STRATA

HOT SHOTS TENNIS

INSTALLATION MANUAL

STRATA GROUP, INC.

SERVICE/SALES	(800) 262-0323
FAX	(708) 437-2473

WARRANTY, REPAIR, AND RETURN POLICY

1. *90 day full warranty on all electronic components.

2. There is a minimum $40.00 service charge for all non-warranty repairs or returns.

3. For all servicing return to **STRATA**.

4. ANY non-factory repair or attempted repair voids warranty.

5. AAMA decal must not be removed from the PC boards.

   * All warranty periods begin on the date of purchase from **STRATA**

RETURN MERCHANDISE AUTHORIZATION - (RMA)

1. All returned merchandise must have an RMA number marked clearly on the outside of the package.

2. You must obtain all RMA numbers from your authorized **STRATA** distributor. Please have your **STRATA** serial number available when calling for an RMA number.

3. Merchandise returned without an RMA number will not be accepted.

4. Advance replacement boards will be shipped to distributors or, at the distributor's request, will be shipped directly to the operator.

5. Advance replacement boards will be billed to the distributor until **STRATA** receives the returned board, at which time a credit will be issued.

6. All repairs and/or replacements will be shipped within 24 hours of receipt or request (subject to availability).

BEFORE YOU START...

1. Have you checked to see if all the needed parts have been included?

2. Is the game you have chosen to convert able to supply all the required voltages for the new game (+5, & +12 vdc)? NOTE: some games (i.e. Ms. Pac Man, Galaxian, etc.) regulate their voltages on the main PC board. This makes the existing power supply inappropriate and hazardous to your new game. These games will require a power supply change. Many game supply houses can offer you a switching regulated power supply for a relatively low cost. Ask your distributor.

3. Is the monitor configuration compatible? It can be difficult to change the monitor from a horizontal to a vertical mount. Installation will be easier if you choose a vertical mount cabinet.

4. Do you have the necessary tools? (See the recommended tool list on page 5).

FCC REGULATION COMPLIANCE

This device complies with the limits for a class "A" computing device pursuant to sub-part "J" of part 15 of FCC rules, which are designed to provide reasonable protection against interference when operated in a commercial environment.
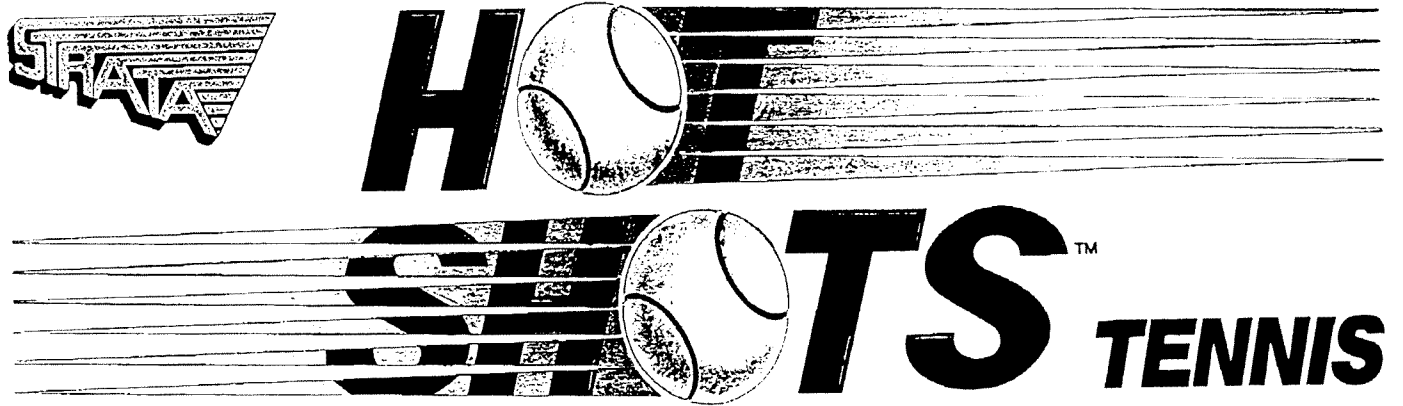
The use of an aluminized cardboard PC board cage with this game is not necessary for FCC compliance and is discouraged.

Operation of this equipment in a residential area is likely to cause interference in which case the user, at his own expense, will be required to take whatever measures may be necessary to correct the interference.

INSTALLING YOUR

HOT SHOTS TENNIS

CONVERSION PACKAGE

TABLE OF CONTENTS:

HOT SHOTS TENNIS

PACKAGE CONTENTS

UPRIGHT KIT

1) Printed Circuit Board (PCB)
1) Set of Nuts, Bolts, and Spacers
1) Connecting Wire Harness (JAMMA)
2) Joystick Assemblies
4) Button Assemblies
1) Marquee Styrene
1) Marquee Plexiglas
1) Control Panel Overlay
1) Set of Side Graphics (2 pieces)
1) Set of Function Labels
1) Manual

COCKTAIL KIT

1) Printed Circuit Board (PCB)
1) Set of Nuts, Bolts, and Spacers
1) Connecting Wire Harness (JAMMA)
2) Joystick Assemblies
4) Button Assemblies
2) Control Panel Overlays
2) Sets of Function Labels
1) Manual
2) Decals

POWER REQUIREMENTS: **MONITOR REQUIREMENTS:**

| + 5 VDC 2 amps	Vertical Mount Raster Scan
+ 12 VDC 2 amps	Positive or Negative Composite Sync

NOTE: The monitor must be mounted vertically.

