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-=MARK=-

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ARLINGTON® HORSE RACING

FROM STRATA™

INSTALLATION MANUAL

www.basementarcade.com

STRATA GROUP, INC.

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

www.basementarcade.com

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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**

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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 one business day 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 vertical to a horizontal mount. Installation will be easier if you choose a horizontal mount cabinet.

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

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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.

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

ARLINGTON HORSE RACING

CONVERSION PACKAGE

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ARLINGTON® HORSE RACING

PACKAGE CONTENTS

1) Printed Circuit Board (PCB)
1) Set of Nuts, Bolts, and Spacers
1) Connecting Wire Harness (JAMMA)
1) Light Output Board
1) PCB to Light Output Board Cable
1) Light Cable for Lighted Buttons
7) Lighted Button Assemblies
1) Marquee Styrene
1) Marquee Plexiglas
1) Control Panel Overlay
1) Set of Side Graphics (2 pieces)
1) Manual

POWER REQUIREMENTS:		MONITOR REQUIREMENTS:
+5 VDC	2 amps	Horizontal Mount Raster Scan
+12 VDC	2 amps	Positive or Negative Composite Sync

NOTE: The monitor must be mounted horizontally.

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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", 1/8" and 7/16" Bits
1" 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)
- Sandpaper
- 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

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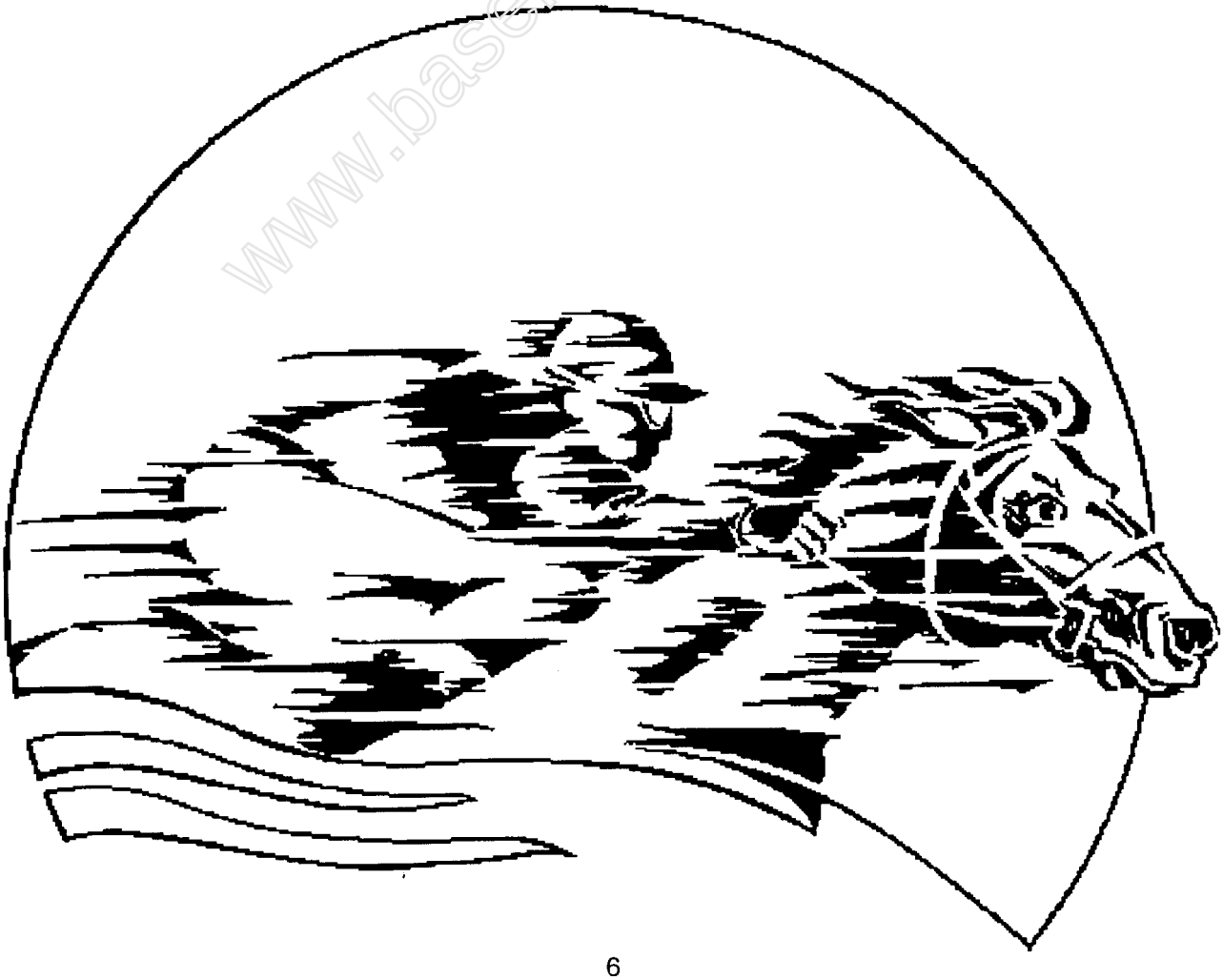
IMPORTANT NOTE

