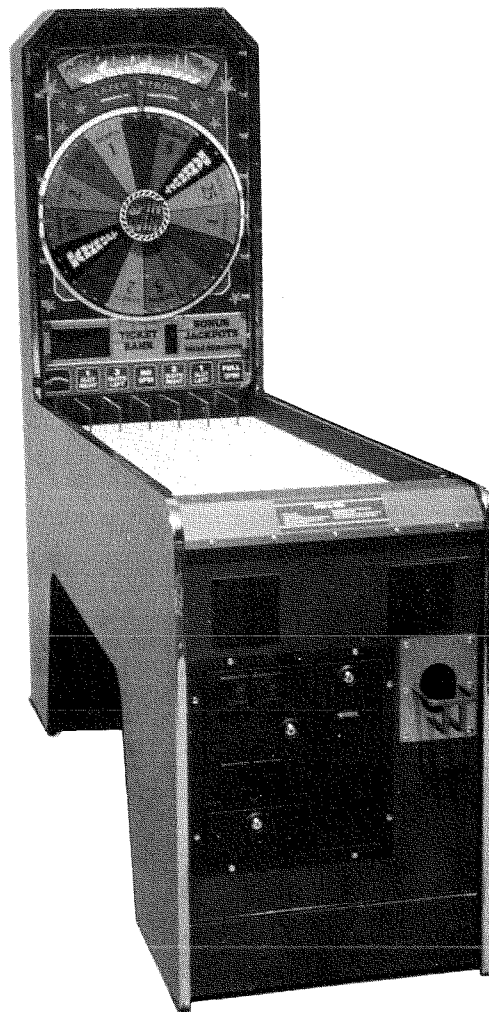


LAZER-TRON

SPIN-TO-WIN™

Owner's Manual



Lazer-Tron 7042B Commerce Circle. Pleasanton, CA 94588 (510)460-0873 (510)460-0365 Fax
P/N CUS 250329 Rev B

Spin to Win™ OWNER'S MANUAL

Version B

READ ME FIRST!!!

DO NOT turn on the game until you have read the following:

This game is set up to accept 120VAC 60hz input voltage. The illumination lamps in top of the game are also rated for 120VAC. If you are in an area that has 220-240VAC, your non-flashing light bulbs must be replaced; your local hardware store or distributor will have the correct light bulbs. The power supply is wired for 120VAC but can be rewired by a qualified service technician to accept 220-240VAC as well. Call Lazer-Tron's Customer Service for help.
(510) 460-0873

The coin acceptor is factory set to receive US quarters. If you have a different coin you must install your own coin mechanism.

The CABINET KEYS are taped inside the coin reject tray.

Continue reading the rest of this manual to learn game functions and how to power up the game.

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Disclaimers & Safety Guide

The following safety precautions apply to all game operators and service personnel. Specific warnings and cautions will be found in this manual whenever they apply.

WARNING!

Properly Ground the Game!

If the coin door and ticket door are not properly grounded players may receive an electrical shock! To avoid electrical shock, do not plug in the game until it has been inspected and properly grounded. This game should only be plugged into a grounded three-wire outlet. If you have only a two wire outlet, we recommend you hire a licensed electrician to install a three wire grounded outlet. After servicing any part on the doors, check that the grounding wire is firmly secured to a solid metal surface.

AC Power Connection

Before you plug in the game, be sure that the game's power supply can accept the AC line voltage in your location. The line voltage requirements are contained within this manual.

Disconnect Power During Repairs

To avoid electrical shock, disconnect the game from the AC power before removing or repairing any part of the game. The power supply can retain charge for a period of time even after the AC power is removed. Use care when working near them or on any circuitry connect to them. Make sure the Indicator LED's on the Power Supply and Main PCB are completely OFF before servicing the boards or the wiring.

Use the Proper Fuses

To avoid electrical shock, use replacement fuses which are specified on the power supply itself. Replacement fuses must match those replaced in fuse type, voltage rating, and current rating. In addition, the fuse cover must be in place during game operation. (See Appendix A)

CAUTION!!!

