SKEE BALL TOO

Assembly and Operation

Manual 990026 (E)

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I. INTRODUCTION

Congratulations! You have purchased Skee-Ball Too, the most popular and exciting alley game available in the world. Inside this manual, you will learn about the many features of this product including the wide variety of programming capabilities for redemption and game play.

A. WARNINGS

Read this manual thoroughly before assembling your game. Failure to follow the instructions may cause damage to your game and void your warranty. In addition, the manual explains the game in detail and the options you have so that you and your players can enjoy the game to its fullest.

1. The power cord must be plugged into a grounded, three-prong outlet. Failure to do so could cause permanent injury or game damage.

2. This game is suitable for indoor use only. The game should not be installed outdoors or in areas directly exposed to sunlight, high humidity, direct water contact, dust, high heat or extreme cold. Installation in any such environment shall void the warranty.

3. Replacement of fuses, lamps and any other servicing on the product shall be conducted by trained personnel.

B. SPECIFICATIONS

Height	79”	
Width	29”	
Length	120”	
Weight	390 lbs Uncrated 510 lbs Crated	
Power	Maximum:	110 volts, 562 Watts
	Average:	110 Volts, 158 Watts
Power Supply	5 Amp Fast-Blo Little Fuse #218-005	

II. FUNCTIONAL DESCRIPTION

A. MAJOR GAME COMPONENTS

1. Back Cabinet Assembly - This portion of the game houses all of the electronics and score target.

2. Runway Assembly - This assembly houses the ticket dispenser, coin acceptor mechanism, game instructions and the alley carpet.

3. Target Board Assembly - This part of the game is removable and holds the score sensors and the optional double flash PCB assembly.

4. Scoreboard Display Glass - Located above the target board and secured in place with a metal clip on top of the cabinet. It can be removed to gain access to the controller, display, lamps & power supply. You do this by loosening the clip on top and lifting the panel upward a few inches (using 2 handles at lower left and right sides) and then pull the panel down and towards you.

5. Dot Matrix Display Housing – In order to satisfy FCC requirements, the dot matrix display board electronics are mounted in this sheet metal housing to reduce noise.

6. CPU Controller Assembly - This assembly is located inside the rear metal enclosure. The electronics can be accessed, by removing the two thumbscrews along the top front of the enclosure cover.

7. Power Supply - Located on the shelf above the controller assembly. The on/off switch is located on the front right side of the supply and is a push in type.

8. Score Sensor - Located on the back of the Target Board and in the right side channel for the Ball Count and Ball Release sensors. It is an Omron opto sensor (part #EE-SPY415). This part is used for all score pockets, ball count and the ball release areas.

9. Fluorescent Lamp - One is mounted to the back of the ceiling of the Back Cabinet and backlights the display glass. Another is mounted on the shelf to illuminate the Target Board. The bulb part # is F20T12/CW and the fixture uses an FS22 starter.

10. Ball Release Assembly - Located under the right side channel cover and secured with 4 phillips head wood screws. It has a solenoid connected by a link to a release arm. Upon start of the game the solenoid engages and allows the balls to roll down to the player. A sensor is mounted to a bracket next to the release arm which counts the balls as they roll down according to how many the game is programmed for. After counting the appropriate amount, the solenoid disengages due to pressure applied by a spring to stop balls in play. Example: The game is set for 9 balls of play but you only have 5 balls loaded into the game. The solenoid will remain engaged until the sensor detects 9 balls and will then immediately disengage.

11. Ball Release Sensor - Located on a bracket next to the Ball Release assembly. This sensor counts the number of balls that have been released to the player.

12. Ball Count Sensor - Located in the right side ball return channel and mounted to the rear bulkhead of the alley. It counts the balls as they are played. Main function is to count balls that are not thrown into the score holes and it decides the game end when number of balls is returned.

13. Speaker - Located on the shelf above the Target Board inside the Back Cabinet assembly. Volume is controlled via software and can be accessed according to the *Option* setup section of this manual.

14. Score Panel Protective Cage - There are 3 different panels fabricated out of powder coated wire. These are fastened to the back cabinet assembly and protect the Target Board from players trying to cheat by dropping balls into the score track (vs. rolling the balls).

15. Ticket Dispenser - Located on the left front side of the game and is accessed using the key to open the front door. You may also access the ticket bin by removing the left front channel cover. The bin can hold 4000 tickets and it employs the use of a switch connected to a red LED. to alert the attendant that the machine will require re-loading.

16. Coin Mechanism - Located on the front right hand side of the game. Houses the mechanism for accepting coins according of the preferred denomination. The number of coins required to receive a credit is programmable. The coin box is located directly underneath the coin door.

17. Program/Reset Button - Located under the Ticket Bin Access Cover next to the coin and ticket meters. Pushing this button enables the operator to access software used for testing the game and reprogramming the playing options. It is also used as the enter key during reprogramming.

18. AUX1 - Allows forward movement **within** the various options. If it is pressed and released at the same time as the AUX2 button it will allow you to exit from the programming mode at any time.

19. AUX2 - Allows forward movement **through** the various options.

20. Electronic Net - This option may replace the metal net. It consists of the enclosures for the Emitter and Receiver, and associated hardware. The “E” Net is used to deter “cheating” by detecting balls physically tossed or setting the balls in the higher point scoring pockets. The E-Net consists of four sets of amplified photo-microsensors. Each set is made up of an emitter and a receiver. The emitter sends a focused infrared beam that is sensed by the receiver. When the sensor receives the beam, the indicator light, located on top of each receiver, is illuminated. If the beam is interrupted for any reason, the indicator light goes out and a pulse is sent to the controller. The controller then Tilts the game and a penalty is assessed. The programming of the Tilt option provides the type of penalty and also can determine the sensitivity. See also “Options...D: Game Play...8.Tilt”.

B. OPERATOR CONTROLS

1. Power Button - The main power on/off switch is located on the right side of the power supply inside of the back cabinet assembly.

2. Reset Button - Located under the ticket bin access cover on the coin and ticket meter bracket. Pushing this button enables the operator to access software used for testing and making adjustments to the game (see "*TESTS and OPTIONS*").

3. Free Credit - The game software has the ability to give free credits other than setting the game for free play. To issue free credits push the **AUX1** and **AUX2** buttons simultaneously. The display will ask you the number of credits you wish to give from 1-99. The **AUX1** increments the total number of free credits while the **AUX2** button allows you to decrement the number.

4. AUX 1 - Allows *forward* movement through the various options. It also allows you to view the last game score if depressed at the end of the game.

5. AUX 2 - Allows *reverse* movement through the various options. It will display the number of tickets given for the last game if depressed at the end of a game.

6. Volume - The volume is controlled through the electronics.

III. ASSEMBLY INSTRUCTIONS

A. PRE-ASSEMBLY

1. Remove all parts from the shipping boxes and inspect for any possible damage during handling. Use the following list to inventory the items. If any part (s) are missing, call your salesperson immediately. If shipping damage is noted, call the trucking company making the delivery.

2. Shipping Parts Inventory
   1 - Back Cabinet
   1 - Runway
   2 - Side Cages (left and right side)
   1 - Front Cage
   5 - Skee Ball balls
   1 - Coin box
   1 - Ticket Bin with low ticket indicator switch (attached)
   6 - Leveling glides
   14- #8-32 buttonhead machine screw (for side cage)
   14- black decorative washers
   2 - 1/4-20 mounting bolts and washers (to secure back cabinet to runway)

***Note*: Runways and back cabinets do not need to be matched sets.**

B. ASSEMBLY

1. Install four leveling glides to the bottom of the back cabinet assembly through the pre-drilled holes and screw them all the way in.

2. Install the two remaining leveling glides to the bottom of the runway in the pre-drilled holes located at the end of the runway closest to the back cabinet.

3. The leveling glides may need adjustment after bolting the 2 main assemblies together if the unit is not level.

4. Locate the front and side cage parts, which come packed in a separate box. The cage assembly consists of three different parts: left, right and front. When positioning the cage parts, *the angle brackets point toward the center of the game*. Each side of the back cabinet has a recessed area where the right and left cages are placed. Affix each side cage using (5) #8-32 buttonhead screws and washers. The front cage sits on top of the right and left sides by aligning the pre-drilled holes. Use the remaining four #8-32 buttonhead screws and washers to attach the front cage.

5. Place the back cabinet and the runway in their approximate final position leaving a 12" gap in between them so that the cables can be plugged in.

6. Carefully cut the cable tie that holds the 4 cables together that are tucked inside the "gutter ball" floor or No Score Floor and route the cables behind the No Score Floor and to the bottom floor of the rear cabinet.

7. Connect five junction plugs. They are as follows: (P1)15 pin, (P17)9 pin, (Solenoid) 3 pin, and (GND)1 pin, and underneath the no score floor on the right side (P11)4 pin.