Through use 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 ARLINGTON HORSE RACING. 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).

ARLINGTON HORSE RACING

GAME DESCRIPTION

- Wager on horses to win, place or show.
- Wager on quinellas, perfectas, or trifectas.
- Watch six of twenty-four famous horses from the past run in a nearly limitless number of races.
- Earn points for winning wagers.
- Pull for your horse(s) to earn points.
- Continue to race with winnings, or cash in points for tickets. (If ticket dispenser is enabled.)



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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.

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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:

This game uses the JAMMA standard wiring harness. Therefore, if the cabinet you are using is already equipped with a JAMMA harness, your wiring work will be greatly simplified. However, a few differences need to be noted:

This game uses seven buttons which will replace the two joysticks of the JAMMA standard. No start buttons are used at all. Please refer to the JAMMA harness information at the back of this manual for additional information.

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.

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INSTALLATION...

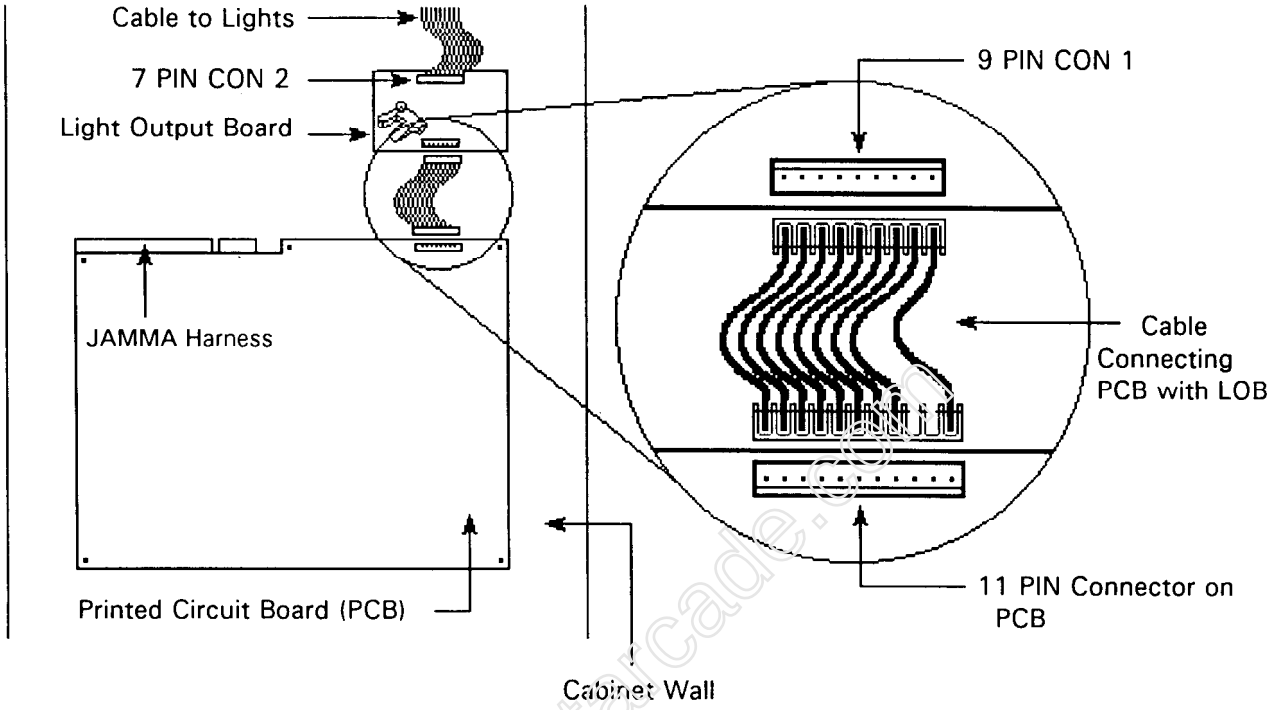
REMEMBER! Do NOT work with any part of the system plugged in (lights, monitor, or power supply).