RECOMMENDED TOOLS AND SUPPLIES

Phillips and Slotted Screwdrivers
Socket Set
Wire Cutters and Strippers
Pliers or Channel Locks
Electric Drill with 3/32", 1/4", and 7/16" Bits
1-3/16" Chassis or Sheet Metal Punch
Small File
Razor Knife and Sharp Blades
Straight Edge
Painting Supplies (if you do your own painting)
    Air Brush or Paint Sprayer
    Paint Roller and Pan
    Paint Brush
    Paint (and primer)
    Sand Paper
    Putty Knife and Wood Putty
Staple Gun and Staples
Soldering Iron and 60/40 Resin Core Solder
Vacuum Cleaner
Assorted Fastening Hardware
Heat Shrink Tubing (3/32",1/8", and 3/16")
Masking Tape
3-1/2" or 4" Wire Ties
Mild Liquid Soap and Water Solution

IMPORTANT NOTE

Through usage of the very latest technology this game requires far less power to operate than most games currently on the market. The outputs of many "regulated" switching power supplies actually vary with load. For this reason the power supply from an old game may not be correctly adjusted for HOT SHOTS TENNIS. Therefore, it is very important to adjust the +5 vdc supply WITHOUT connecting the PC Board, then readjusting later, after the PC Board has been installed. Damage will occur if the power supply is outside the acceptable limits (between 4.8 and 5.5 vdc).

HOTS TENNIS
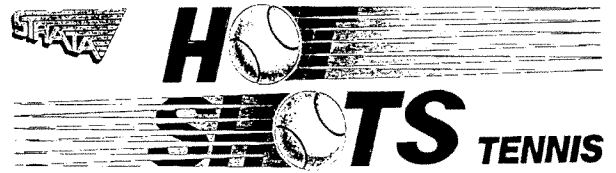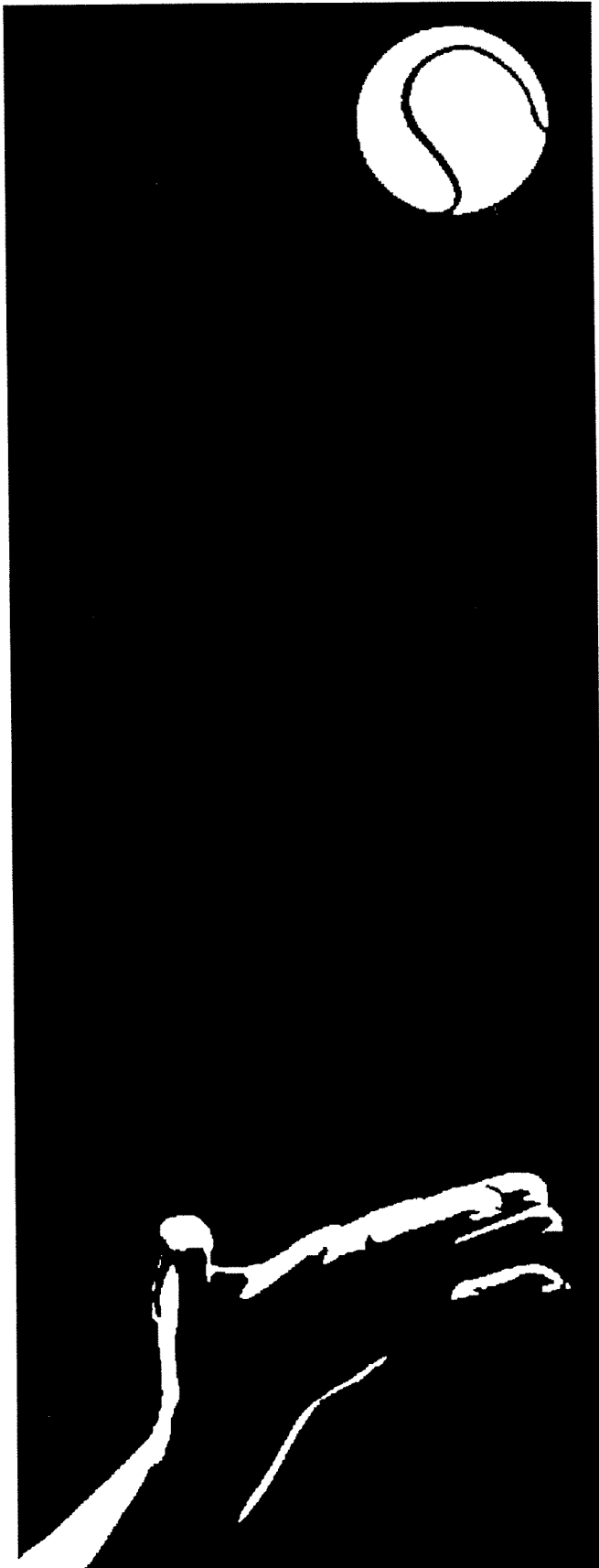
GAME DESCRIPTION

● One or two can play, simultaneously, and see the action from their own points of view.