8. Slide the runway up against the back cabinet being careful not to crimp the cables between the two assemblies. Align the pre-drilled holes in the runway and back cabinet using the leveling glides, and secure them together from the cabinet side (above black no-score floor) using the 1/4-20 x 2" Hex bolts and washers through cabinet into runway T-Nut.

9. Unlock and remove the ticket bin access cover at the left front side of the game. Connect the wire harness for the ticket low indicator switch, which is mounted to the ticket bin, to the receptacle under the slot. Place the ticket bin into the slot with the switch toward the rear of the game.

10. Unpack the coin box and place it in position under the coin mechanism.

11. Install 5 balls (maximum of 6 balls) in the alley.

12. Plug the AC cord into a known good 120VAC power source. If the game does not light, check the on/off switch on the power supply. The game is now ready to play or program.

13. GAME PLAY

Skee-Ball Too is designed to be universal by offering an extensive array of programming capabilities in hopes that you, the game operator, will have specific settings regarding tickets, coins, number of balls, etc. available for your location.

A. TEST

Prior to leaving your game for open play, be sure to test the game, to ensure proper operation. See “Hardware Tests”.

B. OPTIONS

The game may be programmed according to the specific location desires and any particular circumstances. See “Game Options”.

C. COINS

1. Insert coin(s). (Not necessary if the game is set for free play. See “Game Options - Free Play”). It is also not necessary if free credits have been inserted. See “Free Credits” under operator controls.

2. The number of coins required for one credit is adjustable. See “Game Options - Coins Per Credit”.

D. GAME PLAY

The object is to score as many points as possible with the number of balls given by rolling them up the alley and into the target area skillfully landing them into the holes marked with the highest value. The number of balls allowed is adjustable. See “Game Options - Game Play”. After the number of balls is released, the solenoid disengages and traps the balls thrown.

E. SCORING

Balls successfully thrown into any hole will score the number of points labeled on each hole. When the ball enters the hole it is detected by an opto light emitting diode and receiver (Omron EE-SPY415) which is transmitted back to the main controller. The score is then displayed. The value for each score slot is adjustable. See “Game Options - Game Play/Set Target”.

F. END OF GAME

1. At the end of the game, the display will show the final score total and go back into the attract mode until additional coins are inserted.

2. As an added convenience at end of game, the software allows the operator to view the last game statistics including game score and ticket payout. To view, remove the ticket access cover and push the **AUX1** button to view score. To view payout of tickets during the last game push **AUX2** button. To return to the attract mode, push **RESET**.

G. CREDITS

The game accepts money at any time. At the end of the game, if there are any credits remaining, at the end of the game, the final score will be displayed and the balls will release to the player automatically beginning the next game.

H. TICKETS

1. The game will dispense tickets to the player according to the many different operator adjustable options. See "Game Options - Payout".

2. In the event the game is out of tickets or a malfunction occurs, the display will inform the player *"CALL."* The attendant must correct the malfunction or reload the tickets and press the **AUX1** button. Tickets owed to the player will be displayed and pressing the **RESET** button will dispense that amount and return the game to the attract mode. If the player has walked away, you may elect to press the **RESET** button twice after correcting the problem to clear ticket error without having to dispense the tickets owed. If the ticket alarm feature is disabled, the game simply continues as if tickets were not to be dispensed. See "Game Options - Payout/Ticket Alarm".

V. OPTIONS AND TESTS

The *Program Mode* is used to change options and to run the hardware tests. To enter *Program Mode* press the button labeled "**RESET**" located behind the ticket door channel cover. The display will show "**Ltxxx**", where xxx is the revision number of the software. After a few seconds the display will scroll down and display the *checksum*. Afterward, the display will give a few instructions and then start over with the revisions number. Pressing "**RESET**" a second time will exit the test mode.

The following chart is used to describe what functions the buttons or button combinations will perform when pressed. Buttons enclosed in braces, {}, signify holding the button while pressing and releasing another.

Main Menu	
Button	**Function**
RESET	Enter or Exit Program Mode and enter Game attract Mode.
AUX1	Select *Options*
AUX2	Select *Hardware Tests*
START	Select Accounting

AUX1: Options
Used for setting the various options for the game.

AUX2: Hardware Tests
Used to check out the switches/sensors, lights and ticket machine.

START: Accounting
Display accounting information.

VI. GAME OPTIONS

Skee-Ball Too has been designed to give the operator a great deal of flexibility in operating the game. Rather than employing a dip switch system, Skee-Ball Too employs a system using the **RESET** Button which affords the operator many more choices than could otherwise be practically provided. The following pages describe the Options available to you, how to review the Option Settings and how to select the Option Settings you want.

1. With the game powered up, press the **RESET** button located under the ticket bin access cover at the front left side of the game.

2. To access, view and/or change the game options, the operator must use all 3 of the buttons located under the ticket bin access cover as well as the game **START** button. Each button has a specific function and location as outlined below:

LOCATION	LABEL	FUNCTION
Left	AUX1	Cycle forward
Center	RESET	Access/Exit Program Features
Right	AUX2	Cycle backward
Front right side of game	START	Select/Enter

3. Upon pushing the **RESET** button, the display will show the software revision. Press the **AUX1** button to access options.

******NOTE***: It is important to have the software revision number available when calling with service inquiries.****

4. Cycle through the options
   a) To cycle through the options, continue pressing the **AUX1** button. When an option that you wish to change or review is displayed, press the **START** button.

   b) The setting on which this option is currently operating will be displayed. To cycle through all of the available options within the category press **START**. To change or review a specific setting after pressing **START** push **AUX1** to cycle forward or **AUX2** to cycle backward. Once you have the setting you prefer displayed, press **START** to accept it.

   ******NOTE***: **You must step through all of the options within that category until you return to the menu heading or the change you made will not be saved to memory.*****

   c) Example: If option "*D:Game Play"*, is selected and a change is made as to the number of balls per game, you must press start and continue to press start until you get back to the "*D:Game Play"* message or the change will not have been made.

When you are finished reviewing the options, press the **RESET** button to go into Game Attract Mode.

VII. OPTIONS

The options are arranged in groups. Using the **AUX1** and **AUX2** buttons move you forward and backwards through the *Options menu.* Pressing **START** will select the option so it can be changed. Pressing **AUX1** and **AUX2**, at the same time, will exit the *Options menu* and return to the main display.

Once an option group is selected all options in the group must be entered to save any changes. Exiting before the completion of the group will cancel any changes.

OPTION Menu	
Button	**Function**
RESET	Exit Program Mode and enter Game Attract Mode.
AUX1	Move forward through menu.
AUX2	Move backwards through menu.
START	Select option group.
AUX1/AUX2	Exit option menu and return to main.

The following option groups appear in the *Options menu:*

A. DEFAULTS
1. Allows resetting all the options to 1 of 3 predefined settings.
2. Allows defining 2 of the 3 defaults.

B. ATTRACT
1. Enable/Disable attract message.
2. Set volume for attract music.
3. Set repeat time for attract music.

C. START
1. Coins per credit (up to 4 levels).
2. Start of game with **START** button or *CREDIT*.
3. Enable/Disable "*Welcome"* and "*Press Start*" messages.

D. GAME PLAY
1. Set number of balls to play (1 to 12).
2. Set volume for game sounds.
3. Time to end game if no ball is rolled.
4. Set target scores.
5. Disable/Enable *Double Flash* option.
6. Disable/Enable *Bonus Ball* option.
7. Disable/Enable *Tilt* option.

E. GAME END
1. Set time that final score is displayed.
2. Enable/Disable *Match Play* option.

3. Enable/Disable *"Thank You"* message.

F. PAYOUT

1. Disable/Enable Tickets or "*Winner*" option.
2. For *"Winner"* set up to 3 levels to win.
3. For tickets set min/max tickets.
4. For tickets Enable/Disable ticket alarm.
5. For tickets set up to 16 levels of payout.
6. Enable/Disable Jackpot and sets Jackpot score.

G. VOLUME

1. Set volume for attract music (also set in option B).
2. Set repeat time for attract music.
3. Set volume for game sounds (also in option D).

A. DEFAULTS

The default option allows resetting **all** the options to 1 of 3 predefined settings:

Defaults A: Options that are built into the software.
Defaults B: Customer requested options.
Defaults C: Customer/location preferences.

When *Defaults* is entered, the screen will display instructions for either selecting resetting or setting defaults. Press **AUX1** to reset and press **AUX2** to define a new default.

A: Defaults (Select)	
Button	**Function**
RESET	Exit Options Mode and enter Game Attract Mode
AUX1	Select reset defaults.
AUX2	Select set defaults.
AUX1/AUX2	Exit option menu and return to main.