Properly attach all connectors

Make sure that the connectors on each printed circuit board are properly plugged in. The connectors are keyed to fit only one way. If they do not slip into place easily, do not force them. If you reverse a connector, you may damage your game and void your warranty.

Notice regarding non Lazer-Tron Parts Warning!!!

Use of non Lazer-Tron recommended parts or modifications of any Lazer-Tron Game circuitry may adversely affect the safety of your game, and may cause injury to you and your players.

Note: This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of Federal Communications Commissions Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area or modification to this equipment is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference. If you suspect interference from a Lazer-Tron product at you location check the following:

All ground wires in the game are properly connected as shown in the game wiring diagram.

The power cord is properly plugged into a grounded three wire outlet.

Characteristic	Specification
Power Consumption	250VA, 110 VAC RMS
Temperature	+5 to +50 degrees C (+37 to +122 F)
Humidity	Not to exceed 95% relative
Line Voltage	102-132 VAC 60HZ ***** (see note)
Width	23.75"
Depth	72.0"
Height	71.25"
Shipping Weight	512 lbs.

***** (For 200-240VAC Input 50/60 Hz. consult Lazer-Tron for proper power supply wiring.) The transformer must be rewired. Call Lazer-Tron for assistance.

Spin to Win™

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Version A
Patents Pending**

No part of this publication may be reproduced by any mechanical, photographic or electric process, or the form of a phonographic recording, nor may it be stored in a retrieval system, transmitted or otherwise copied for public or private use, without the permission from the publisher.

The game play, all graphic designs, this technical manual, and its accompanying schematic diagrams are protected by the U.S. Copyright Act of 1976.

This Act provides for substantial penalties for violating federal copyright laws. Courts can impound infringing articles while legal action is pending. If infringers are convicted, courts can order destruction of the infringing articles.

In addition, the Act provides for payment of statutory damages of up to \$50,000 per infringing transaction in certain cases. Infringers may also have to pay cost and attorney's fees and face an imprisonment of up to five years as well as fines of up to \$250,000 in the case of individuals and up to \$500,000 in the case of corporations.

Lazer-Tron will aggressively enforce its copyrights against infringers. We will use all legal means to immediately halt any manufacture, distribution, or operation of a copy of any games made or sold by us. Anyone who purchases such copies risks forfeiting such a game.

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Pleasanton, CA 94588
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(510) 460-0365 fax**

OPERATOR ADJUSTABLE FEATURES

The following is a list of operator adjustable functions that are DIP switch adjustable.

GENERAL FUNCTIONS

The following functions are controlled by **DIP Switch S2**

Switch#	Function
1.	(ON) Spin 2 left and 2 right replace Bankrupt & Fullspin (Rev A9 Soft.)
2.	Type of game
3.	(ON)=No attract mode sounds
4.	(ON=2) or 3 jackpots in a row required for Super Jackpot.
5.	(ON)= gives one ticket to loser.
6.	(ON)=Short bell when tickets are paying out.
7.	(ON)=No tickets to dispense. All credits go to one game.
8.	Places the game in the test mode.

Maximum # of Coins Per Game

The following maximum # of coins allowed per game are controlled by DIP Switch S6 switches #1 and #2. (See Spinning Wheel Chart - Appendix A)

100 coins, 10 coins, 4 coins, 1 coin maximum per play.

S6 #3 (ON) requires two coins to play and maximum 2 coins per game.

(Factory setting is 100 coins maximum).

TICKET PAYOUT Percentaging(See Spinning Wheel Chart - Appendix A)

The spinning wheel has 15 slots on it of which 4 can be set to various values to help you percentage the game payout level. The other 11 are fixed.