● 32 top seeded players to choose from as opponents.

● Racket may be swung using a hard, soft or lob shot.

● Helpful blue dot turns red when player should swing.

● Place serve anywhere in opponent's service box by moving joystick left or right.

● Place ball anywhere in opponent's court by swinging either early or late.

● Earn bonus time by accumulating skill points.

● Buy additional time, when prompted, to complete a set or match.

● Regulation tennis rules apply.

Something to Think About

You have made a wise decision to transform an old game into this new game. This is by far the most cost effective alternative to maximize the return of your initial investment. All you provide is the cabinet with a power supply and monitor. We provide the rest. The end result is a new game at a very low cost.

Spend time on the cabinet's appearance (i.e. marquee, control panel, and cabinet graphics). You will raise your profits with the introduction of a new game package, especially if the cabinet looks clean and new.

The "new game look" should always apply to the inside of your game as well. A few wire ties and shrink tubing on your harness, some fastening hardware on your subassemblies, and a sweep with the vacuum cleaner will ensure that unnecessary glitches do not occur.

INSTALLATION PROCEDURES

GETTING STARTED...

Preparing the Original Game for the New Game

Remove the following:

1.   Main Logic Board(s)
2.   Control Panel
3.   Monitor Plexiglas
4.   Monitor Bezel
5.   Marquee
6.   Cabinet Graphics

For a fresh look, painting is highly recommended. Spray painting gives a better finish but if an air brush or paint sprayer is unavailable, a roller is second best. Be sure to cover all exposed surfaces not to be painted, such as the coin door and monitor. Use a small brush to finish up the details. If you do not have the facilities for painting, try an auto body shop.

If your cabinet has wood grain sides, remove the old graphics and adhesive. Adhesive may be removed with lacquer thinner.

Thoroughly clean out your cabinet.

Note concerning JAMMA harnesses:

If you are installing this game into a Dynamo cabinet with a pre-installed JAMMA harness, you will notice that it does not have a wire for the service switch. You will have to add a contact to the edge connector at the proper position (position R). Some cabinets (Dynamo included) have only one coin switch input and the coin switches are wired together. This prevents you from setting any of the possible four coin slots to different coinages. If you need different coinages, you will need to wire the switches separately.

INSTALLATION...

REMEMBER! Do NOT work with any part of the system plugged in (lights, monitor, or power supply).

Printed Circuit Board (PCB):

Mount the PCB to the side of the cabinet. Use the board as a guide and mark where to drill mounting holes. Drill pilot holes (3/32"). Attach the PCB to the cabinet with wood screws and spacers -- snug but not too tight or the board may warp or crack. Mount the PCB with the edge connector toward the top. This will keep the wiring harness from slipping off due to vibration. Be sure the board is not being flexed in any way.

Wire Harness:

Attach the wire harness connector to the PCB. This connector should be keyed and labeled "**COMPONENT SIDE**". Be sure it is mounted correctly. Notice the power supply wires are closest to the end marked "JAMMA" on the board.

Connecting the Wire Harness to the Existing Wires:

When you hook up the control panel, power supply, monitor, or other subassemblies that remain in the game cabinet to your new wire harness, try to use any existing secondary connectors (none are provided).

1.   Cut the original wire approximately three inches from the original connector. Strip off about 1/2" of insulation.

2. Slide a piece of heat-shrink tubing over the end.

3. Do not leave a lot of excess wire spooled up in your cabinet. Cut the wire from your new game harness to the length you need plus a few extra inches. Leave enough for proper cable dressing - do not make it stretch across the inside of the cabinet.

4. Solder the new wire to the original wire. Use a straight in-line splice.

5. Melt the heat-shrink over the splice.

ALWAYS: solder all wire splices. Just twisting the wires together will cause intermittent problems in the future;

use shrink tubing over wire splices. NEVER use electrical tape. Electrical tape may unravel due to the heat inside the cabinet;

use wire ties to keep associated wires bundled. Attach to the cabinet wherever it seems necessary to keep them neat and secure.

AVOID: bundling unrelated wires (such as the control panel and the monitor) as this may increase the likelihood of intermittent problems due to noise. Run different bundles separately.

Power Wires:

1. Connect the wires that are designated for your power supply. You will need a supply of +5 vdc, and +12 vdc. The +5 vdc must be regulated to within 5% (+ or - 0.25 vdc). The +12 vdc may be unregulated but should not stray too far or the sound may be affected. If the old game's supply does not provide these voltages, it will have to be replaced. A switching-type supply is recommended.

2. You will notice that you have more than one wire for each voltage. Use all wires supplied on the harness. This will ensure better power transmission and prevent overloading of the edge connector pads.