1. Resetting Defaults

To reset the defaults from any previous programming, or to initiate all the programming defaults in Default A, do the following.

a) Press **RESET**
b) At *"A:Target"*, Hold down **AUX1** and **AUX2**
Press and release **RESET**
Release **AUX1** and **AUX2**
(This should momentarily blank out the Screen)
c) Press **START** at *"All Clear?"*
d) After *"Set Coin"*, Press **AUX1** and **AUX2** simultaneously to skip the counters. (This should clear the memory and give a "System Reset" and then go to the attract mode)
e) Press **RESET**.
f) Press **AUX1** for *"Options"*
g) Press **START** at *"A:Defaults"* to go into defaults.
h) Press **AUX1** to enter *"Reset"* defaults.
j) At *"Reset A?"*, Press **START** to accept A Defaults.
k) At *"A:Defaults"* press **RESET**.
(This should go back into Attract Mode and the game is ready to play)

If the message:

Invalid

is displayed it means that no defaults have been assigned

2. Defining Defaults
   Setting defaults will save the current options into either *Default B* or *Default C*. When **AUX2** is pressed the display will cycle through the following message:

   Set B?
   Press
   Start

   The **AUX1** and **AUX2** buttons will now allow changing the first message to "***Set C?"*** *or back to "****Set B?".*** *Default A* is not acceptable. Pressing the **START** button will copy the current options.

A: Defaults	
Button	**Function**
RESET	Exit Option Mode and enter Game Attract Mode.
AUX1	Move forward
AUX2	Move backward
START	Reset/Set default
AUX1/AUX2	Exit default and return to Option menu.

B. ATTRACT

There are 3 options that can be set in the Attract group.

1. Enable/Disable Attract Message
   The attract message can be Enabled or Disabled. When disabled only the "Skee-Ball Too**"** logo will be displayed between games. If disabled the rest of the options in the group are skipped. (DEFAULT = ENABLED)

2. Set Volume for Attract Music
   This sets the volume of the "theme" music that periodically plays and the "credit" sound. It can range from 0, which is no sound, to 15 which is the loudest. If set to 0 then the next option is skipped. (DEFAULT = 15)

3. Set Repeat Time for Attract Music
   The time between replays of the "theme" music can be set from 1 minute to 15 minutes or the music can be disabled (No Music). (DEFAULT = 5 MINUTES)

B: Attract	
Button	**Function**
RESET	Exit Option Mode and enter Game Attract Mode.
AUX1	Increment
AUX2	Decrement
START	Select
AUX1/AUX2	Exit Attract and return to Option menu.

C. START

The **Start** group controls the price of a game, how the game is started and what messages are displayed. There are 4 options in this group.

1. Coin/Game

When Start is selected the message "Coin/Game" will be displayed for a few seconds and then will be replaced by:

n* give *x

Where *"n"* is the number of coins, 0-20, needed to start the game and *"x"* is the number of games, 1-10, given. When *"n"* is 0 the game is in Free Play mode. For free play the *"give"* display is replaced by: (DEFAULT = 1 give 1 (Only level 1))

Free Play

When first selected, *"n"* will be *flashing orange* and *"x"* will be *green*. The orange color signifies that this number is the one being changed. The **AUX1** button will increment the number and the **AUX2** will decrement. After pressing **START** to enter the number, "n" will change to green and "x" will start flashing orange. After setting the number of games to give and pressing **START**, the display will cycle the following:

Aux1 Go On
Aux2 More

Pressing **AUX1** will end the "Coin/Game" option and go on to the "Game Start" option. Pressing **AUX2** will allow setting an additional level of pricing. Up to 4 different pricing levels can be set. The different levels allow multiple coins to give "bonus" games. The first level sets the minimum coins needed to start the game. The table below gives some examples.

	Level 1		Level 2		Level 3		Level 4	
	Coin	Game	Coin	Game	Coin	Game	Coin	Game
#1	1	1						
#2	1	1	2	3	3	7		
#3	2	2						
#4	2	2	1	1				

Example #1: 1 coin gives 1 game. Additional games 1 coin

Example #2: 1 game for 1 coin. 3 games for 2 coins. 7 games for 3 coins.
Example #3: 1 game for 1 coin (but 2 games must be purchased). Additional games 2 coins/2 games.
Example #4: 1 game for 1 coin (2 games min). 1 game for every coin above 2.

Accumulation of coins is from the start of a game until the start of the next game. Multiple checking is from the highest level down. Using Example #2: if 7 coins are entered the player would get 15 games. 14 games for 6 coins and 1 game for 1 coin.

C: Start (Coin/Game)	
Button	**Function**
RESET	Exit Option Mode and enter Game Attract Mode.
AUX1	Increment coin or game value. *Go on* to Game Start option
AUX2	Decrement coin or game value. *More* (additional level)
START	Select
AUX1/AUX2	Exit Start and return to Option menu

2. Game Start

   a) The **AUX1** or **AUX2** buttons will toggle between either:

   Start Btn (DEFAULT)

   or

   Credit

   b) If **START** is pressed while showing *"Start Btn"*, after coin up, the game will wait for the player to press **START** before releasing the balls and starting the game.

   c) If *"Credit"* is selected the game will start as soon as the correct amount of coins are entered.

3. Messages

   The 2 message options control what will be displayed when the game starts (a credit has been entered).

   a) First option

   Press (DEFAULT)

   or

   No Press

   Use this option to enable/disable the *"Press Start"* message. This option is skipped if Game Start was set to *Credit*. The reason for disabling the "Press Start" message is if a "master" start switch is in use. When disabled, a yellow lightning bolt will be displayed until the game is started.

   b) Second option

   Welcome (DEFAULT)

or

No Welcome

This will enable/disable the *"Welcome to SKEE-BALL TOO"* message. The **AUX1** or **AUX2** buttons toggle between the 2 and **START** selects.

C: Start (messages)	
Button	**Function**
RESET	Exit Option Mode and enter Game Attract Mode.
AUX1	Toggle forward
AUX2	Toggle backward
START	Select
AUX1/AUX2	Exit Start and return to Option menu.

D. GAME PLAY

1. Set Number of Balls to Play (1-12) (DEFAULT = 9)
   This is the number of balls that are played, not the number of balls in the game. If the number of balls in the game is less than the amount set, the game will recycle the balls until the correct amount is released.

2. Set Volume for Game Sounds (DEFAULT = 15)
   This sets the volume of the sounds that are made for scoring. It can range from 0, which is No Sound, to 15 which is the loudest. If set to 0, the next option is skipped.

3. Enable/Disable Music Playing in Background
   This option will toggle between:

   Game Beat (DEFAULT)

   and

   No GmBeat

   a) **Game Beat:** When this is selected the "theme" music is played constantly, at a low volume, during the game.
   b) **No GmBeat:** When this is selected the game is silent unless there is a score.

4. Time to End Game if No Ball is Rolled (DEFAULT = 45)
   Sets a time-out to end the game if no ball is rolled. The time can be set from 30 to 90 seconds, in 5 second increments, or it can be Disabled.

   Seconds: xx

   where ***xx*** is the seconds adjustable with the **AUX1** and **AUX2** buttons.

5. Set Target Scores
   It is possible to change the value given for each target hole. The **AUX1** button will toggle between:

   Set Target

and

Skip Target (DEFAULT)

a) **Set Target:** When Set Target is selected the display will change to:

Target 1x

xxx

The *"xxx"* is the current value for the lowest target. The **AUX1** button will increment this value and the **AUX2** will decrement. Press **START** to accept the value and go on to the next hole.

b) **Skip Target:** When this is selected with the **START** button then the target values remain unchanged.

6. Disable/Enable Double Flash Option (DEFAULT = DISABLED)
Use **AUX1** toggle the Double Flash from Enabled or Disabled. If the option is Disabled the rest of the Double Flash is skipped. If enabled, the **AUX1** button will toggle between:

Sensor (DEFAULT)

and

When Lit

a) The **Sensor** setting will only allow a double score when the optic sensor in the alley has been tripped while the lightning bolt is on.

b) The **When Lit** setting allows the double score to be given anytime the lightning bolt is on. After pressing **START** the display changes to:

Hold Scan

for a few seconds and then switches to:

Bolt Lit

or

Any Trip (DEFAULT)

and the **AUX1** button can be used to switch between the two and the **START** button is used to select one. This option sets how the scanning *red* diamonds and *yellow* lightning bolt are affected by the ball rolling past the sensor. If set to **Any Trip** the scanning will stop anytime the sensor is tripped and hold for 5 seconds or until the ball is counted. If **Bolt Lit** is selected the scanning will only hold when the sensor is tripped and the *yellow* lightning bolt is lit. If the previous option was set to **When Lit**, this option is automatically set to **Bolt Lit**.

After making a selection the display will show:

Speed:nn (DEFAULT = 15)

and the red diamonds and yellow lightning bolt at the bottom of the target area will start scanning. By using **AUX1** and **AUX2** the value **"xx"** can be

increased/decreased from **1**, slowest scan rate, to **15,** the fastest. The lights at the bottom of the target will show the actual scan rate.
After selecting a scan rate:

Adj. Speed

is displayed for a moment and then one of the following: (The **AUX** buttons will allow cycling through the different settings).