The values associated with each section on the wheel are as follows:

- 1) Bonus Jackpot - Gives one ticket
- 2) 1 ticket
- 3) 5 tickets
- 4) 2 tickets
- 5) MEDIUM tickets(20,18,16,14,12,10,9,8,7,6,5,4,3,2,1,0)
- 6) Bankrupt - lose all tickets
- 7) Double ticket bank (gives one ticket if non in bank)
- 8) 2 tickets
- 9) LOW tickets(1,2,3,5)
- 10) Lose a ball - no value
- 11) 2 tickets
- 12) 1 ticket
- 13) High tickets(35,30,25,20,15,10,9,8,7,6,5,4,3,2,1,0)
- 14) Bankrupt - lose all tickets
- 15) LOW tickets(1,2,3,5)

Note: High=15,Med=10,Low=5 will give approx 28% payback -1 cent ticket. (Progressive not included)

Factory settings are set to provide for the greatest earnings of the game. Ticket payout percentage of income with this game should be no less than 30%. Try operating the game for one day and see what your average payout is by depressing the TEST button at the end of the day. The number on the TICKET BANK will be the average number of tickets paid out per coin inserted. (See Test Software Description - Appendix A.) If this number is too high or low then adjust the 4 slots on the wheel until you are giving an appropriate amount for your facility.

To set the DIP switches refer to the following charts in the appendix.

- 1) Spinning Wheel Chart (See Appendix A)
- 2) PCB Layouts - for DIP Switch location (See Appendix A)
- 3) General Function Dip Switch Setting Chart (See Appendix A)

FUNCTIONAL DESCRIPTION OF Spin to Win™

Spin to Win is a skill dominant ticket redemption game designed for men and women of all ages. Read the following functional description so that you become familiar with what the game should and should not do.

How to Play:

- 1) Insert coin(s) (Note: See Dip switch chart to set specific maximum # of coins.)(winnings multiply by the # of coins played). Players can put coins in until the first ball is rolled. Ticket Bank LED Display will show the # of coins inserted until the first ball is rolled.
- 2) Wheel will randomly spin for approximately 4 to 8 seconds. This is to ensure that each game will begin in a new random location on the wheel.
- 3) Player will receive first ball.
- 4) Player has 45 seconds to roll the ball down the incline, or full spin will occur and player loses ball. After first ball is rolled, any coins that are inserted will be counted towards the next game. The number of ball remaining LED Display will show the number 3.
- 5) The wheel will spin according to the 7 slots at the bottom of the rolldown. From left to right the slots do the following: See (DIPSWITCH S2 #1)
 - a) **Bankrupt**- Forces the wheel to spin to the next bankrupt slot.
 - b) **1 Slot Right** - Wheel spins 1 cell to the right.
 - c) **3 Slots Left** - Wheel spins 3 cells to the left.
 - d) **No Spin** - Wheel does not move at all.
 - e) **3 Slots Right** - Wheel spins 3 cells to the right.
 - f) **1 Slot Left** - Wheel spins 1 cell to the left.
 - g) **Full Spin** - Random spin either direction.

Note: if DIPSWITCH S2 #1 is on then Bankrupt and Full spin slots are replaced by 2 slots left and 2 slots right respectively. Lazer-Tron has stick-on decals for this purpose. (Washington Legal version)

- 6) Whichever slot the peg lands on, that specific function will occur.
For example: (*if the peg lands on*)
 - 10 tickets** - Player accumulates 10 more tickets to ticket bank LED display.
 - 1 ticket** - Player accumulates 1 more ticket to ticket bank LED display.
 - Bankrupt** - Player loses all accumulated tickets on Ticket Bank LED display.
 - Lose a ball** - Player gets no tickets and loses next ball.
 - Double Ticket Bank** - Doubles all accumulated tickets displayed on ticket display LEDs.
 - BONUS JACKPOT** - If players lands on bonus jackpot he receives no tickets for that ball, but the BONUS JACKPOT LED display increments by one if it is the last ball of the game. (See SUPER BONUS JACKPOT below.)
 - etc...**
- 7) After wheel has finished moving and tickets are accumulated or lost, the next ball is released. The Balls Remaining LED Display will decrease by one as each ball is rolled. 6

- 8) Roll the next ball and accumulate any new tickets.
- 9) After all balls are rolled the Game ends. The Balls Remaining LED Display will show a 0 to indicate the player has rolled all 3 balls.
- 10) Note: the player must roll all three balls to receive tickets on the ticket bank display. (in certain jurisdictions a push button may be hooked up to allow immediate payout at any point in the game.)
- 11) Tickets are awarded to the player. (if applicable)
- 12) Next game can begin.