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.

Light Output Board (LOB):

Mount the LOB to the side of the cabinet closest to the PCB so the LOB Cable connector reaches the PCB connector (see drawing). Use the LOB as a guide and mark where to drill mounting holes. Drill pilot holes (3/32"). Attach the LOB to the cabinet with wood screws and spacers -- snug but not too tight or the board may warp or crack. Be sure the board is not being flexed in any way. Connect the PCB to LOB using the provided cable (as shown on opposite page.)



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.

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 the existing secondary connector (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.

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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.

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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 others 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 positive 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.

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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. Readjust the power supply by measuring the voltage directly on the PCB. Adjust the power supply as close to 5.2 volts as possible.

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

5. Listen for sound. The game should say "READY TO GO" on power up.

6. If you do not hear any sounds and the yellow LED is flashing, try turning up the volume on the PCB and check the speaker connections. Dropping a coin through a coin switch should cause a sound.

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?

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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 17 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. Mark positions on the panel for new button holes as per the control panel diagram below.

3. Drill (or punch) the holes marked for buttons. Use a chassis or sheet metal punch for best results on button holes. Drill button tab holes next to button holes (see button template).

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. Mount the buttons in their appropriate positions (see drawing).

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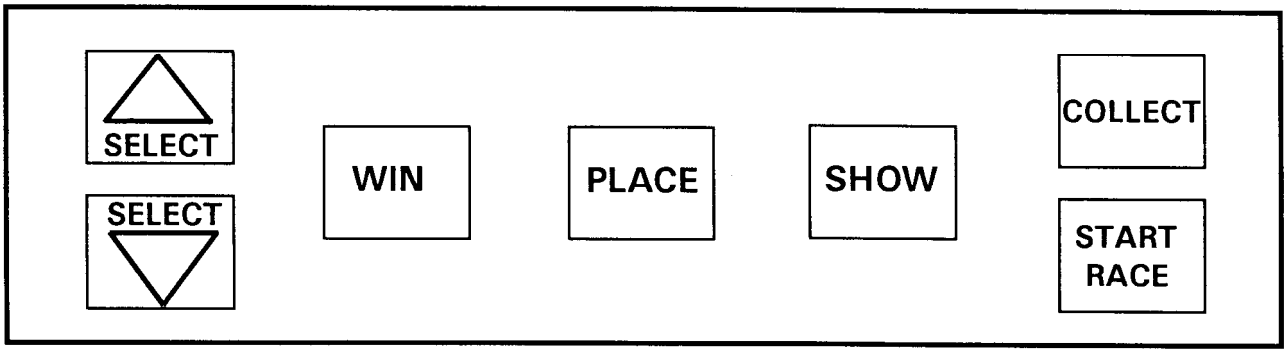
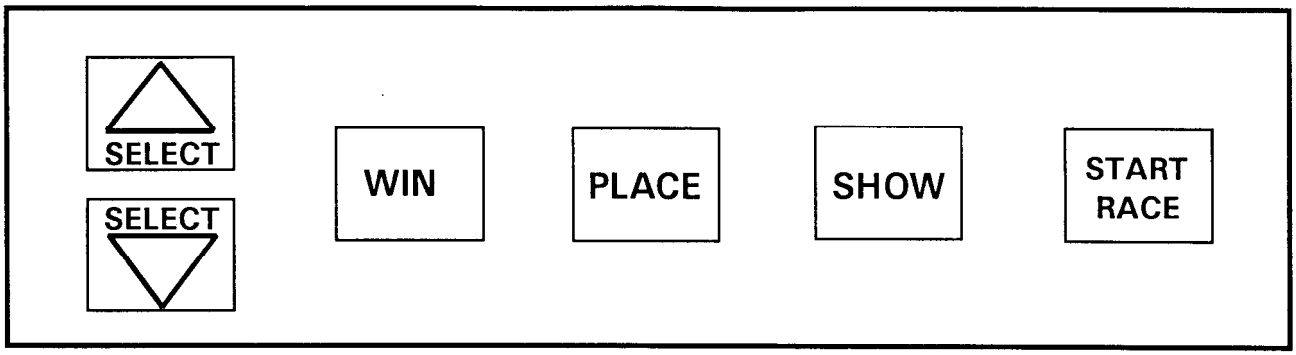
IMPORTANT