No Adjust: keeps the scan rate the same for the entire game. (DEFAULT)
or
Each Dbl: will speed up the scan rate each time a double score is given
or
Each Ball: speeds up the scan rate every time a ball is rolled
or
Constant: increases the scan rate constantly and the display changes to:

Reset Adj.

for a moment and this allows the **AUX** buttons to toggle between:

No Reset
and
Ball Reset

Select **No Reset** and the scan rate will continue to increase until it reaches it's fastest speed, **15,** and stay there. **Ball Reset** means that as soon as a ball is counted, the scan speed resets to it's starting scan rate.

The last option for the *Double Flash* is to enable/disable the "Attract" message mentioning the double flash. Use **AUX1** and **AUX2** to toggle:

Attract Msg. (DEFAULT)
or
No Attract

and press **START** to select.

7. Bonus Ball

The **Bonus Ball** option lets an extra ball be played when a specified score is reached. The **AUX1** and **AUX2** buttons will toggle between:

Disabled (DEFAULT)
and
Enabled

If **Disabled,** the rest of the option is skipped. If **Enabled** the display will change and show the ***score to give*** the bonus at in *green, flashing orange*, and *red*. The digits in *red* signify digits that cannot be changed. The *green* digits are the ones that can be adjusted, and the *flashing orange* is the current digit to change. Use the **AUX1** and **AUX2** to increment/ decrement the digit and **START** to enter the value and go on to the next digit. After the last digit is entered the software checks to make sure that the score is valid (min. is always the lowest target value and max is the highest score that can be reached with the normal amount of balls). If the value entered is out of range the following will be displayed:

Invalid
Min Value
xxx
Max Value
Xxx

and the display returns to the number it started with. To start over, hold the **START** button, press/release **AUX2**, and then release **START**. This will reset the display to the first digit. To skip setting the digits, hold the **START** button, press/release **AUX1** and then release **START**. This will enter the remaining digits as they are.

After a valid score is accepted, **AUX1** and **AUX2** will toggle between:

Give Once
and
Each Time

If **Give Once** is selected, then a bonus ball will be given when the score is reached *one time only*. **Each Time** will give a bonus ball for every multiple of the score.

The last option is to enable/disable the "Attract" message mentioning the ***"Bonus Ball"***. Use **AUX1** and **AUX2** to toggle:

Attract Msg.
or
No Attract

and press **START** to select.

D: Game Play (Bonus Ball)

Button	Function
RESET	Exit Option Mode and enter Game Attract Mode.
AUX1	Increment digit value.
AUX2	Decrement digit value.
START	Enter digit value.
AUX1(START)	Enter remaining digits as is.
AUX2(START)	Start over with first digit.
AUX1/AUX2	Exit Game Play and return to Option menu.

8. Tilt

The ***Tilt*** option is used to deter "cheaters" who run up the alley and toss a ball or use their hand to trigger the scoring sensors in the Target Board. The *Tilt* detects when there is an abnormal trigger of the scoring sensors relative to a normal score by a ball thrown into the pocket. (DEFAULT = DISABLED)

The **AUX** buttons will cycle through the following:

Disabled

or

Lose Ball

or

Lose Game

and the **START** button is used to select one. If **Disabled** is selected, the **Tilt** option will not work. If **Lose Ball** is selected, if somebody tries to trigger a target with their hand, an alarm message will be displayed and the player will lose a ball. If **Lose Game** is selected, the game will end if someone tries to trip the target. If the **Tilt** option is not disabled, the final option allows increasing or decreasing the sensitivity of the "*Tilt*".

Adjust:n

will be displayed. Use the **AUX** buttons to change the sensitivity value from **+15** to **0** to **-15**. The **+** numbers are less sensitive and the **-** are more sensitive.

E. GAME END

1. Final Score

   This option allows setting the time that the final score, after *"Game Over"*, is kept on the display. The time can be set from **1** second to **30** seconds in 1 second increments or it can be **Disabled** completely. The **AUX1** button increments the time while the **AUX2** decrements. Press **START** to accept the setting. (DEFAULT = 4 SECONDS)

2. Match Play

   A "*Match Play*" feature, where a random number is matched to part of the players score and a bonus game is given if the numbers match, is included in the game. Use **AUX1** or **AUX2** to change between:

   No Match (DEFAULT)
   and
   Match Play

   Select **Match Play** to enable this feature.

3. Thank You Message

   The last option allows turning off the *"Thank You for Playing*" message. Use **AUX1** or **AUX2** toggle between:

   Thank You (DEFAULT)
   and
   No Thanks

   and then press **START**.

F. PAYOUT

The **Payout** group is used to setup the redemption options. Redemption can be either **Tickets** or **Winner**, where a winning score is reached and the operator pays out the prize. The options are set differently depending on which type is enabled.

When the group is selected the display will show:

Tickets (DEFAULT)
or
Winner
or
Disabled

The **AUX1** and **AUX2** buttons are used to cycle the display and the **START** button is pressed to select the entry. When **Disabled** the rest of the options are skipped.

1. Winner Option

   The **Winner** option allows up to 3 different scores to be set for 3 levels of payout. At the end of the game, if the win score has been reached, the word **"Winner"** will be displayed in one of 3 colors. *Green* for level 1, *red* for level 2, and *yellow* for level 3.

   a) Win Score

   The display will change and show the score needed to win in *green*, flashing *orange*, and *red*. The digits in *red* signify digits that can not be changed. The *green* digits are the ones that can be adjusted, and the flashing *orange* is the current digit to change. Use the **AUX1** and **AUX2** to increment/decrement the digit and **START** to enter the value and go on to the next digit. After the last digit is entered the software checks to make sure that the score is valid (min. is the lowest target value and max. is the highest score that can be reached with the normal amount of balls). If the value entered is out of range the following will be displayed:

   Invalid
   Min Value
   xxx
   Max Value
   xxx

   and the display returns to the number it started with. To start over, hold the **START** button, press/release **AUX2**, and then release **START**. This will reset the display for the first digit. To skip setting the digits hold the **START** button, press/release **AUX1** and then release **START**. This will enter the remaining digits as they are.

After setting a score the display will cycle the following,

Aux1 Go On
Aux2 More

Pressing **AUX1** will end the ***"Win Score"*** option and go on to the next option. Pressing **AUX2** will allow setting an additional level to win at. Note that the minimum valid score is changed to the score set in the previous level + the value of the lowest target.

b) Hold For

This option determines how long the word *"Winner"* is displayed at the end of the game. The options are:

Start Btn (DEFAULT)
or
Seconds:n

The **Start Btn** setting will keep *"Winner"* displayed until the **START** button is pressed. **Seconds:n** is the number of seconds, from **15** to **90** in 5 second increments, before the game continues. The **AUX1** button will move forward from **Start Btn** to **Seconds:15** through **Seconds:90** and then roll over back to **Start Btn**. **AUX2** will move in the opposite direction. Press **START** to accept the setting.

F: Payout (Score Setting)	
Button	**Function**
RESET	Exit Option Mode and enter Game Attract mode.
AUX1	Increment digit value.
AUX2	Decrement digit value.
START	Enter digit value.
AUX1(START)	Enter remaining digits as is.
AUX2(START)	Start over with first digit.
AUX1/AUX2	Exit Payout return to Option menu.

2. Ticket Options

The **Ticket** options allow setting the number of tickets given for different scores. Ticket payouts are setup in up to 16 levels. Each level has a range (i.e. 10,000 to 100,000), a number of tickets to give and for what to give the tickets for. The payout is in effect until the next level range is entered. Different payout can be set for each level.

Also, a minimum and maximum number of tickets can be set. For the 3 options the **AUX1** will increment the value being changed and the **AUX2** button will decrement. The
START button is used to accept the setting.

a) Minimum

The **AUX1** button will increment the minimum number of tickets to be given in a game from **0**, no minimum, to **25**. (DEFAULT = 0)

b) Maximum
The maximum number of tickets can be set from **0**, no limit, to **99**. If a **Minimum** has been set, the smallest value for maximum is the minimum setting. If the **Maximum** is selected to equal the **Minimum**, then that number of tickets will be dispensed every time a game is played and no more. When **Maximum = Minimum**, the **Set Payout** option is skipped. (DEFAULT = 40)

c) Ticket Alarm
This option **Enables/Disables** the ticket alarm function. When **Enabled**, and there is a problem with dispensing tickets, at the end of the game a message will be displayed informing the payer that there has been a problem and to get the attendant. To clear the message, the **AUX1** button is pressed and the display will show how many tickets are owed. At this time, pressing the **START** button will dispense the tickets owed, if the problem has been fixed. To clear the tickets owed, without dispensing, the **AUX2** is pressed. (DEFAULT = ENABLED)

d) End Game
This option allows you to choose between showing the number of tickets won and not showing the number of ticket won. The **AUX1** and **AUX2** buttons toggle the choice between,

Show # Won (DEFAULT)
and
No Show

Press **START** to select the choice.

e) Set Payout

The **AUX1** or **AUX2** button will toggle between:

Set Payout

and

Skip Levels (DEFAULT)

If **Skip** is selected, the setting of the payout levels is skipped over with no changes to the payout. If **Set Payout** is selected, the display will show:

Level 1
From
0
To
xxx

Where ***"xxx"*** is the high end of the level. The display will change and show the top end of the range in *green*, flashing *orange*, and *red*. The digits in *red* signify digits that cannot be changed. The *green* digits are the ones that can be adjusted, and the flashing *orange* is the current digit to change. Use the **AUX1** and **AUX2** to increment/decrement the digit and **START** to enter the value and go on to the next digit. After the last digit is entered the software checks to make sure that the score is valid (min. is the lowest target value and max. is the highest score that can be reached with the normal amount of balls). If the value entered is out of the range, the following will be displayed:

Invalid
Min Value
xxx
Max Value
xxx

and the display returns to the number it started with. To start over, hold the **START** button, press/release **AUX2**, and then release **START**. This will reset the display to the first digit. To skip setting the digits, hold the **START** button, press/release **AUX1** and then release **START.** This will enter the remaining digits as they are.

