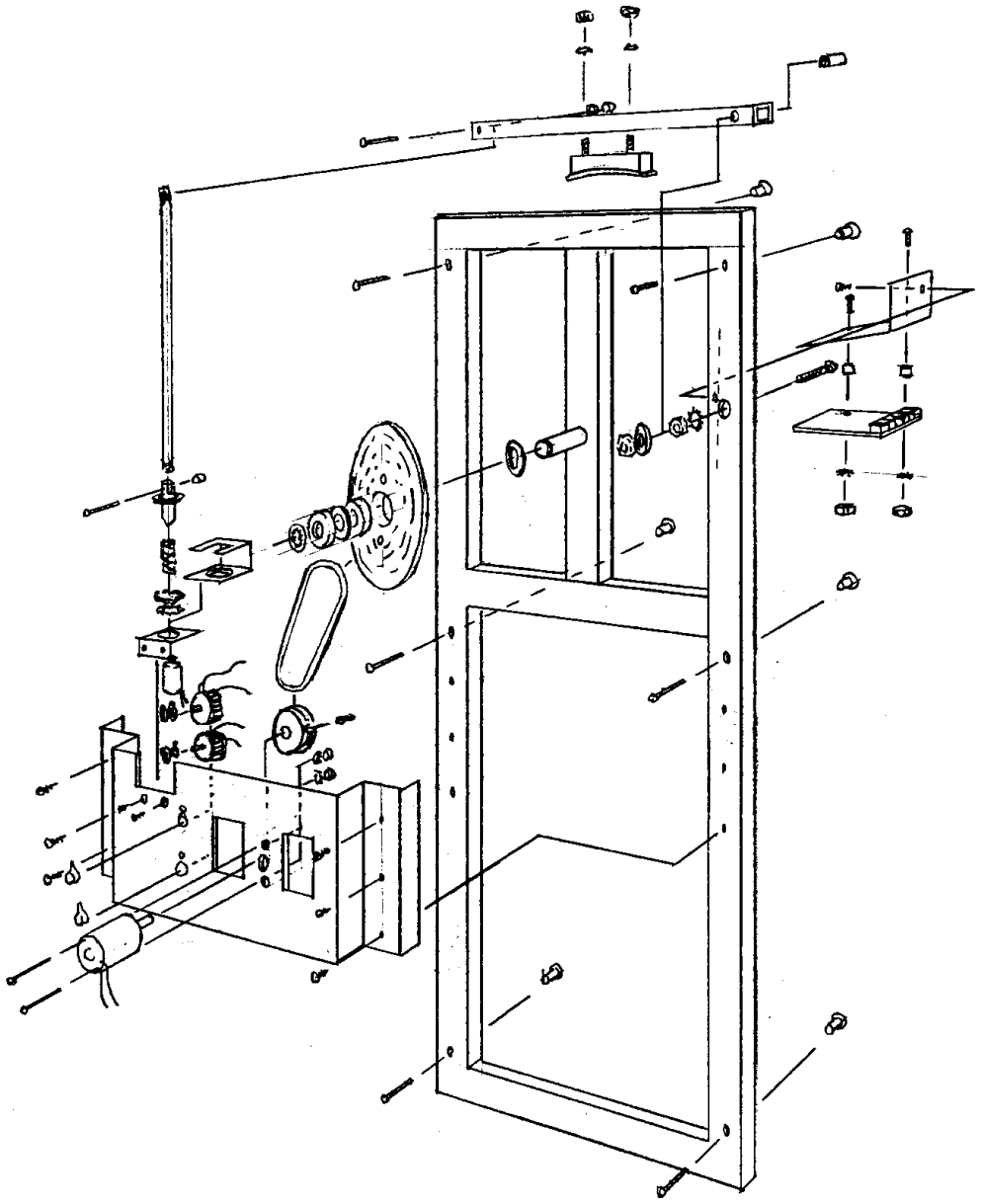


Figure 8—Motor, Brake, Encoding Wheel Assembly Drawing #1

Appendix C (continued)