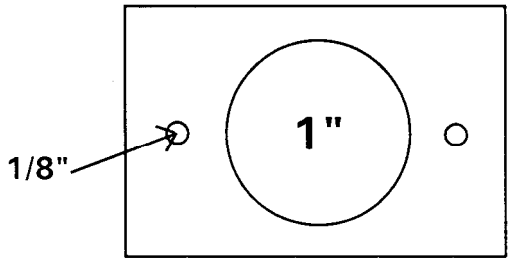
If you do not intend to use a TICKET DISPENSER with your game, DO NOT install the "COLLECT" button on the control panel.



CONTROL PANEL **WITH** COLLECT BUTTON
(Ticket dispenser installed)



CONTROL PANEL **WITHOUT** COLLECT BUTTON
(ticket dispenser not installed)



BUTTON TEMPLATE

8. Wire the buttons and button lights as per the wiring information at the back of the manual.

9. Test the buttons and lights by powering up the game and using the diagnostics for testing controls and lights. (See page 21.)

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.

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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
2	Ground
3	Motor Enable
4	+12 vdc

Note that pin 1 is nearest to the edge connector (and marked with a "1").

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).

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IMPORTANT

If you do not intend to use a TICKET DISPENSER with your game, DO NOT install the "COLLECT" button on the control panel.

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 all the buttons function, do the lights work?

Setting The DIP Switch:

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

Position 1 - OFF - Negative Sync
ON - Positive Sync

Position 2 - OFF - Complete Audits Given
ON - Audit on tickets dispensed will not be given.

Position 3 - Not Used (Set To OFF)

Position 4 - Not Used (Set To OFF)

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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 points per coin, maximum and minimum wagers, 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. 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 "SYSTEM INITIALIZED" will be displayed and all factory defaults will be reinstalled. The system will always attempt to retain the operator adjustable data so as not to affect your current settings. If the system does go through an initialization you may see the message "ADJUSTABLES RESTORED". This means that the audits have been reset but the operator adjustables have been restored to the previous settings.

The battery on the logic board should have a life of approximately five years. If you start seeing the "SYSTEM INITIALIZED" message often, it is possible that the battery may need replacing.

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, press the SELECT UP or SELECT DOWN buttons to highlight the desired item and then press WIN.

The main menu will lead to a series of menus. Use the SELECT UP and SELECT DOWN 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.

GAME MODE:

''GAME MODE'' allows you to select between ''FREE PLAY'' or ''COIN MODE''. ''COIN MODE'' is the default.

