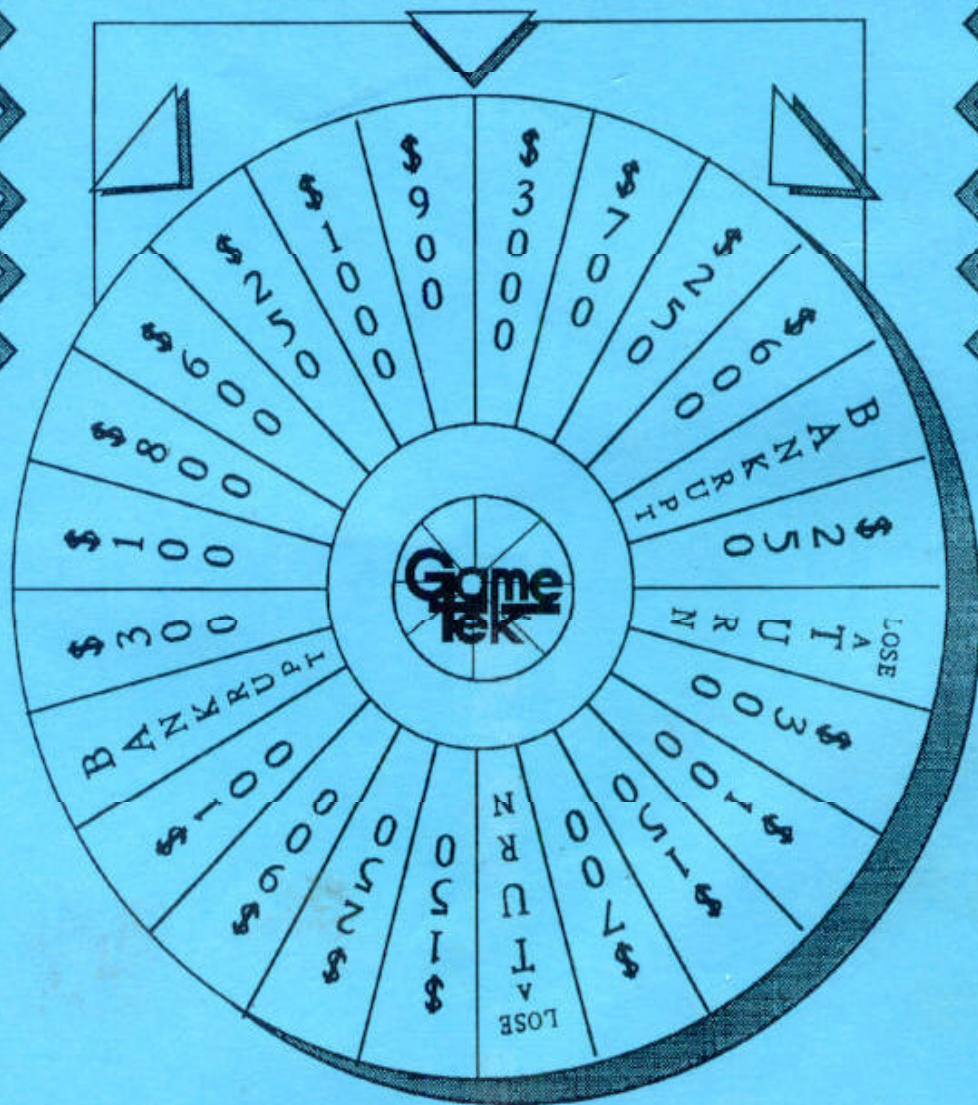


# WHEEL OF FORTUNE<sup>®</sup>



## KIT INSTALLATION MANUAL

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1. There is a minimum \$40.00 service charge for all non-warranty repairs or returns.
2. For all servicing return to: Incredible Technologies, Inc., 709 W. Algonquin Road, Arlington Heights, IL 60005
3. AAMA decal must not be removed from the PC boards.
4. All returned merchandise must have an RMA number marked clearly on the outside of the package.
5. You must obtain all RMA numbers from your authorized GameTek distributor. Please have your AAMA serial number available when calling for an RMA number.
6. No merchandise returned without an RMA number will be accepted.
7. Advance replacement boards will be shipped to distributors or, at the distributor's request, will be shipped directly to the operator.
8. Advance replacement boards will be billed to the distributor until GameTek receives the returned board, at which time a credit will be issued.
9. All repairs and/or replacements will be shipped within 24 hours of receipt or request (subject to availability).