After entering the payout range the display changes to:

Give: n

Where n is the number of tickets to give within the level. Use **AUX1** to increment the number of tickets to give from **0** to **20** and then press **START** to enter. The display will then show:

For
xxx

The value *"xxx"* is the incremental value that the tickets will be dispensed within the level. The *"xxx"* is displayed in *green*, or the top of the range value displayed in *orange*. **AUX1** or **AUX2** will cycle through the different values and **START** will select. During game play, each time the score increases by the value selected, the number of tickets set in **Give** will be won. If the *orange* range value is selected, the tickets set in **Give** will be won only once when the top of the level is reached.

NOTE: When setting *Level 1* and additional "for" option, **At Start**, is allowed. If selected, the number of tickets set in *Give* will be issued at the start of the game and the level will advance to *Level 2*. After selecting the "for" value, the software checks to make sure that the top of the range can evenly be reached with the selected value. If it can't, the following is displayed:

Step Out
of Range

and the option to adjust the top range up or down is given. Use **AUX1** button to cycle between:

Adj. Up
or
Adj. Down

and then press **START**. The display will now show:

New Range
xxx

If the top of the range value is not the highest score possible, the next level comes up for setting with the low end value set to the top of the last range. The minimum value allowed is the bottom of the new range + the value of the lowest target.

Example:

Top Level 1	=	100,000
Lowest Target	=	10,000
Bottom Level 2	=	100,000
Min for Level 2	=	110,000

This cycle continues until all 16 levels have been set or the last range includes the highest score.

Note: **The highest score is doubled if the *Double Flash* is enabled.**

The following table contains some examples of different payout levels.

	Level 1				Level 2				Level 3			
	From	To	Give	For	From	To	Give	For	From	To	Give	For
#1	0	900K	1	10K								
#2	0	100K	1	100K	100K	900K	1	20K				
#3	0	100K	0	100K	100K	450K	1	20K	450K	900K	2	10K
#4	0	50K	1	50K	60K	100K	2	100K	100K	150K	3	150K

Example #1: Give 1 ticket for every 10,000 points
Example #2: Give 1 ticket at 100,000 points. Then 1 ticket for every 20,000 points.
Example #3: No tickets below 120,000. 1 ticket for each 20,000 until 450,000. 2 tickets for every 10,000 above 450,000.
Example #4: 1 ticket for 50,000 points (assuming each level continues the same).

The following table maybe useful in setting up more complex settings:

	Range Bottom	Range Top	Give	For	Comments
Level 1					
Level 2					

Level 3					
Level 4					
Level 5					
Level 6					
Level 7					
Level 8					
Level 9					
Level 10					
Level 11					
Level 12					
Level 13					
Level 14					
Level 15					
Level 16					

f) Jackpot

The last option in **Payout** is only used if the *Jackpot* sign is attached to the game. The **AUX1** button will switch between:

Disabled (DEFAULT)
and
Enabled

and the **START** button will enter the selection. If you do not have a *Progressive Jackpot*, then **Jackpot** should be **Disabled**. If the sign is attached, the option should be **Enabled** and the following will appear:

Win Score

The display will change and show the score needed to win in *green*, flashing *orange*, and *red*. The digits in *red* signify digits that cannot be changed. The *green* digits are the ones that can be adjusted, and the flashing *orange* is the current digit to change. Use the **AUX1** and **AUX2** to increment/decrement the digit and **START** to enter the value and go on to the next digit. After the last digit is entered the software checks to make sure that the score is valid (min. is the lowest target value and max. is the highest score that can be reached with the normal amount of balls). If the value entered is out of range, the following will be displayed:

Invalid
Min Value
xxx
Max Value
xxx

and the display returns to the number it started with. To start over, while entering, hold the **START** button, press/release **AUX2**, and then release **START**. This will reset the display to the first digit. To skip setting the digits hold the **START** button, press/release **AUX1** and then release **START**. This will enter the remaining digits as they are. (See switch chart for **Winner** option.)

NOTE: To *Reset the Jackpot* after a winner has reached the winner score, simply press **AUX1** or **AUX2** to clear the display and enter the Game Attract Mode. If

RESET is accidentally pressed, you will have to win a Jackpot score to reset the Jackpot sign.

G. VOLUME

The options controlled in this group can also be set in **B:Attract** and **D:Game Play**.

1. Attract Volume
   This sets the volume of the "theme" music that periodically plays and the *"credit"* sound. It can range from **0**, which is **No Sound**, to **15**, which is the loudest. If set to **0**, then the next option is skipped. (DEFAULT = 15)

2. Music Time
   The time between replays of the "theme" music can be set from **1** minute to **15** minutes, or the music can be disabled **(No Music)**. (DEFAULT = 5)

3. Game Volume
   This sets the volume of the sounds that are made for scoring. It can range from **0**, which is **No Sound**, to **15,** which is the loudest. If set to **0**, the next option is skipped.
   (DEFAULT = 15)

4. Game Beat
   This option will toggle between:

   Game Beat (DEFAULT)
   and
   NoGmBeat

   When **Game Beat** is selected, the "theme" music is played constantly, at a low volume, during the game. If **No GmBeat**, then the game is silent unless there is a score.

VIII. HARDWARE TESTS

Using the **AUX1** and **AUX2** buttons you move forward and backward through the ***Test menu***. Pressing **START** will select the test. Pressing **AUX1** and **AUX2**, at the same time, will exit the ***Test menu*** and return to the main display.

Once a test is selected, instructions for running the test will be displayed. Press **START** to cancel the instruction and enter the test.

Test Menu	
Button	**Function**
RESET	Exit Test Mode and enter Game Mode.
AUX1	Move forward through menu
AUX2	Move backwards through menu
START	Select test.
AUX1/AUX2	Exit test menu and return to main.

A. TARGET

The Target Tests are used to check out all the sensors used for detecting balls and to test the ball release solenoid.

1. Check Target Sensors
   When first selected, instructions will continually scroll through the Display. Pressing the **START** button will exit the instructions and the display will show:

   1x 00 00 00

   Where the **1x** is displayed in *orange* and notes which target counter is currently being displayed. The **AUX1** button can be used to change the counter. The counters are:

   1x = 10,000 Target
   2x = 20,000 Target
   3x = 30,000 Target
   4x = 40,000 Target
   5x = 50,000 Target
   10x = 100,000 Target
   DF = Double Flash Sensor

   where ***DF*** checks Double Flash Sensors.

2. Check the Ball Return Sensor & Ball Release Sensor
   The counter is displayed in *red* and is the first pair of digits. The next 2 digits, displayed in *green*, is the counter for the **Ball Release** sensor. The last 2 digits are the counter for the **Ball Return** sensor displayed in *yellow*. The counters will count from **0 to 99** each time it's sensor is tripped. Even when not displayed, the **Target** and **Double Flash** counters, will increment. To clear all the counters hold the **START** button down, press and release the **AUX1** button, and then release the **START** button.

3. Test Ball Release Solenoid
   Pressing the **START** button will activate the **Ball Release Solenoid** and release **1** ball until the Ball Release Sensor is activated (at this time, the Ball Release Solenoid will deactivate). To drop all the balls at once hold the **START** button, press and release the **AUX2** button, and release **START.** This will latch the **Ball Release Solenoid** on. Press **START** to deactivate the solenoid.

4. Test Target Lamp
   To test the **Target Lamp** press the **AUX2** button to toggle the lamp on or off.

   To **Exit** and return to the test menu press the **AUX1** and **AUX2** buttons at the same time.

A: Target	
Button	**Function**
RESET	Exit Test Mode and enter Game Attract Mode.
AUX1	Change target counter being displayed.
AUX2	Turn on/off target lamp.
START	Activate/deactivate solenoid.
AUX1 {START}	Clear all counters.
AUX2 {START}	Latch ball release solenoid on.
AUX1/AUX2	Exit target and return to Test menu.