RESETS:

There are two levels of reset: ''RESET ADJUSTABLES & AUDITS TO DEFAULT VALUES'' will restore the operator adjustables to their factory settings and reset all game audits; ''RESET AUDITS ONLY'' will reset only the audit data.

ATTRACT MODE SOUNDS:

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

POINTS PER COIN DOOR SETTINGS:

Select the number of POINTS each coin door will be worth. It is possible to have as many as four coin doors active, each having individual point amounts credited per coin. The default is 1 point per coin for all coin doors.

NOTE

Like before, pressing the SELECT UP or SELECT DOWN button selects the desired item. Once you've selected the desired item, press PLACE or SHOW. This will be true for any adjustable items that might be described below as well as the "POINTS PER COIN DOOR SETTINGS".

The ''FREE PLAY POINTS ADJUSTMENT'' allows you to set the number of points to be awarded to a player at the start of a game in the ''FREE PLAY'' mode. The default is 10 points.

TIME ADJUSTMENTS:

Wager time is the amount of time that must elapse while a player is on the wager screen without the game sensing the player pressing buttons or inserting coins. If this time elapses, the game will return to the attract mode. The default setting is 40 seconds. It is also possible to select a ''NO LIMIT'' setting.

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You may also specify what will happen to points remaining after a time-out occurs. The points can be left for use in later games or they can be removed by the machine. The default is "REMOVE POINTS AFTER TIME-OUT."

"SET TIME AFTER WINNER DELAY" allows you to set the time delay that occurs after winning a wager. The values range from 1 to 5 with 1 being the fastest delay and 5 being the slowest. The default is "1".

TICKET DISPENSER SETTINGS

This game is able to dispense tickets if the cabinet is equipped with a ticket dispenser. Select ''TICKETS ON OR OFF'' to enable or disable ticket dispensing. The default setting is ''OFF''.

''SET TICKET DISPENSER VALUES'' allows you to set the number of points required per each dispensing of tickets. As an example, if this value is set to 20, and the player presses collect after accumulating 42 points, the game will dispense two times and leave two points in the player's account. The default setting is one time which means that the game will dispense one time per each point.

You may also set the number of tickets that will be given per dispense. The default is "1 ticket per dispense."

Please note again that the tickets will only be dispensed if the ticket dispenser is enabled by turning it ''ON'' as described above.

''TEST, DISPENSE ONE TICKET'' will dispense one ticket for the sake of testing the dispenser.

WAGER ADJUSTMENTS:

This allows you to set two minimum levels and a maximum level. First is the ''MINIMUM INITIAL WAGER''. This is the minimum number of points placed on any wager. The ''MINIMUM INCREMENTAL WAGER'' is the amount that must be wagered after the minimum initial wager has been satisfied. Both values default to one.

''MAXIMUM WAGER'' specifies the maximum number of points that can be placed on one wager. The range is 1 to 15 with a default of 15.

DECIMAL/FRACTION MODE:

This allows you to select the format for points displayed on the screen. There are three choices: DECIMAL MODE (1.00), FRACTION MODE (1 7/10), or DECIMAL/FRACTIONS OFF (1). The default is "DECIMAL".

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WINNING PERCENTAGE ADJUSTMENT:

This allows you to specify the approximate percentage of points awarded per points wagered. For example, if a player wagers 100 points over the course of several races, he or she will win approximately 80 points back if the adjustment is set to 80%. The default value for this setting is 83%.

SKILL LEVEL ADJUSTMENT:

This allows you to set the skill level of the game. In easier levels, the number of horses that will run during a given game will be reduced, thus making it easier for a player to track the winning tendencies of the horses. The game defaults to the hardest level.

HORIZONTAL SCREEN ADJUSTMENT:

This can be used to help center the picture on the screen horizontally. This should only be used after an effort has been made to center the picture using the monitor's horizontal adjustment controls.

COIN DOOR TAMPER PROTECTION:

By selecting "ON", the game will monitor the coin doors for tampering. If the game detects a problem, it will display "COIN MECH PROBLEM" along with a count of the number of points currently on the machine. To reset the machine, you must power off and on again. The default setting is "OFF".