3. Tin all power supply wires before connecting them to the power supply. Loose strands may short out the supply. For best results, connect spade lugs to the ends of the power wires and attach to the screw terminals of the power supply.

Monitor Wires:

You will be connecting the RED, GREEN, and BLUE video drives along with the composite SYNC and video GROUND wires.

Sync:

This is the recommended approach for a Wells-Gardner monitor and should work with some others as well.

This game generates a composite sync signal which is accepted by most monitors. A DIP switch (SW1) on the logic board allows you to choose between positve and negative composite sync. Most monitors require negative sync. If your monitor requires positive sync, flip the switch towards the ON position.

If your monitor does not have a composite sync input but has separate horizontal and vertical sync inputs, try connecting the composite sync signal from the PCB to the horizontal sync signal on the monitor. This should produce a satisfactory result, although some adjustment of the monitor's sync controls may be necessary.

Speaker Wires:

Connect the speaker wires paying attention to their polarity.

If your cabinet has two speakers, connect both. If they are 8 or 16 ohm speakers, connect them in parallel, if they are 4 ohm, connect them in series.

Examine the speaker carefully. Is it really up to the high standards you wish to maintain at your location? Unfortunately, many arcade speakers are inadequate for reproduction of good game sounds. Remember, this is not just a video game -- it is a video/audio game. Far more effort was put into the sounds of this game than is put into most other arcade games. If the speakers are not up to it, replace them. A small investment in good speakers can make a world of difference in profits. Competent and reasonably priced speakers can be obtained from stores such as Radio Shack. Part numbers 40-1909B and 40-1268C both work well, with the latter being recommended. Car speakers also work well.

Position speakers as far from the monitor as possible. If placed too close, the speaker's magnet may deflect the monitor and cause strange coloration, which can usually be corrected by degaussing the monitor. Be sure to attach it securely with all four screws to minimize vibration and rattling. Make sure everything else in the cabinet is attached securely for the same reason.

Coin Door Wires:

1. Connect the designated wires to the coin switches.

2. Connect the door lamps to the +5 vdc supply. Some games have separate power supply outputs for the lamps.

3. Mount a service switch (not included) somewhere convenient inside the coin door area. This switch allows you to enter adjustables, run diagnostics, and see or clear audits. Make it readily accessible through the coin door.

4. Clean and lubricate your old coin mechs.

INITIAL TEST...

1. Carefully inspect the game for loose power wires, exposed connections, and extra fastening hardware. Look for any stray strands from wires.

2. Make sure the PC board, monitor, power supply, and speakers are secure.

3. Double check your connections.

4. With the board disconnected from the harness, turn the power on and adjust the +5 supply to be as close to +5 vdc as possible. **This is very important to prevent damage to the game board.** Turn the power off and connect the harness to the board.

APPLYING POWER...

1. Plug in the game and turn it on.

2. Look and smell for smoke (TURN IT OFF *IMMEDIATELY* IF ANY IS NOTICED).

3. Make sure the green and yellow LEDs on the PC board are flashing. If not, something is wrong -- turn off the game.

4. Listen for sound. A few notes should play on power up.

5. If you do not hear any sounds and the green LED is flashing, try turning up the volume and check the speaker connections. Dropping a coin through a coin switch should cause a sound.
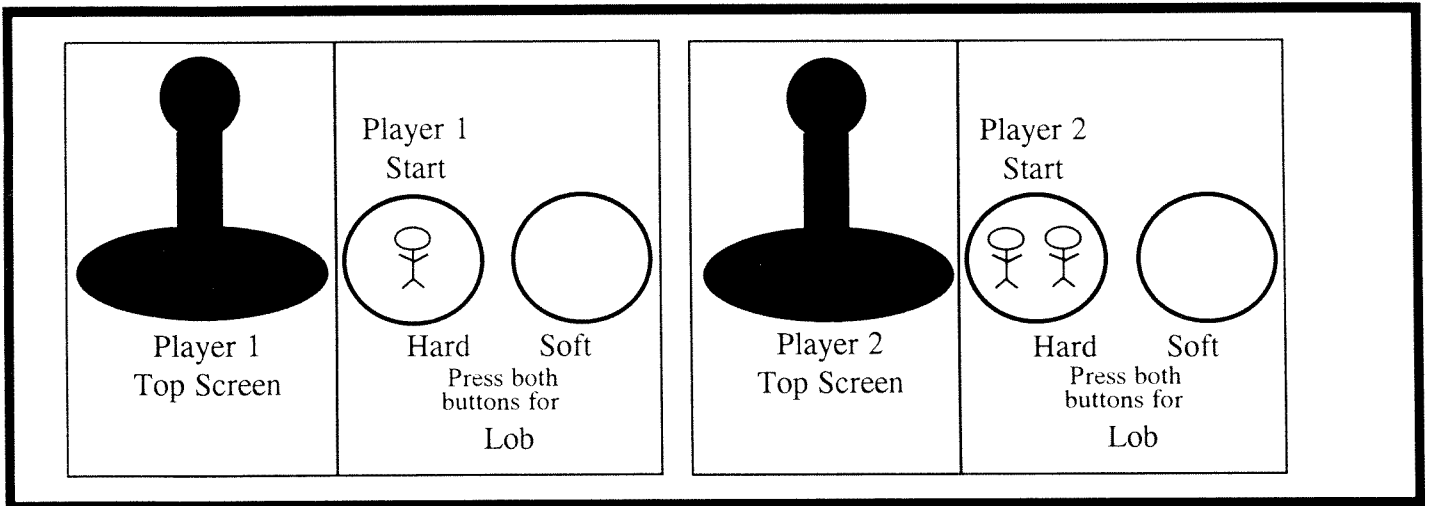
6. Measure the +5 volts on the PC Board. This can be measured across an IC or any of the yellow decoupling capacitors above the IC's. The voltage should be adjusted between +5 volts and +5.2 volts.