## BEFORE YOU START - READ THIS NOW!!!

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, -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 sometimes be difficult to change the monitor from a horizontal to a vertical mount. Things will be easier if you choose a game cabinet with the same mount as your new game requires (horizontal).
4. Do you have the necessary tools? (See the recommended tool list on page 5).

## CAUTION!

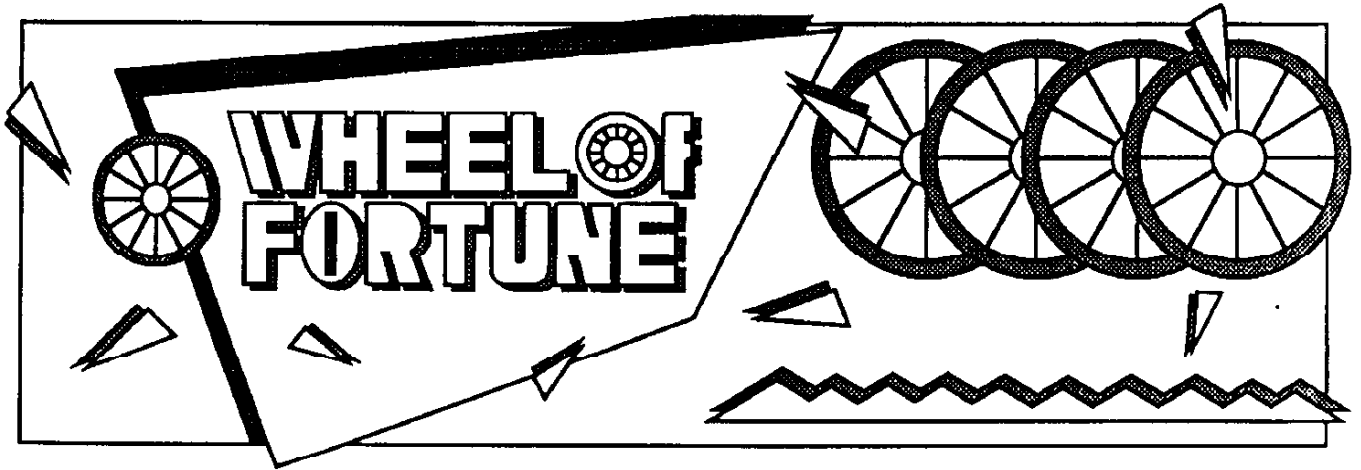
### FCC REGULATION COMPLIANCE

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.

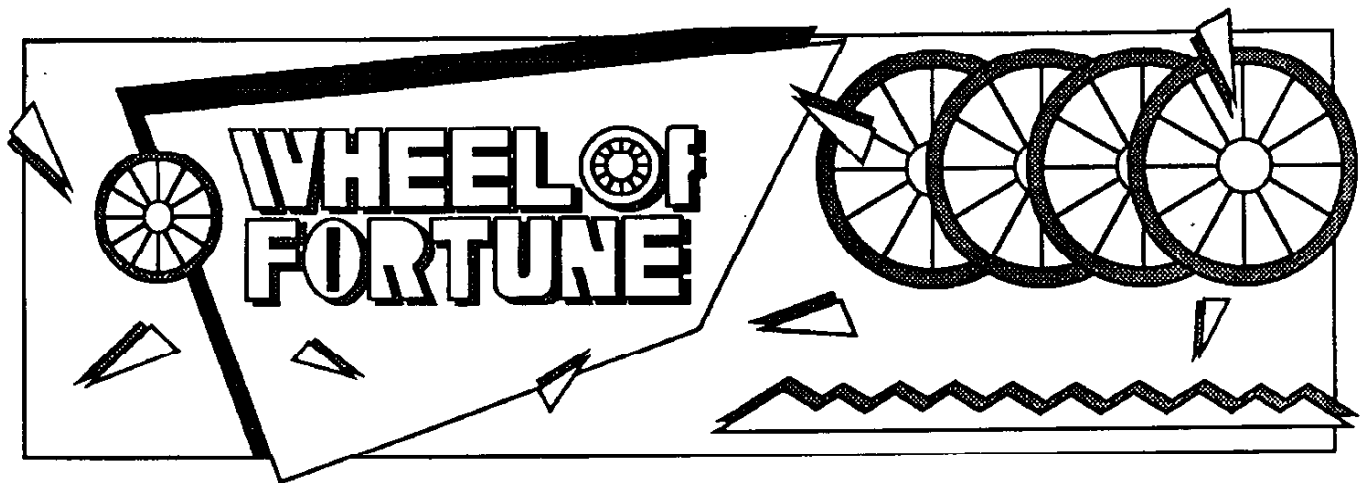
# INSTALLING YOUR



## CONVERSION PACKAGE

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## WHEEL OF FORTUNE KIT CONTENTS