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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 COINS:

This is the total number of coins that the game has taken in.

TOTAL DOOR ONE COINS:

This is the number of coins put through coin door one.

TOTAL DOOR TWO COINS:

This is the number of coins put through coin door two.

TOTAL DOOR THREE COINS:

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

TOTAL DOOR FOUR COINS:

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

TOTAL RACES RUN:

This is the total number of wagered races that have been run.

TOTAL TICKETS DISPENSED:

This is the total number of tickets that the game has dispensed. This audit will be ignored by the system and not reported on the audit screen if DIP SWITCH 2 on the PCB is set to ''OFF''.

TOTAL POINTS WON:

This represents the total number of points that have been won.

TOTAL POINTS WAGERED:

This is a tally of all points that have been wagered. Wagered points come from either inserting coins or winning points.

POINTS WON/WAGERED PERCENTAGE:

This percentage reflects the POINTS WON divided by the POINTS WAGERED. This value over the course of time should be relatively close to the specified ''WINNING PERCENTAGE'' as described in the operator adjustables section above.

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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.

PLAYER CONTROL TESTS:

Test functionality of all game controls.

BUTTON LIGHT TESTS:

Test the functionality of the button lights.

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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.
	Bad connections	Make sure there are good connections from the board's video outputs to the monitor's video inputs.
	Monitor	Make sure the monitor is operating correctly. (Check it with another compatible board game.)
Scrambled Picture	Sync switch set incorrectly	SW1 pos.1, OFF for positive sync, ON for negative sync.
Missing colors or a washed color	Bad video 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 or reverse the monitor's convergence wires. (Refer to your monitor manual.)

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Symptom	Probable Cause	Solution
CONTROL PROBLEMS		
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	Miscellaneous	Make sure +12v is hooked up 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.
	Miscellaneous	Check the volume setting.
		Check the speaker connections.
		Make sure the sound status light is flashing on the board.

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Symptom	Probable Cause	Solution
POWER UP PROBLEMS		
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 JAMMA harness and ticket dispenser and measure the resistance between power and ground. It should read around 900 ohms. (0 ohms is a dead short.)
		Make sure the JAMMA harness 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 properly.

NOTE: If fuse continually blows, please call STRATA service department. Sending the board in for repair is usually not necessary.

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Symptom	Probable Cause	Solution
TICKET DISPENSER PROBLEMS		
Tickets do not dispense.	Miscellaneous	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.)
LIGHT PROBLEMS		
No Lights	Burned out lights	Replace with a known good light bulb.
	Bad connections	Check all connections to and from the main PCB to the LOB.
		Check all connections to and from the LOB to the lights.
	Bad light output board	If possible, replace the LOB with a known good LOB.

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Horse Upright - 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	
Blue-Red	Ticket Count	J 8	Credit Counter	White-Red
		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
		U 17		
Gray-White	Collect	V 18	Select Up	Blue-White
Red-White	Race	W 19	Select Down	Green-White
Orange-White	Show	X 20	Win	Brown-White
		Y 21	Place	Yellow-White
		Z 22		
Brown-Yellow	Coin 4	a 23	Coin 3	Blue-Yellow
		b 24		
		c 25		
		d 26		
Black	GND	e 27	GND	Black
Black	GND	f 28	GND	Black

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Horse Button Light Cable

WIRE COLOR	BUTTON LIGHT	PIN NUMBER
Blue-Black	Select Up	1
Green-Black	Select Down	2
Brown-Black	Win	3
Yellow-Black	Place	4
Orange-Black	Show	5
Gray-Black	Collect	6
Red-Black	Start Race	7

CONNECTING THE WIRE HARNESSES TO THE CONTROL PANEL SWITCHES AND LIGHTS

A. Lights

1. Locate the provided 7 pin cable (pictured at the top of page 9 in your installation manual).
2. Attach non-terminated ends of the cable to the contacts on the side of the switch assembly (see diagram below). Follow the wire color/button light table on page 28 of your installation manual.
3. Attach wire from +12VDC on power supply to contact on opposite side of switch assembly (see diagram below).