7. Look at the image on the monitor. If it is not in sync and you cannot stop it from rolling by adjusting the monitor's sync controls, try flipping SW1 on the logic board.

8. How is the picture?
    o Is it centered?
    o Is it too bright, too dim?
    o Is it in focus?

    Check your monitor manual to make adjustments. Some test patterns are available through the game's diagnostics by pressing the service switch. Use them when making any adjustments. See page 16 for information about diagnostics. Proper monitor adjustment is very important.

Control Panel Assembly:

1. Remove all the old buttons, joysticks and wires from the control panel and set aside. Do not remove the original panel overlay until the new holes have been drilled.

2. Using joystick and button labels provided, mark positions on the panel for new holes. If possible, mark for new holes while the game is on. Joysticks should be within the boundries of the video tennis court. Be sure button and joystick labels are even. (See opposite page for positional information)

3. Drill (or punch) the holes marked for buttons and bolts. Use a chassis or sheet metal punch for best results on button holes. Cut holes for the joystick mounts.

4. Use a file to smooth out the edges of all the new holes.

5. Cover old holes with a wood or metal plate.

6. Remove the original graphics overlay. Clean up the panel. Peel the top half of the protective backing off of the graphics. Start from the center and smooth out your overlay making sure you have about an inch of excess coming off the top. Watch out for bubbles. Peel off the bottom half and repeat. Trim off the excess overlay material with a sharp razor knife.

7. Adhere the function labels. Be sure they are straight.

8. Wire up the mounted joysticks and buttons.

Player 1
Start

Player 1
Top Screen

Hard   Soft
Press both
buttons for
Lob

Player 2
Start

Player 2
Top Screen

Hard   Soft
Press both
buttons for
Lob

Marquee Installation:

Using the original marquee as a template, center your new marquee graphics and score the new marquee deeply to fit the cabinet. Break off excess with pliers. Be sure the light behind the marquee works.

Side Graphic Installation:

1. The sides of the cabinet should be very clean, smooth, and free of any old adhesive, dust, etc.

2. Mark position of decal lightly with pencil (centered on upper half of cabinet).

3. Spray the side of the cabinet with soap and water solution and leave wet.

4. Peel off the top 1/4 of the decal backing and apply to the cabinet starting at the top with a smoothing motion. Smooth down until decal is in place.

5. Squeegee all bubbles and ripples out of the decal. Use a piece of cardboard if you do not have a squeegee.

6. Position the decal exactly. The cleaner will allow some movement. Allow several hours to dry completely.

Ticket Dispenser Installation:

This game is capable of dispensing tickets through a Deltronics DL-1275 or similar ticket dispenser. Connection is through the 4-pin Molex plug at the right edge of the board marked "TICKET". It is pinned out as follows:

PIN   FUNCTION

1	Ticket Sense	Note that pin 1 is nearest to
2	Ground	the edge connector (and marked
3	Motor Enable	with a "1").
4	+12 vdc	

This is the same pin out (with a different connector) as the Deltronics DL-1275. If you wish to connect a ticket dispenser to this game you will have to make a cable with the proper connectors. The DL-1275 mates with a Molex #03-09-1041 or #03-09-1042. The game board connector mates with a Molex #22-01-2047 or #22-01-3047. Simply connect pins 1 through 4 on one end directly to pins 1 through 4 on the other end. If the ticket dispenser is not a DL-1275 you may need a different cable. Other electro-mechanical devices can be connected through this connector provided they use the same signals. The Motor Enable output is TTL-compatible and is high when the motor is turned on. The Ticket Sense input expects an open-collector TTL signal where low indicates the sensor is not blocked. When a ticket is to be issued, the Motor Enable line goes high until either the Ticket Sense line goes high then low again (indicating a ticket has passed) or until about 1/3 of a second passes (meaning dispenser is empty or jammed).

Finishing Touches:

1. Check the game inside and out for any imperfections. Secure any loose wiring or fastening hardware.

2. Make sure the coin door is tight and the coin mechs are well adjusted.

3. Make sure all subassemblies are firmly attached. Anything which is not mounted securely will rattle when the game is played. This game makes use of low-frequency sounds which can cause any loose joints to rattle.