### UPRIGHT

- 1 Printed Circuit Board
- 1 Set of Nuts and Bolts
- 1 JAMMA Harness
- 1 Trackwheel Assembly
- 3 Button Assemblies
- 1 Marquee Styrene
- 1 Marquee Plexiglas
- 1 Printed Bezel
- 1 Control Panel Overlay
- 2 Side Graphics
- 1 Front Graphic
- 1 Instruction Graphic

### COUNTER TOP

- 1 Printed Circuit Board
- 1 Set of Nuts and Bolts
- 1 JAMMA Harness
- 1 Trackwheel Assembly
- 3 Button Assemblies
- 1 Control Panel Overlay
- 2 Side Graphics
- 1 Marquee Graphic
- 1 Instruction Graphic

### COCKTAIL

- 1 Printed Circuit Board
- 1 Set of Nuts and Bolts
- 1 JAMMA Harness
- 2 Trackwheel Assemblies
- 2 Button Assemblies
- 1 Control Panel Overlay
- 2 Side Graphics
- 2 Instruction Graphics

### POWER REQUIREMENTS:

### MONITOR REQUIREMENTS:

+5 VDC	1 amp	Horizontal Mount Raster Scan
+12 VDC	2 amps	Positive or Negative Composite Sync
-5 VDC	1 amp	

## 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
- Spray Window Cleaner and Rag (baby diapers work GREAT!)

## 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 WHEEL OF FORTUNE. Therefore, it is very important to adjust the +5 vdc supply WITHOUT connecting the PCB, then readjusting later (if necessary) after the PCB is installed. Damage will occur if the power supply is outside the acceptable limits (between 4.8 and 5.2 vdc).

# WHEEL OF FORTUNE

## Game Description

1. Insert coin(s); press a color button for screen instructions. Press again to choose color (for Upright or Countertop only).
  2. Rotate wheel for CHALLENGER (easy) or CHAMPION (hard) level; press your color button.
  3. **ALL GAME PLAY IS ON A TIMER AT THE TOP.** Your color button must be pressed before the timer runs out or you lose a turn.
  4. When SPIN THE WHEEL lights up, press your color button; spin the wheel for value.
  5. Rotate wheel to change letter; press your color button.
  6. When you have \$250, you can buy a vowel. Rotate wheel to BUY A VOWEL; press your color button.
  7. A WRONG GUESS, LOSE A TURN or BANKRUPT loses a turn.
  8. When you're ready to solve the puzzle, rotate wheel to SOLVE THE PUZZLE; press your color button.
  9. When your 3\* turns are gone, insert coin(s) to continue.
  10. After the puzzle is solved, remaining turns carry over to the next game; winner earns an extra turn.
  11. New players may enter game at any time. Insert coin(s) and select available color button.
- \* Factory setting (3), which can be modified by Operator.



# INSTALLATION PROCEDURES

## Something to Think About

Your final product will be a *new game*.

You have made a wise decision to transform a game that has seen better days at the all-important cash box into a 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 a monitor. Oh, yes, you will need a touch of elbow grease. And that's it! We provide the rest. The end result is a new game at a very low cost.

**FACT:** Spend a little time on the cabinet's appearance (i.e. marquee, control panel, and cabinet graphics) and you will raise the profits of any game -- especially with the introduction of a new game package.

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

Remember: you are creating a *new game*.

If you have any questions or just need some advice on any of your new game transformations, don't hesitate to give a member of our technical staff a call.

## LET'S GET OUR HANDS DIRTY

### 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 will always give a better finish but if an air brush or paint sprayer is unavailable then a roller is second best. Try to avoid brushes for covering large areas since they cover less smoothly than sprayers or rollers. If you don't have the facilities for painting try an auto body shop -- then you're sure to get the smoothest possible finish. Be sure to cover all exposed surfaces not to be painted (such as the coin door and the monitor) with masking tape (or newspaper on big areas) to keep from getting paint where you don't want it. Use a small brush to finish up the details. Nothing makes a cabinet look old faster than a sloppy paint job.