B. COIN

Check Coin Switch/Counter

The active coin counter is displayed in *red* and is the first pair of digits. The next 2 digits, displayed in *green*, are the counter for the **Coin Switch**. The number of coins and the coin counter is incremented by the Coin Switch. The last 2 digits are the counter for the **Number of Games** displayed in yellow and is activated by the START button. Press and release the **AUX1** button to clear all the counters.

B: Coin	
Button	**Function**
RESET	Exit Test Mode and enter Game Attract Mode.
AUX1	Clear all counters.
AUX2	Unused.
START	Shows number of games.
AUX1/AUX2	Exit target and return to Test menu.
COIN SWITCH	Increments # coins and counter

C. TICKETS

1. Test Ticket Machine
   a) The **Ticket** test actually contains (2) different tests. One is for checking out the ticket machine and mechanical ticket counter and the other is for testing the **Payout** option.

   b) While the instructions are being displayed press **START** to scroll the instructions. Press **AUX1** to activate the ticket machine test. Pressing **AUX2** will start a second set of instructions for running the **Payout** test (see section below).

   c) On entry to the test, the display changes to: **00 xxx n**

   d) The first 2 digits are displayed in *green* and will increment each time the **AUX1** button is pressed. This is the number of tickets to dispense. The *xxx*, displayed in *red,* is the last 3 digits of the ticket counter. The last number, ***n,*** is either a *yellow* **0** or **1** and is the state of the "*Notch Detect"* from the ticket machine.

   e) Use the **AUX1** button to increment the number of tickets to dispense and the **START** button to start dispensing. As each ticket is dispensed the *green* number will decrement and the *red* ticket counter will increment. The *yellow* notch digit will change according to the state of the "*Notch Detect"* but in normal operation will go to **0** and back to **1** almost too fast to be seen.

   NOTE: If a problem occurs with dispensing tickets the *green* and *yellow* digits will start to flash.

C: Ticket (ticket test)	
Button	**Function**
RESET	Exit Test Mode and enter Game Attract Mode.
AUX1	Increment tickets to dispense
AUX2	Go to payout test.
START	Dispense tickets.
AUX1/AUX2	Exit Ticket and return to Test menu.

2. Payout Test
   a) The **Payout** test starts by displaying it's instructions. Press **AUX1** or **START** to enter the test. Press **AUX2** to go to the **Ticket** test. On entry to the test the display shows: **0000**

   b) Use the **AUX1** button to increment the score displayed by **10,000** points. The ticket machine will dispense tickets as setup in the **Payout** option. The **START** switch will reset the score to **0000.**

   c) To go to the **Ticket Test**, press **AUX2.**

C: Ticket (payout test)

Button	**Function**
RESET	Exit Test Mode and enter Game Attract Mode.
AUX1	Increment tickets to dispense
AUX2	Go to payout test.
START	Dispense tickets.
AUX1/AUX2	Exit ticket and return to Test menu.

D. SOUND

The sound test will check out the sound system. There are **15** different sounds that can be played. When first selected, instructions will be continually displayed. Pressing the **START** button will exit the instructions and the display will show:

S:01 V:nn

The ***S:*** designates the sound to play, on entry this is *Sound #1,* which is silence. The **V:** designates the volume and on entry is set to the volume set in the **Attract** option. This buttons **AUX1** and **AUX2** will cycle through the different sounds. Pressing **START** will play the sound. Holding **START** and pressing **AUX1** will increase the volume. Holding **START** and pressing **AUX2** will decrease the volume.

D: Sound	
Button	**Function**
RESET	Exit Test Mode and enter Game Attract Mode.
AUX1	Increment sound to play.
AUX2	Decrement sound to play.
START	Play sound.
AUX1 {START}	Increase volume.
AUX2 {START}	Decrease volume.
AUX1/AUX2	Exit Target and return to Test menu.

E. DISPLAY

The Display test will test the colors of the display. To scroll the instructions, press **START**. There are approximately 30 colors that can be displayed. Press **AUX1** to move forward trough the colors and **AUX2** to move backward throughout the colors. If there are no inputs from the Player Controls within 15 seconds, the display will blank out. Pressing **START** will turn the display back on. To exit the display test, press **AUX1** and **AUX2** at the same time.

E: Display	
Button	**Function**
RESET	Exit Test Mode and enter Game Attract Mode.
AUX1	Increment colors.
AUX2	Decrement colors.
START	Return display from blank out.
AUX1/AUX2	Exit Display and return to Test menu.

F: OUTPUT

The Output Test tests the communication of each switch or light with the **START** button to the controller board. Press **START** to select the test and scroll the test instructions. To start the test, press **START** again. **AUX1** will increment each test and **AUX2** will decrement each test. Pressing **START** will toggle *ON (yellow)* and *OFF (red)* each output.

F: Output	
Button	**Function**
RESET	Exit Test Mode and enter Game Attract Mode.
AUX1	Increment communication test.
AUX2	Decrement communication test.
START	Toggle on/off
AUX1/AUX2	Exit Output and return to Test menu.

The display will show **Jnn-xx** where ***Jnn,*** shown in green, represents the location of the connector on the controller board and ***xx***, shown in red/yellow, is the pin number associated with the appropriate output.

Connector-Pin	Function
J3-1	Solenoid
J3-4	Target Lamp
J3-7	Rope Lamp 1 of 3
J3-8	Rope Lamp 2 of 3
J3-9	Rope Lamp 3 of 3
J14-14	Outside Double Flash
J14-13	Middle Double Flash
J14-12	Inside Double Flash
J14-11	Center Lightning Bolt
J14-7	Start Button
J14-5	Jackpot/E-net
J17-6	Coin Counter
J18-8	Ticket Counter
J18-2	Ticket Dispenser: Press START once to turn on then again to turn off.

Press **AUX1** and **AUX2** to exit the output test.

G. INPUTS

The Input Test tests the communication of each sensor from the various locations on the alley to the controller board. Press **START** to select the test and scroll the test instructions. To start the test, press **START** again. **AUX1** will increment each test and **AUX2** will decrement each test.

G: Input	
Button	**Function**
RESET	Exit Test Mode and enter Game Attract Mode.
AUX1	Increment communication test.
AUX2	Decrement communication test.
START	Unused
AUX1/AUX2	Exit Input and return to Test menu.

The display will show **Jnn-xx** where ***Jnn,*** shown in green, represents the location of the connector on the controller board and ***xx***, shown in red/yellow, is the pin number associated with the appropriate output.

Each sensor will activate the displayed communication test. The ***xx*** will toggle between yellow and red (when activated).

Connector-Pin	Function
J15-14	Ball Count Sensor

J15-13	Ball Release Sensor
J15-12	Double Flash Sensor (option)
J15-11	Key Switch (option)
J15-10	Start Button
J15-9	Jackpot/ E-net
J16-14	10K sensor
J16-13	20K sensor
J16-12	30K sensor
J16-11	40K sensor
J16-10	50K sensor
J16-9	100K sensor
J17-2	Coin switch
J18-4	Ticket Notch

Press **AUX1** and **AUX2** to exit the output test.

H. MASTER MEMORY CLEAR

1. PRESS and RELEASE ***RESET*** - The display will read the Eprom Version
2. PRESS and HOLD ***AUX-1*** & ***AUX-2***
3. PRESS & RELEASE the ***RESET*** – The display will go blank.
4. RELEASE the ***AUX-1*** & ***AUX-2*** – The display will read “PRESS START” then “CLEAR ALL”
5. PRESS & RELEASE ***START*** – The display will read “SET COIN XXXX”
6. PRESS & RELEASE ***AUX-1*** & ***AUX-2*** simultaneously – The display will read “MEMORY CLEARED” then “SYSTEM RESET”

The MASTER MEMORY has been reset and the DEFAULTS have been installed.

TICKET DISPENSER

A. Basic operation of ticket dispenser model DL1275S

When the control unit calls for a ticket to be issued, the motor in the dispenser is turned on. When a ticket is dispensed, the opto beam breaker senses a notch in the ticket and sends back a signal to the control unit. At this time the ticket counter is incremented. If no more tickets are called for the motor is turned off.

Tickets are moved through the ticket chute by means of a power driven roller which is spring loaded against an idler roller. The power driven roller is mounted on the output shaft of the motor gear train assembly. The motor assembly is mounted to the pivot bracket assembly in the two Oilite Bearings. The motor assembly has a limited free swing, limited by a single pin engaged in the brake sprag. The brake sprag engages the roller as an anti-theft device. With the free swing of the motor assembly, the direction of torque, when the electric power is applied, is in a direction so as to release the brake sprag. When an attempt is made to pull tickets from the machine with the power off, the torque is reversed and the brake sprag is engaged. Also, the pulling of tickets will cause the pivot bracket assembly to apply a pressure to the power driven roller against the ticket and idler roller greater than the pre-set spring load. This will cause the course knurled surface of the rollers to increase the grip on the tickets. One ounce of pull will apply 20 lbs. of pressure on the rollers.