4. Power up the game. Try all coin switches. Drop quarters or tokens through to check the coin mechs. Make sure the game is adding credits. Play the game. Do the start and swing soft/hard switches work? Do the joysticks work properly? If the player on the screen moves in different directions than those

of the joystick, make sure it is not rotated and that the proper connectors go to the proper places. Try playing the game with the volume up and listen for rattling as you play. Tighten anything which is making noise.

Setting The DIP Switch:

The DIP switch (SW1) is used for setting the upright/cocktail mode and video sync.

Position 1 - OFF - Negative Sync
ON - Positive Sync

Position 2 - OFF - Upright
ON - Cocktail

Position 3 - Not Used (Set To OFF)

Position 4 - Not Used (Set To OFF)

SETTING UP THE GAME...

Upon initial power-up, the game will initialize to factory default settings. These settings affect game elements such as number of credits per coin, playtime per credit, bonus time values, ticket dispenser on or off, etc. The following section will describe how to alter these settings, view the system audits, or run system diagnostics.

Operator adjustables, audits, and diagnostics can be accessed by pressing the service switch at any time. Settings and audited accounts will be saved after the power switch is shut off. When power is turned back on, the message "SYSTEM STATUS OK" will be displayed. If for some reason any of the settings or accounts were corrupted, or if the power is being applied for the first time, the message "SYS-TEM INITIALIZED" will be displayed and all factory defaults will be reinstalled. The battery on the logic board should have a life of approximately five years.

Pressing the service switch will take you to the operator service mode main menu. You will see this:

    EXIT
    OPERATOR ADJUSTABLES
    AUDITS
    DIAGNOSTICS

One of these items will be highlighted in red. To select an item, move (one player) joystick up or down to highlight the desired item and press (one player) start.

The main menu will lead to a series of menus. Use the joystick the same way to move from one menu to the next. Exiting any menu will lead back to the previous menu. When "EXIT" is selected from the main menu, the game will return to the attract mode.

OPERATOR ADJUSTABLES

The "OPERATOR ADJUSTABLES" menu allows you to customize the game by adjusting various game features.

VERTICAL SCREEN ADJUSTMENT:

This correctly positions the vertically set monitor video display. Use only if the screen can not be adjusted using the monitor adjustments.

GAME MODE:

This allows you to select between "FREE PLAY" or "COIN MODE". "COIN MODE" is the default.

RESETS:

There are three levels of reset: "RESET TO DEFAULT VALUES" will reset the Operator Adjustables, the High Scores and the Audits to their factory settings. "RESET HIGH SCORES ONLY" will reset the high score information only. "RESET AUDITS ONLY" will reset all of the audit data.

ATTRACT MODE SOUNDS:

The three levels of attract mode sounds are: "ALL ATTRACT MODE SOUND ON", "ATTRACT MODE MUSIC OFF", and "ALL ATTRACT MODE SOUND OFF". The default setting is "ATTRACT MODE MUSIC ON".

COIN DOOR SETTINGS:

Select the number of credits each coin door will be worth. It is possible to have up to four coin doors. Each coin door defaults to one coin.

NOTE

Like before, move the (one player) joystick up or down to select the desired item. Once on the desired item, move the joystick left or right to change the value. This will be true for any adjustable items that might be described below as well as the "COIN DOOR SETTINGS".

BONUS TIME ADJUSTMENTS:

"SECONDS PER POINT LEVEL" allows you to adjust the seconds given for winning skill points. Default bonus time is 10 seconds. "POINT LEVEL (X 1000)" allows you to determine the needed points before bonus time is given. Default point level is (X 1000) 1.

TICKET DISPENSER SETTINGS

This game is able to dispense tickets if the cabinet is equipped with a ticket dispenser. There are two settings; "ONE PLAYER TURN TICKETS ON OR OFF" or "TWO PLAYER TURN TICKETS ON OR OFF". The default settings are "OFF".

SET TICKET DISPENSER VALUES :

"TICKETS PER POINT LEVEL" allows you to set the number of tickets to be dispensed at one time. Default tickets is 1. "POINT LEVEL (X 100)" allows you to determine the number of points (X 100) needed before tickets are awarded. Default-point level (X 100) is 12.

Please note again that the tickets will only be dispensed if the ticket dispenser is enabled. During one player games, the ticket dispenser is enabled by selecting "ON" from the "ONE PLAYER TURN TICKETS ON OR OFF" menu. During two player games, the ticket dispenser is enabled by selecting "ON" from the "TWO PLAYER TURN TICKETS ON OR OFF" menu.

INITIAL COIN ADJUSTMENT:

This sets the number of coins initially needed to play a one or two player game. The default setting for a one player game is 1, and 2 for a two player game.

PLAYING TIME:

This adjusts the playing time and buy-in time, in seconds. The default game time for a one player game is 60 sec., and for a two player game, 90 sec. The Default buy-in time for a one player game is 75 sec., and for a two player game, 50 sec.

AUDITS

The "AUDITS" section will present to you a variety of game information. This information can be helpful in adjusting the operator adjustables described previously.