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 installing this game into is already equipped with a JAMMA harness, your wiring work will be greatly simplified. However, a few differences need to be noted. The trackwheel used in this game connects to where a joystick would have been; pins 18 and 20 are the clock and direction, respectively (clk and dir for short). If you do use a cabinet which already has a JAMMA wiring harness you will need to change over the joystick wires to trackwheel connectors. Note how they are wired on the provided harness. Also, since this is a one to three player game both start switches (player one start and player two start) and an additional player one switch position (PLR1CTRL5) are used. All other signals follow the JAMMA standard. Note especially that the -5 vdc supply needs to be connected. Some games don't use this and so it may not already be connected on your cabinet. If you are installing this game into a Dynamo cabinet with a pre-installed JAMMA harness you will note that it doesn't have a wire for the service switch. You will have to correct this oversight by adding a contact to the edge connector at the proper position (position R). Some cabinets (Dynamo included) use only one coin switch input and wire the coin switches together. This prevents you from setting the left and right coin slots to different coinages. If you need different coinages for left and right slots you will need to wire the switches separately. Contact our technical department if you have any questions.

## TIME TO INSTALL YOUR NEW GOODIES

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

### Printed Circuit Board:

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 PC board to the cabinet with wood screws and spacers -- snug but not too tight or the board may warp or crack. Mount the PC board with the edge connector toward the top. This will help keep the wiring harness from slipping off due to vibration. Be sure the board isn't being flexed in any way.

### Wire Harness:

Attach the wire harness connector to the PC board. This connector should be keyed and labeled "**COMPONENT SIDE**". Be sure it is mounted correctly. Note that the power supply wires are closest to the end marked "1" 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 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. Don't leave a lot of excess wire spooled up in your nice, clean cabinet. Cut the wire from your new game harness to the length you need, plus a few extra inches to be sure it's long enough. Leave enough for proper cable dressing later (don't make it stretch across the inside of the cabinet).
4. Solder the new wire designated for that position to the original wire that you just stripped. Use a straight in-line splice.
5. Melt the heat-shrink over the splice.

*ALWAYS* solder all wire splices. Just twisting the wires together is sure to cause intermittent problems in the future.

*ALWAYS* use shrink tubing over wire splices. *NEVER* use electrical tape. Electrical tape may unravel in time due to the heat inside the cabinet and cause serious trouble.

*ALWAYS* 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.

*REMEMBER:* This is a *new game* -- not a sloppy conversion.

### Power Wires:

1. Connect the wires that are designated for your power supply. You will need a supply of +5 vdc, -5 vdc, and +12 vdc. The +5 vdc must be regulated to within 5% (+ or - 0.25 vdc). The others may be unregulated but shouldn't stray too far or the sound may be affected. If the old game's supply doesn't provide these voltages it will have to be replaced. A switching-type supply is recommended (but not required).
2. You will notice that you have more than one wire for each voltage. You should 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 in time short out the supply. For best results connect spade lugs to the ends of the power wires and attach the spade lugs 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.

### NOTE CONCERNING SYNC:

This game generates a composite sync signal which is accepted by most monitors. A DIP switch (SW2) 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 this switch on (towards the JAMMA connector).

If your monitor does not have a composite sync input but instead has separate horizontal and vertical sync inputs try connecting the composite sync signal from the PC board 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. This is the recommended approach for a Wells-Gardner monitor and should work with some others as well. If you still cannot get proper monitor stability, contact our technical staff for assistance.

## Speaker Wires:

Find the wires marked for the speaker and hook them up. Pay attention to the polarity. The speaker probably has either a red mark or a plus sign (or both) near the positive terminal.