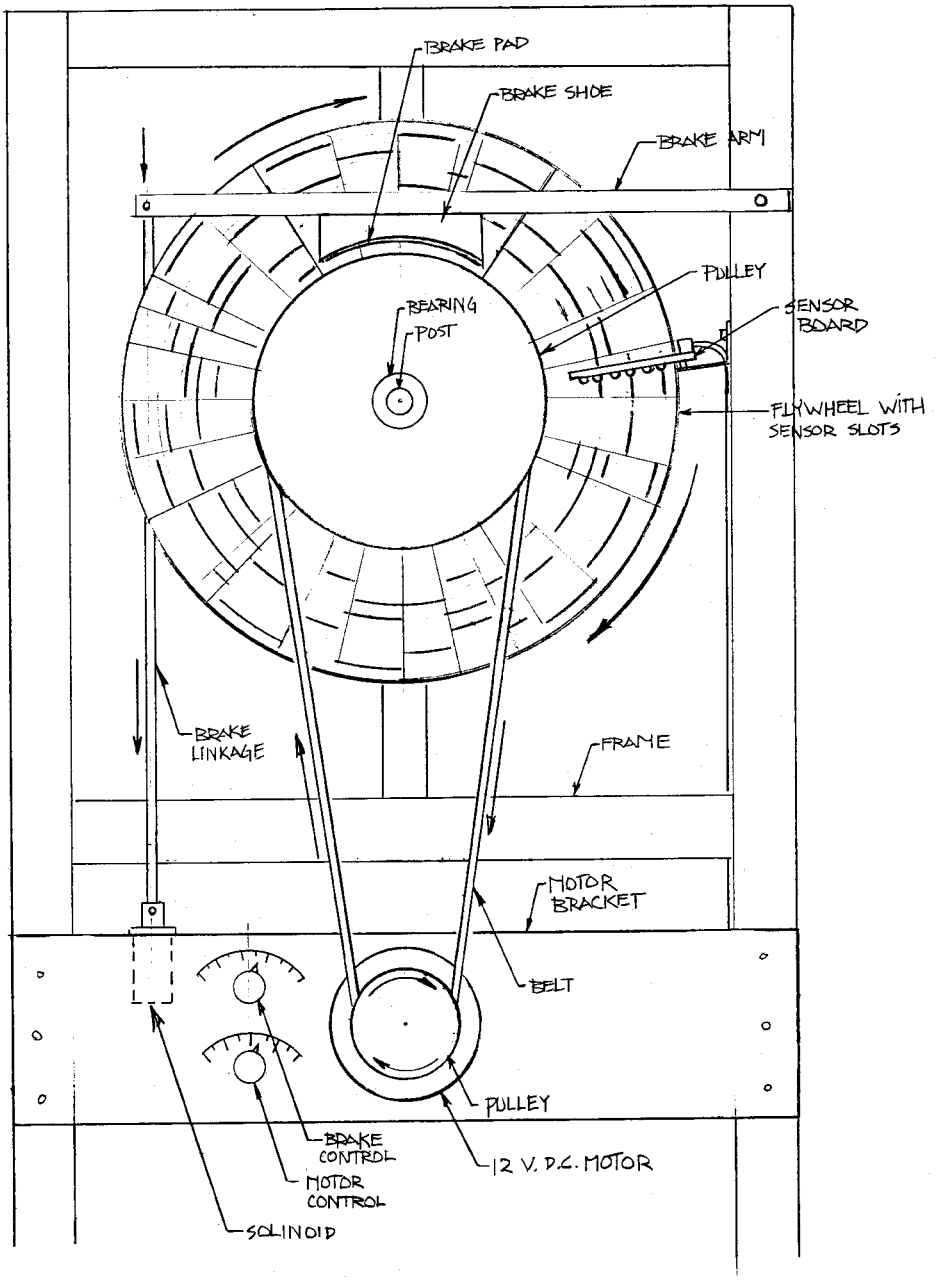


Figure 9—Motor, Brake, Encoding Wheel Assembly Drawing #2

Appendix D—Circuit Boards and Major Sub-Assemblies

Dinospin has several circuit boards that control the operation of the game (pictures of each of the circuit boards are shown in Appendix A):