TOTAL DOOR ONE COINS:

This is the number of coins credited through door one.

TOTAL DOOR TWO COINS:

This is the number of coins credited through door two.

TOTAL DOOR THREE COINS:

This is the number of coins credited through coin door three.

TOTAL DOOR FOUR COINS:

This is the number of coins credited through coin door four.

TOTAL COINS:

This is the total number of coins credited through all the coin doors.

AVERAGE COIN TIME:

This is the average amount of time (in seconds) it takes to use one coin credit.

TOTAL BONUS TIME AWARDED:

This is a count of how many times bonus time was awarded.

TOTAL TICKETS DISPENSED:

This is a count of the total number of tickets dispensed.

TOTAL 1 PLAYER GAMES:

This is the total number of single player games played.

TOTAL 2 PLAYER GAMES:

This is the total number of two player games played.

TOTAL GAMES:

This is the combined total of all games played.

TOTAL BUY-INS:

This is the total number of coins accepted as buy-ins.

DIAGNOSTICS

The diagnostics section is used for running a variety of system tests.

VIDEO TESTS:

Test color and linearity of video display.

MEMORY TESTS:

Test for RAM and ROM validity.

SOUND TESTS:

Test used for determining if the sound system is functioning.

CONTROL TESTS:

Test functionality of all game controls.

GENERAL TROUBLESHOOTING

Symptom	Probable Cause	Solution
VIDEO PROBLEMS		
No picture	Video inputs are not hooked up. (Refer to JAMMA outputs & monitor specifications.)	Make sure switch 1 pos. 1 is in the correct position: OFF for negative sync monitors and ON for positive sync monitors. Most monitors are negative sync.
		Make sure there are good connections from the board's video outputs to the monitor's video inputs.
		Make sure the monitor is operating correctly. (Check it with another compatible board game.)
Scrambled picture	The sync switch set incorrectly	SW1 pos.1, OFF for positive sync, ON for negative sync.
Missing colors or a washed color	Bad connections	Check the video red, green and blue connections.
Bright, blurry or rolling picture	Misadjusted monitor	Adjust the monitor, not the board. (Refer to your monitor manual.)
Picture too large, too small, or off center	Misadjusted monitor	Adjust the monitor, not the board. (Refer to your monitor manual.)
Video image is flipped	Misadjusted monitor	Manually flip the monitor.
		Reverse the monitor's convergence wires. (Refer to your monitor manual.)

Symptom	Probable Cause	Solution
CONTROL PROBLEMS		
Joystick or buttons do not work, or are partly inoperable	Switches not properly connected	Make sure that the common post of the switch is connected to ground.
		Make sure each individual switch is working.
		Make sure that the signal wire for that particular switch is connected to the normally open post of the switch.
		Make sure that the signal wire has a connection from the switch to the board.
Ticket & coin counter not working	Misc.	Make sure +12v is hooked to the counter.
		The signal wire is not connected to the coin counter. (Check continuity.)
		Verify that the counter is good.
		Make sure tickets are in place.
SOUND PROBLEMS		
No sound	+12v power supply is bad.	Try another +12v power supply.
	Bad connection to the board.	Check for +12v power on the board.
	Misc.	Check the volume setting.
		Check the speaker connections.
		Make sure the sound status light is flashing on the board.

Symptom	Probable Cause	Solution

POWER UP PROBLEMS

Symptom	Probable Cause	Solution
No reaction when game is turned on.	Blown fuse	Power supply is too high. Power should be between +5v & +5.2v.
		Cabinet is not connected to earth ground. (All metal should be connected to the earth ground.)
		Short between power & ground check for foreign material.
		Disconnect the JAMMA harness and ticket dispenser and measure the resistance between power and ground. It should read around 200 ohms. (0 ohms is a dead short.)
		Make sure the Jamma harness itself is not shorted. (bare wires or frayed wires shorting together)
	No power from the power supply.	Replace power supply.
Power-up song repeats itself.	Power supply	Power supply too low. (Should ideally be between +5v & +5.2v.)
	Short on the board.	Check for loose or foreign material on the board.
	Open on socketed IC's.	Check for bent pins on socketed parts.
		Make sure that all IC's are seated in their sockets

NOTE: If fuse continually blows, please call STRATA service department before sending the board in.

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properly.

| Symptom | Probable Cause | Solution |

TICKET DISPENSER PROBLEMS

Tickets do not dispense.

Misc.

Make sure tickets are turned on in the Operator Adjustables section.

Make sure +12v and ground wires are connected to the dispenser.

Make sure the motorenable and ticksense are connected to the board. (Check continuity.)

Verify that the ticket dispenser is in good working condition.

Tickets do not stop dispensing.

Make sure tickets are placed properly in dispenser. (The ticket notch needs to be seen by the ticksense IR.)