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

At this point we would like to encourage you to examine the speaker carefully. Is it really up to the high standards you wish to maintain at your location? Many arcade speakers are woefully inadequate for reproduction of good game sounds. Remember, it isn't just a video game -- it's a video/audio game. Far more effort was put into the sounds of this game than is put into most other arcade games. Roughly half the cost of making this game is in the sound section so don't waste it with a damaged, cheap, or undersized speaker. If the speaker isn't up to it, replace it. Reasonable speakers can be obtained for around ten dollars at 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 since a speaker's magnet may deflect the monitor and cause some strange coloration. This can usually be corrected by degaussing the monitor. Be sure to attach it securely with all four screws to minimize vibration and rattling from the more intense sounds. Make sure everything else in the cabinet is attached securely for the same reason. Sound is an integral part of the game, not just an appendage. A small investment in good speakers can make a world of difference in profits.

## Coin Door Wires

1. Connect the designated wires to the coin switches.
2. You can connect the door lamps to the +5 vdc or -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. Be sure to clean and lubricate your old coin mechs. Keep the money coming in.

## GUESS WHAT?

You are almost done with the electrical connections of your new game. All you have left is the control panel wiring. We're going to hold off on that for right now. We have a few other things we need to do first. So why don't you go ahead and get yourself a drink of water and stretch your legs? When you return, we can take a fresh look at your progress and move forward.

## INITIAL TEST

You are just about ready to power up the PC board. But first, we need to recheck your work.

1. Carefully inspect the game for loose power wires, exposed connections, and extra fastening hardware. Look for any stray strands from stranded wires.
2. Make sure the PC board, monitor, power supply, and speaker are securely fastened in place.
3. Double check the connectors to be sure they are wired and connected properly.
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.

## TIME TO APPLY 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. Look at the green and yellow LEDs on the PC board. Are they 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 connection. Dropping a coin through a coin switch should cause a sound. If you do not hear anything at all and the connections look good or if the green LED is not flashing, call one of our technicians.
6. Look at the image on the monitor. Is it in sync? If not, and you can't stop it from rolling by adjusting the monitor's sync controls, try flipping SW1, position 2 on the logic board.
7. How's your picture?
  - Is it centered?
  - Is it too bright or too dim?
  - Is it in focus?

Check your monitor manual for making these adjustments. Proper monitor adjustment is very important in making your new game look new.

## Control Panel Assembly

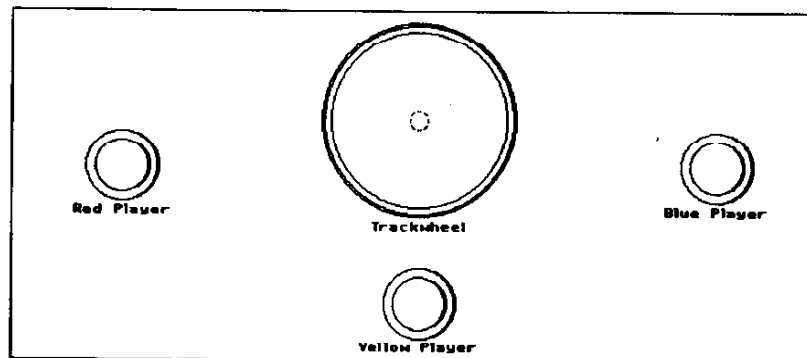
1. Remove all the old buttons, joysticks, and wires from the control panel and set them aside. Do not remove the original panel overlay until the new holes have been drilled.
2. Mark positions on the panel for new holes.
3. Drill (or punch) the holes marked for buttons and bolts. Use a chassis or sheet metal punch for best results on button holes. Cut a hole for the trackwheel bracket. Position it so that the center of the trackwheel will be in the horizontal center of the control panel, but raised vertically, leaving enough room for the center (yellow) button.
4. Use a file to smooth out the edges of all the new holes.
5. Plug up any old holes with a wood or metal plate.
6. Remove the original graphics overlay from the panel. Clean up the panel and install your Wheel Of Fortune graphics. Peel the top half of the protective backing off of your graphics. Start from the center and smooth out your overlay. Make sure you have about an inch extra coming off the top. No bubbles, please. Now peel off the bottom half and do the same as you did for the top. Trim off the excess overlay material with a sharp razor knife.
7. Adhere the player selection tabs. Be sure they're straight.
8. Mount the trackwheel and the buttons and wire them up. Note that the trackwheel connects with a four-pin nylon Molex connector.
9. The buttons should be mounted red, yellow, blue from left to right on the control panel.