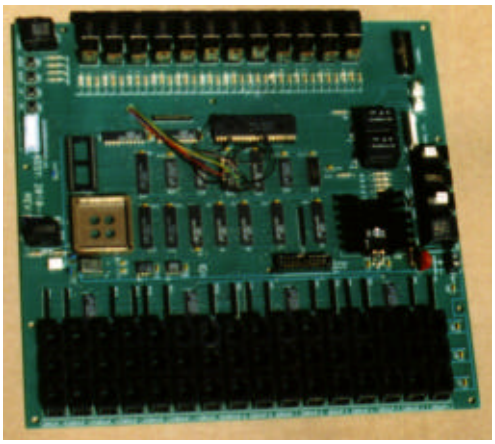


Figure 10—CPU Board

Location—Mounted on sheet metal panel (with Vend Expansion and Audio boards) attached to floor near rear of cabinet

Function—Controls game operation

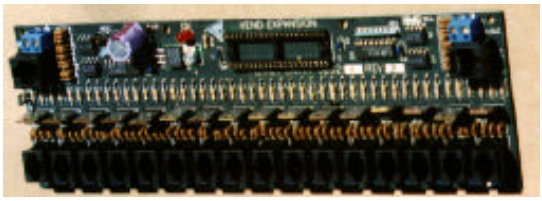


Figure 11—Vend Expansion Board

Location—Mounted on sheet metal panel (with CPU and Audio boards) attached to floor near rear of cabinet

Function—Provides outputs in addition to those supplied by the CPU board which are required for game operation

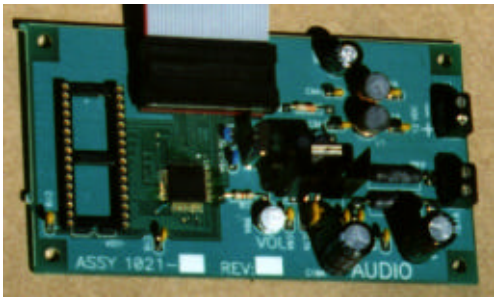
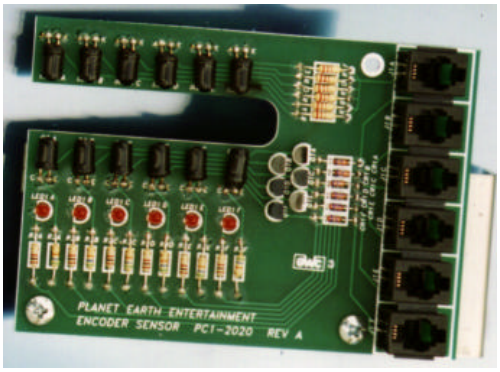


Figure 12—Audio Board

Location—Mounted on sheet metal panel (with CPU and Vend Expansion boards) attached to floor near rear of cabinet

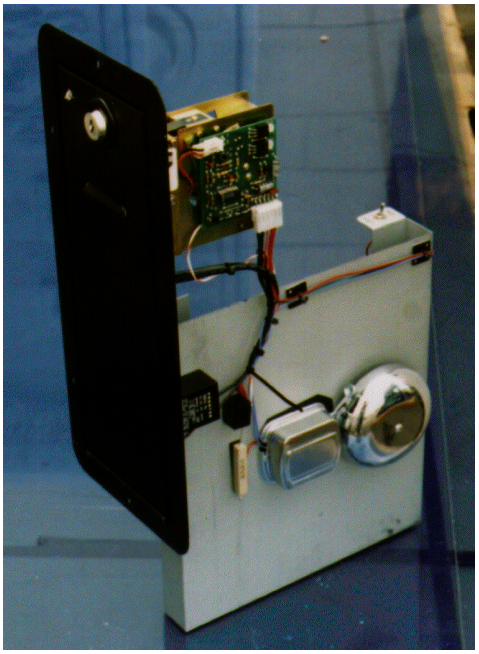
Function—Generates audio for sound effects