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COLOR MONITOR SETUP INSTRUCTIONS
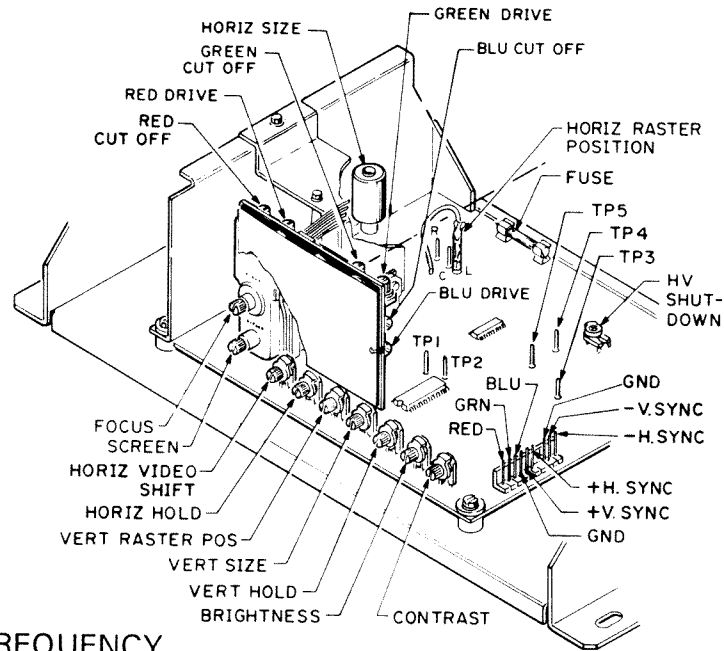
1. HORIZONTAL FREQUENCY

With the monitor being driven with the display signal, connect one jumper between TP1 and TP2 and another jumper between TP3 and TP4. Adjust the horizontal hold control until the picture stops sliding horizontally. Remove the jumpers. Do not use the horizontal hold control for horizontal centering. (See #3)

2. PICTURE SIZE

Adjust the vertical size control and the horizontal width coil for desired picture size.

3. PICTURE CENTERING

If the video is off center vertically, turn the vertical raster position control to move the raster up or down. If the video is off center horizontally adjust the horizontal video shift control to center the picture. If any additional horizontal positioning is required, move the horizontal raster position jumper to the left or right position.

4. BRIGHTNESS

Adjust the brightness control to obtain the proper illumination. Adjust this control such that the illumination is just barely extinguished from portions of the display which should be black.

5. CONTRAST CONTROL

Adjust the contrast control for the desired picture intensity.

6. FOCUS

Adjust the focus control for the best overall definition and fine picture detail.

T.V. MONITOR

Warnings

1. Power-Up Warning

   Caution: If the monitor is to be powered up outside of the game console, an isolation transformer must be used for the AC power source.

2. X-Radiation

   This chassis has been designed for minimal x-radiation hazard. However, to avoid possible exposure to soft x-radiation, it is IMPERATIVE that the EHT circuitry IS NOT modified.

3. High Voltage

   The color monitor contains HIGH VOLTAGES derived from power supplies capable of delivering LETHAL quantities of energy. To avoid DANGER TO LIFE, do not attempt to service the chassis until all precautions necessary for working on HIGH VOLTAGE equipment have been observed.

4. CRT Handling

   The picture tube encloses a high vacuum and due to the large surface area is subject to extreme force. Care must be taken not to bump or scratch the picture tube as this may cause the tube to implode resulting in personal injury and property damage. Shatter-proof goggles must be worn by individuals while handling a CRT or installing it in the monitor. Do not handle the CRT by the neck.

5. To prevent fire or shock hazard DO NOT EXPOSE THIS MONITOR TO RAIN OR MOISTURE.

TENNIS - JAMMA HARNESS

WIRE COLOR	SOLDER SIDE			PARTS SIDE	WIRE COLOR
Black	GND	A	1	GND	Black
Black	GND	B	2	GND	Black
Red	+5 vdc	C	3	+5 vdc	Red
Red	+5 vdc	D	4	+5 vdc	Red
		E	5		
Orange	+12 vdc	F	6	+12 vdc	Orange
	KEY	H	7	KEY	
	TICK COUNT	J	8	Counter 1	Blue-White
		K	9		
Yellow-Red	Speaker -	L	10	Speaker +	Red-Yellow
		M	11		
Green	Video Green	N	12	Video Red	Red
White	Video Sync	P	13	Video Blue	Blue
Brown	Service	R	14	Video GND	Black
		S	15		
Green-Yellow	Coin 2	T	16	Coin 1	White-Yellow
Orange-Blue	Start2\hard2	U	17	Start1\hard1	Brown-White
Green-Black	up 2	V	18	up 1	Red-White
Brown-Green	down 2	W	19	down 1	Orange-White
Green-Orange	left 2	X	20	left 1	White-Red
Brown-Blue	right 2	Y	21	right 1	White-Orange
White-Purple	soft hit 2	Z	22	soft hit 1	White-Brown
Green-Blue	coin 4!	a	23	coin 3!	Yellow-White
		b	24		
		c	25		
		d	26		
Black	GND	e	27	GND	Black
Black	GND	f	28	GND	Black

STRATA

709 West Algonquin Road
Arlington Heights, IL 60005
(708) 437-2704