## 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. Everything should always work on a new game.

## Side Graphic Installation

1. Be sure the sides of the cabinet are 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 glass cleaner (Windex).
4. Peel off the top 1/4 of the decal backing and apply to the cabinet starting at the top with a smoothing motion. Continue peeling off backing and smoothing.
5. Squeegee all bubbles and ripples out of the decal (use a piece of cardboard if you don't have a squeegee).
6. The Windex will allow some movement for a little while after application of the decal. Position correctly and allow to dry (requires several hours to fully cure).



## 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. Check with our technical staff if you are unsure. 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 seconds passes (meaning no tickets are left or the dispenser is 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. A game is no good to anybody if you can't get a coin into it.
3. Once again go over every step of the transformation in your mind. Be sure everything is correct and to your liking.
4. Make sure all subassemblies are firmly attached. Anything which is not mounted securely will rattle annoyingly when the game is played. This game makes use of low-frequency sounds which can cause any loose joints to rattle.
5. Power up the game. Try both coin switches by dropping quarters (or tokens) through to check the coin mechs as well. Is the game adding credits? Play the game. Does the trackwheel work properly? Try playing the game with the volume up and listen for rattling as you play. Tighten anything which is making noise.



## 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, difficulty level, tickets dispensed, 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 "SYSTEM INITIALIZED" will be displayed and all factory defaults will be reinstalled.

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

ROTATE WHEEL TO CHANGE MENU SELECTIONS  
PUSH YELLOW BUTTON TO CHANGE ENTRIES

EXIT	
NUMBER OF LIVES:	3
INSTRUCTION PAGE:	YES
COINS TO START GAME:	1
COINS TO BUY IN:	1
TICKETS FOR SOLVING PUZZLE:	3
TICKET FOR POINT INCREMENTS OF:	1000
FREE PLAY:	NO
CLEAR ACCOUNTING INFORMATION:	
AVERAGE GAME TIME:	0
NUMBER OF PLAYS:	0
LEFT COINS:	0
RIGHT COINS:	0
AVERAGE TICKETS:	0
NEXT PUZZLE:	0
SOUND IN ATTRACT MODE:	NO
TICKET ADVANCE	
RESET HIGH SCORE PAGE	

EXIT will be highlighted in red. To select a different item, rotate the wheel in either direction to highlight the desired item and press the yellow player button to change entries.

When "EXIT" is selected from the menu, the game will return to the attract mode. The results of selecting any of the other functions are listed below:

**NUMBER OF LIVES:**  
Can be adjusted to values from 1 to 5. When a player runs out of lives their game is over.

**INSTRUCTION PAGE:**  
Turns the introductory instruction page ON or OFF.

**COINS TO START GAME:**  
Adjusts the number of coins necessary to start a game (1-5).

**COINS TO BUY IN:**

Adjusts the number of coins necessary to continue a game.

**TICKETS FOR SOLVING PUZZLE:**

Adjusts the number of tickets advanced for solving a puzzle.

**TICKET FOR POINT INCREMENTS OF:**

Adjusts the frequency of advancing tickets for scoring.

**FREE PLAY:**

Toggles free play mode ON or OFF.

**CLEAR ACCOUNTING INFORMATION:**

Pressing the button while this line is highlighted clears the following statistics:

AVERAGE GAME TIME:

NUMBER OF PLAYS:

LEFT COINS:

RIGHT COINS:

AVERAGE TICKETS:

**NEXT PUZZLE:**

Advances game to the next puzzle. Can be used if memory is corrupted (to prevent seeing the same puzzles).

**SOUND IN ATTRACT MODE:**

Allowing sounds while the game is not in play can be adjusted by toggling this mode ON or OFF.

**TICKET ADVANCE:**

Advances a ticket every time yellow button is pressed, for testing ticket dispenser.

**RESET HIGH SCORE PAGE:**

Resets high score page to factory setting.

## MAIN HARNESS CONNECTIONS

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
Yellow	-5 vdc	E 5		
Orange	+12 vdc	F 6	+12 vdc	Orange
	KEY	H 7	KEY	
Blue	Coin Counter	J 8		
		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
Yellow-White	Y Plr Start	U 17	R Plr Start	Brown-White
Brown-White	Dir 2	V 18	Clk 1	Red-White
		W 19		
White-Brown	Clk 2	X 20	Dir 1	White-Orange
		Y 21		
		Z 22	B Plr Start	Blue-White
		a 23		
		b 24		
		c 25		
		d 26		
Black	GND	e 27	GND	Black
Black	GND	f 28	GND	Black



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