B. Ticket Dispenser Components

1. Controller Board
   Attached to the ticket machine is a transistor motor controller which provides dynamic braking to ensure accurate and repeatable ticket stopping after issuing any number of tickets. Included as part of the controller is ticket sensing by means of an Opto Beam Breaking Sensor. Also included is signal conditioning which provides high electrical noise immunity. The output of the ticket sensing circuitry is equivalent to a single pole double throw switch.

2. Roller Tension Spring
   The roller tension spring keeps constant tension on the tickets, which insures proper delivery and prevents tickets from being pulled through when the dispenser is idle. To increase tension, loosen screw, move spring forward, and retighten screw. Tension is adjusted correctly when the tickets cannot be pulled from the dispenser.

3. Ticket Guide Spring
   The ticket guide spring insures that the notches in the tickets pass through the Opto Beam Breaker Sensor. To increase tension, loosen screw, and move the outer spring up, and retighten screw. This changes the tension on the inner spring. Tickets should be snug between spring and side plate but not deformed by excess tension. This spring is adjusted at the factory for 1-3/16” wide tickets.

4. Ticket Stop Adjustment
   The ticket stop adjustment allows positioning of tickets while machine is off. The ticket should protrude through slot approximately 1/16". The ticket dispenser PC board is mounted with two screws and two slotted holes. Loosening the screws and moving the board forward will allow the tickets to stop farther out beyond the edge of the slot.

C. Conditions Which Could Cause Ticket Error Code "CALL" To Be Displayed.

1. Dispenser out of tickets.
2. Insufficient tension on roller tension spring.
3. Tickets stopping back too far in slot causing tickets to jam.
4. Ticket guide spring not guiding tickets.
5. Dirt on opto beam breaker.
6. Missing notches on tickets.
7. Defective dispenser controller board or motor.

D. Loading of Tickets

Tickets are entered in the rear of ticket chute and pushed forward. The power driven roller will be spring loaded against the idler roller and tickets will not pass until the rollers are clear of each other. This is accomplished by use of thumb and index finger, one placed on the block to which the spring is attached, the other on the pivot bracket assembly, then squeeze. Push the tickets through until you see the edge of the ticket. Align the notch in the center of the optic sensor.

E. Ticket Dispenser Replacement

The ticket dispenser can be removed and replaced by removing the nut on the rear of the lock on the door and lifting out the dispenser. Remove the door stop chain on the old dispenser and connect to the new using the same hardware. Place the dispenser into the slot on the door making sure that the left side of the unit is against the left inner frame of the door (This is to insure clearance of the dispenser connector and the door frame). Tighten the bracket onto the lock reusing the nut. Reconnect the connector.

F. Ticket Sales Information

Tickets are available through: National Ticket Company in Shamokin, Pennsylvania (717) 648-6803. We have found these tickets to be of the best quality for use in Skee-Ball Machines.

SKEE-BALL TOO
TROUBLESHOOTING GUIDE

Prior to calling Skee-Ball with questions regarding service or parts orders, please have the Model # and Serial # available. These numbers can be found behind the display glass on the left inside of the cabinet, and on the back of the rear cabinet assembly.

It is also important to know the Software Revision Number. To get the software number, open display glass and remove display assembly. E-prom number will be located at the bottom right corner of logic board.

Problem:	**Suggested Action:**
No Display.....	1. Check to see that the alley is plugged in. 2. Remove the display glass and check the **ON/OFF** switch located on the power supply. It should be pushed in. 3. Check the 5 amp Fast-Blo Fuse located on the power supply for continuity. 4. Check cable connections to logic board. 5. Replace the display assembly with a tested new assembly.
Display not showing proper information	1. Power the game down for 10 seconds and then plug it back in. 2. Inspect the cable between the 2 PCB assemblies. 3. Replace the display.

Problem:	**Suggested Action:**
Ball count inaccurate or missing altogether.....	1. Check the connector on the sensor mounted to the side of the rear cabinet next to the No Score track or in the ball return channel at the bracket mounted to the rear bulkhead of the alley. 2. Clean the optic sensor. 3. Replace the optic sensor.
Ball release inaccurate or missing altogether.....	1. Remove channel cover and sensor mounting bracket and check the connection at the optic sensor. 2. Clean the optic sensor. 3. Replace the optic sensor.

NOTE: Refer to Figure 1 when replacing or cleaning the optic sensor. The sensor must be mounted properly or it can miss balls at game start.

Coins up but does not release balls.....	1. Check the fuse on the logic PCB at F4. This is a 1 amp Slo-Blo fuse. Littlefuse # 239.004. 2. If the fuse blows repeatedly, the solenoid may be shorted. Using an OHM meter, measure across the solenoid coil. If it is shorted, replace before continuing. A good solenoid should read about 21 Ohms. 3. Remove the channel cover and solenoid plate to check the 2 connections. 4. Inspect the spring and control rod, as well as the solenoid plunger for any possible jams. 5. Replace the Logic assembly.

Problem:	**Suggested Action:**
Game will not coin up.....	1. Check the connections at the coin switch. 2. OHM across the coin switch. If you do not read from a normally open to a closed position, replace the switch. 3. Manually activate the switch. 4. Replace the Logic assembly.
Target lamp does not light.....	1. Check to see light is plugged in. 2. Check to see bulb or starter hasn't come loose. 3. Replace bulb. 4. Replace starter.
Game does not give tickets.....	1. Check to see that there are tickets in the bin. 2. Are tickets jammed in the dispenser? Can you manually feed them through? 3. Go into the option setup and check to see that tickets are enabled. 4. Go into ticket test and perform the test according to the Hardware Test section of this manual. 5. Replace ticket dispenser. 6. Replace the Logic Assembly.

Problem:	**Suggested Action:**
Game does not score properly.....1.	Lift the target panel up and check the connections on the sensors.
	2. Clean the sensors.
	3. If all sensors are not working, check the connections on the main logic PCB at J16 according to the wiring schematics.
	4. Check +5VDC at power supply.
	5. Replace power supply.
	6. Replace Logic/Display Assembly.
No Sound.....	1. Go into Option Setup and check to see that the volume is turned up and that sound is not disabled.
	2. Check the connections at J21 and speaker.
	3. Replace speaker.
	4. Replace Logic board.
Counters do not work.....	1. Perform Hardware Test. If the meter still does not increment, check the connections.
	2. Replace counter.
	3. Replace Logic board.

CLEANING AND ROUTINE MAINTENANCE

1. Plastic Channel Covers, Display Panel:
   Skee-Ball, Inc. recommends using "Kleenmaster Brillianize" which can be purchased through Skee-Ball as Part Number 800600-1.

2. Painted Wood Surfaces:
   Skee-Ball, Inc. recommends any good furniture polish. Try on an area not seen by the public first. If the polish does not react with the paint or wood, use on the rest of the wood surfaces.

3. Black Bumper Strip on Runway:
   Skee-Ball, Inc. recommends "Armour All" protectant.

4. Target Rings:
   Skee-Ball, Inc. recommends warm soapy water. Do not use bleach. For excess dirt, a daub pad may be used away from the score stickers.

5. Runway Carpet:
   The flooring material requires periodical maintenance. The frequency that one must clean the flooring will depend on the intensity of play on the game. For areas where the material has been relatively clean, the flooring can be *well mopped and cleaned with clean water*.

   For areas under heavy use, where the floor gets very dirty or soiled, the use of a detergent or cleaner will be necessary. **Note: This detergent must be of the mild *non phosphate* type such as Glass Plus.**

   To avoid possible damage to the product, precautions must be taken in order to ensure that the following products and equipment are ***never*** used to maintain it. These are:
   a. **Floor maintenance pads** of any type of manufacture (RG.3M or Scotch Bright composition type cleaning or polishing pads.
   b. **Steel Wool** or abrasive brushes.
   c. **Cotton mops** (leave behind lint).
   d. **Abrasive or very alkaline cleaners** (such as conventional wax strippers, powdered cleaners, butyl cleaners) ***Note: Any cleaner used must have a neutral PH rating.***
   e. **Solvents** of any type, such as ether, acetone, ketone or any other product whose effects on PVC is not known.