Location—Mounted on rear of cabinet with shaft encoding disk

Function—Sense position of bone encoder disk

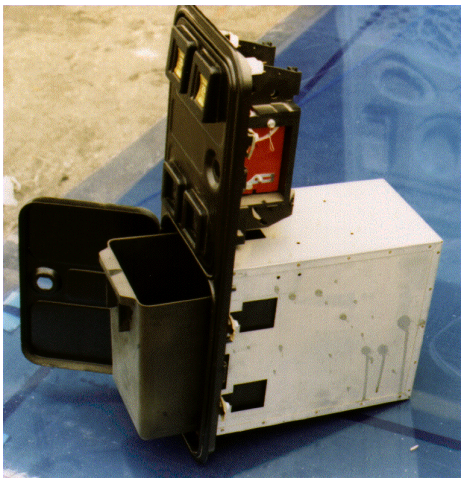
Figure 13—Shaft Position Sensor Board



Location—Mounted to front of cabinet below player console to left of Coin Acceptors

Function—Storing and dispensing tickets

Figure 14—Ticket Dispenser Subassembly



Location—Mounted to front of cabinet below player console to right of Ticket Dispenser

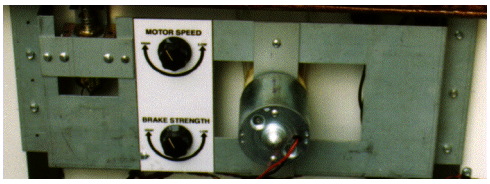
Function—Two coin slots with returns for accepting player's coins and operator accessible coin bin for collecting coins

Figure 15—Coin Acceptors Subassembly

Location—Mounted to right side of cabinet near floor

Function—Provide DC power for the game electronics

Figure 16—Low Voltage Regulated DC Power Supply Subassembly



Location—Mounted to rear of cabinet below clock face

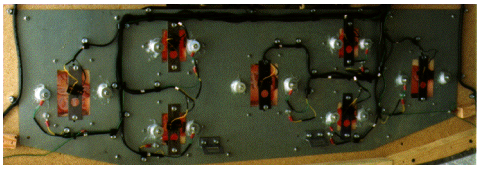
Function—Power and operator adjustments for spinning and braking of bone

Figure 17—Bone Motor, Speed, and Brake Control Subassembly

Location—Front of game below clock face

Function—Provides buttons and numeric display for game play

Figure 18—Player Console Subassembly (Top)



Location—Front of game below clock face

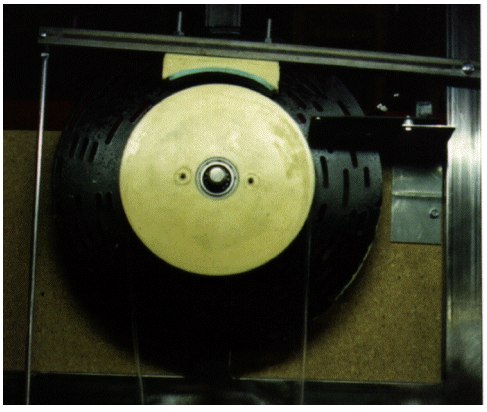
Function—Provides buttons and numeric display for game play

Figure 19—Player Console Subassembly (Bottom)

Location—Front of game below clock face on player console

Function—Provides digital readout of numeric information

Figure 20—Numeric Display Subassembly



Location—Behind clock face, accessible behind protective cover from rear of cabinet

Function—Sense position of bone

Figure 21—Bone Encoding Disk Subassembly