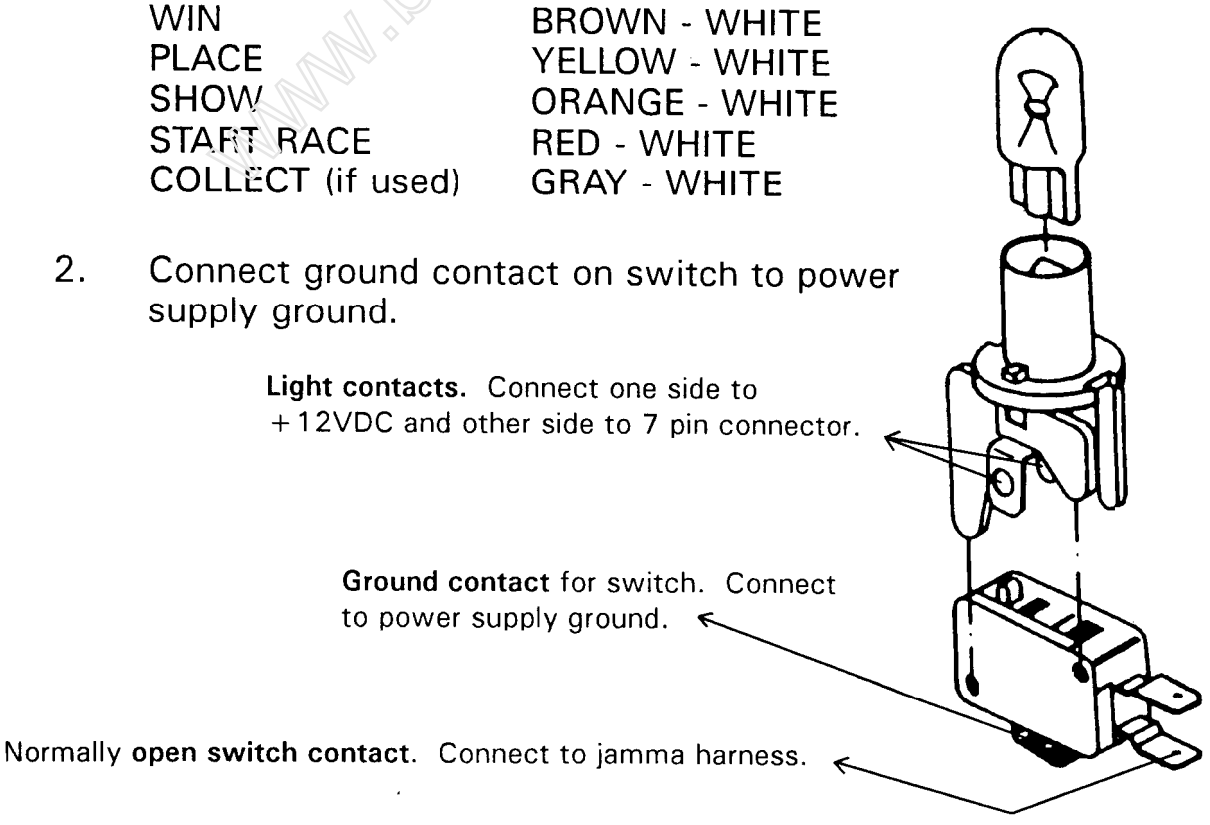
B. Switches

1. Attach jamma harness to normally open contacts on switches (see diagram below).

Follow this table:

Button	Wire Color
SELECT UP	BLUE - WHITE
SELECT DOWN	GREEN - WHITE
WIN	BROWN - WHITE
PLACE	YELLOW - WHITE
SHOW	ORANGE - WHITE
START RACE	RED - WHITE
COLLECT (if used)	GRAY - WHITE

2. Connect ground contact on switch to power supply ground.



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