6. Sensors:
   Skee-Ball, Inc. recommends blowing off the photosensors every month.

REPLACEMENT / SPARE PARTS

PART#	DESCRIPTION
DECALS	
800515-1	DECAL, #10,000 BLACK
800515-2	DECAL, #20,000 BLACK
800515-3	DECAL, #30,000 BLACK
800515-4	DECAL, #40,000 BLACK
800515-5	DECAL, #50,000 BLACK
800515-6	DECAL, #100,000 BLACK
800781-1	DECAL, DOUBLE FLASH
900033-1	TAPE, MYLAR (per foot)
TARGET BOARD	
200035-3	TARGET BOARD, COMPLETE
200054-1	POCKET, 10K
200054-2	POCKET, 20K
200054-3	POCKET, 30K
200054-4	POCKET, 40K
200054-5	POCKET, 50K
200054-6	POCKET, 100K
TICKET	
800051-1	COUNTER, COIN/TICKET
800289-1	SWITCH, PROG/AUX
200042-1	DOOR, TICKET DISPENSER
800507-1	FRAME, TICKET DOOR
800142-1	DISPENSER, TICKET
800253-1	PLATE, NARROW FACE
200053-1	LED, LOW TICKET
800449-2	BIN, TRIPLE STACK TICKET
800490-1	SWITCH, MICRO - LOW TICKET
COIN MECHANISM	
200044-1	ASSY, COIN MECHANISM
800508-2	DOOR & FRAME, COIN MECHANISM
800602-3	BRACKET, COIN MECHANISM MOUNTING
800671-X	COIN MECHANISM
900035-1	CHAIN, STEEL
800421-1	SHIELD, COIN BOX
800649-2	BOX, COIN
CARPET	
801009-1	CARPET, BACK ALERT (KIT)
800397-5	CLAMP, CARPET, EXTRUDED TRIM
800397-6	PLATE, KICK
800229-2	CLAMP, REAR, CARPET
200052-2	CARPET, “S’s” RIGHT
200052-1	CARPET, “S’s” LEFT
801072-2	PLINTH SET, RIGHT & LEFT, BLACK

PART#	DESCRIPTION
CHANNEL COVERS	
800774-1	CHANNEL COVER, L. REAR
800774-2	CHANNEL COVER, R. REAR
210005-1	CHANNEL COVER, R. FRNT.
210004-1	CHANNEL COVER, L. FRNT.
BALL SCORE TRACKS	
100083-1	BALL TRACK, NO SCORE FLOOR
800129-1	BALL TRACK, BALL DROP ABS (CUT)
800085-1	BALL TRACK, BONUS POCKET BALL DROP
UPPER CABINET	
200095-1	ASSY, CONTROLLER, COMPLETE
800760-1	CONTROLLER, NIE
210006-1	PANEL, LEXAN – SKEEBALL TOO!
800759-1	DISPLAY, TRI LED – NIC
100039-1	BEACON ASSY.
800758-1	POWER SUPPLY
800452-1	FIXTURE, FLORESCENT LIGHT
900022-2	T-MOLDING, YELLOW (per foot)
SIDE NETS	
800396-6	CAGE, L. SIDE (MAGENTA)
800396-5	CAGE, R. SIDE (MAGENTA)
800395-4	CAGE, FRONT (MAGENTA)
CABLES	
800883-10	CABLE, BACK CABINET MAIN
800883-11	CABLE, RUNWAY MAIN
800883-12	CABLE, LOW TICKET SWITCH
800883-14	CABLE, START SWITCH
800883-15	CABLE, BACK CABINET GROUND
800883-16	CABLE, RUNWAY GROUND
800883-17	CABLE, DISPLAY
800883-18	CABLE, SENSOR LEAD BACK
800883-19	CABLE, POCKET SENSOR
800883-20	CABLE, DUEL FLASH Rx / Tx
800883-21	CABLE, DUEL FLASH Tx
800883-22	CABLE, SPEAKER
800883-23	CABLE, BALL RELEASE
800883-24	CABLE, BALL COUNT/RELEASE
800883-25	CABLE, J2 AC POWER
800883-28	CABLE, J1 DC POWER
800883-29	CABLE, RUNWAY SOLENOID
800783-2	CABLE, BEACON
800202-12	CABLE, FRONT SUPPORT GROUND

REPLACEMENT / SPARE PARTS

PART#	DESCRIPTION
SINGLE BALL ASSY.	

800956-2	ASSY., COMPLETE SINGLE BALL
800954-1	MOUNT, BALL STOP
800067-1	SOLENOID, 4x240
100020-1	PIVOT ARM
600003-1	3 CONNECTING ROD
800773-3	SENSOR, OMRON 415
801115-1	ASSY, SENSOR BRACKET
800072-4	SPRING
800070-2	COTTER PIN, 3/32” DIA.
800070-3	COTTER PIN, 1/16” DIA.
800511-2	SPACER, #10 x 3/16” (LARGE)
800511-1	SPACER, #10 x 3/16” (SMALL)
800069-4	CLEVIS PIN, 3/16” x 5/8”
800069-5	CLEVIS PIN, 5/32” x 1 ¼”
800069-1	CLEVIS PIN, 5/16” x 1”

DISPLAY

200055-3	PANEL, LEXAN - SKEEBALL TOO!
800167-1	KNOB, BLACK PLASTIC, DISPLAY

MISCELLANEOUS

100076-1	OBSTACLE ROD ASSY.
900036-1	BANKING STRIP, RUBBER – 90” LONG
100069-1	BANKING STRIP, FRONT EDGE
800179-15	BALL, PLASTIC – SKEE
800174-1	KNOCK OFF SWITCH
800056-2	SPEAKER, 6X9 OVAL
800134-1	BALL DEFLECTOR BUMPER
210027-1	KIT, SCREWLESS CHANNEL COVER
800065-4	LOCK, BH754 – CASH BOX
800065-1	LOCK, 1612 – COIN DOOR
800065-3	LOCK, 2316 – TICKET DISPENSER
800065-2	LOCK, 2316 – TICKET DOOR
800109-BH754	KEY, BH754 – CASH DOOR
800109-1612	KEY, 1612 – COIN DOOR
800109-2316	KEY, 2316 – TICKET DISPENSER / DOOR

FCC INFORMATION

This equipment has been tested and found to comply with the limits for a class “A” digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC WARNING

Substitute part or equipment modifications may void FCC type acceptance.

UL NOTICE

This game complies with UL22 Standard for amusement and gaming machines.

UL WARNING

Substituting parts or equipment modifications will void the UL listing.

RETURNED COMPONENTS

Should your product need servicing, please have the following information ready prior to contacting Skee-Ball, Inc.

1. Model # of the Unit
2. Serial # of the Unit
3. Serial # of the Part (i.e. – Main Processor Board) if applicable.

Most of this information can be found on the UL tag attached to rear of the product.

When returning a unit for repair, call prior to returning your product to obtain a Return Material Authorization number (RMA#). Failure to obtain an RMA# can lead to parts being delayed in repairs / shipping or return without repairs being completed. Write the RMA# on the outside of the package. Include the following information inside of the packaging:

1. Name, Address, Phone & Fax Numbers including Area Code.
2. Product Serial & Model Numbers.
3. RMA#
4. Contact Name
5. If possible, symptoms and / or problems experiencing.

Postage, insurance and / or shipping costs incurred while presenting your unit for repairs (in or out of warranty) is the responsibility of the consumer. Skee-Ball, Inc. will ship warranty repaired / replaced items back to the consumer free of charge via UPS Ground, U.S. Mail or other comparable shipping means. Any Express Mail or Overnight Shipping expenses are at cost to the consumer.

Skee-Ball, Inc. can be contacted at:

Skee-Ball, Inc.
121 Liberty Lane
Chalfont, PA 18914
(215) 997- 8900 – Voice
(215) 997-8982 – Fax
penn@skeeball.com
Mon – Fri 8am – 5pm E.S.T

Skee-Ball, Inc.
3669 East LaSalle
Phoenix, AZ 85040
(602) 470-1490 – Voice
(602) 470-1495 – Fax
phx@skeeball.com
Mon – Fri 8am – 5pm M.S.T

Skee-Ball, Inc.'s distributors are independent, privately owned and operated. In their judgement, they may sell parts or accessories other than those manufactured by Skee-Ball, Inc. We can not be responsible for the quality, suitability, or safety of any non- Skee-Ball, Inc. part, or any modification, including labor, which is performed by such distributor.

WARRANTY INFORMATION

Skee-Ball, Inc. warrants to the original purchaser that the product will be free of defects in workmanship and materials. The main processor and display boards are warranted for 1 year from the date of purchase. During the first 6 months, the main processor and display boards will be replaced by our Advanced Exchange Program. All other components are warranted for 90 days from the date of purchase. These parts will be replaced under our Advanced Exchange Program for a period of 90 days.

If your equipment fails to conform to the above mentioned warranty, Skee-Ball, Inc.'s sole liability shall be, at it's option, to repair or replace any defective component with a new or re-manufactured component of equal or greater OEM specifications.

Skee-Ball, Inc. will assume no liability whatsoever, for costs associated with labor to replace defective parts, or travel time associated therein.

This warranty is contingent upon proper and normal use of the product and does not cover equipment, which has been modified without Skee-Ball, Inc. written consent. Which has been subject to unusual physical stress, incorrect assembly, hook-up, other misuse, neglect, improper electrical current, failures caused by natural disasters such as fire, flood, and lightning or as a result of any unauthorized repairs or alterations.