The goal of the game is to accumulate as many tickets as possible in the ticket bank by rolling three balls into any desired slot. Player is awarded all tickets at end of game (if applicable). Another object of the game is to win a Super Bonus Jackpot to win a super amount of tickets. (see below).

SUPER BONUS JACKPOT

If the Player lands on the Bonus Jackpot slot on the last ball of the game, the BONUS jackpot LED display increments by one. If this is done 2 or 3 (dip switch selectable) games in a row the player wins the Super Bonus Jackpot. The game will sound a special alarm and flash a unique light pattern until the attendant opens the coin door and depresses the test button once. The attendant should then pay the player a predetermined large amount of tickets for skillfully achieving this difficult Super Bonus Jackpot. (For example: 1000 tickets). Owner of game should make a sign and post it on top of the game denoting how this many tickets can be won. Note: if you have purchased a B.J.D. (Bonus Jackpot Display) with your game(s) then you would pay the amount of tickets that are shown on the display. (See B.J.D. section in Appendix A of this owners manual.)

INSTALLING THE GAME

Warning!!!!

Do not plug the game in until you have completed the following inspection steps.

Please inspect your Spin to Win game carefully to ensure that the game is complete and was delivered to you in good condition.

All Keys are located in the coin reject slot.

BEFORE YOU POWER UP, inspect the game cabinet as follows:

1. Examine the exterior of the cabinet for dents, chips, or broken parts.
2. Unlock and open the ticket door and rear service door(s). Keys are in the coin reject slot and inside coin door itself.
3. Ensure that all plug-in connectors inside the cabinet are firmly plugged in. Do not force connectors together. The connectors are keyed so they fit only in the proper orientation. A reversed connector can damage a printed circuit board and may void your warranty.
4. Inspect the power cord for any cuts or dents in the insulation.
5. Inspect the power supply. Make sure that the correct fuses are installed. Check that the harness is plugged in correctly and that the fuse block cover is mounted in place. Check that the green ground wires are connected.
6. Inspect other major sub assemblies, such as the printed circuit boards, speakers, ticket drive, ball eject mechanism, etc... . Make sure that they are mounted securely and that ground wires are connected. Note: *Two latches hold the front door to the lower cabinet. Open the coin door to reach both in the upper left and right positions inside the door.*
7. Position lower cabinet of the game in the desired location. Remove the brackets that are holding the rear of the playfield glass. Carefully mount the top cabinet onto the lower cabinet. Be careful not to break glass. and loosely bolt together. (Tighten later).
8. Carefully slide the cables through the hole provided between the lower and upper cabinets.
9. Plug in the following harness connectors into the Main PCB.
J2 , J8 , J9, J5, J6 (See PCB layout for connector location (Page 43))
Note the connectors are keyed and only fit one way so do not force them in.
10. Recheck all connectors on Main PCB for good solid connections.
11. Install the optional seat to seat floor with the 4 bolts provided. Slide the seat floor under the front edge of the lower cabinet and secure to the lower cabinet if necessary with the bolts provided. Note: Careful alignment of seat floor and lower cabinet are required to bolt the two together.

12. Individually roll the 4 balls down the rolldown area. (Note they are stored in the cash box for shipment.)
13. If the above steps have been completed then you can power up the game. If the chase lights are flashing then continue else power down the game immediately and look in the troubleshooting section of this manual for help.
14. Play a couple of games to familiarize yourself with the general game functions as described in the Functional Description section of this manual. If there are any problems then please call Lazer-Tron or your distributor.
15. Check to see if the game is leaning to the left or right. If so then level the game with the leveling feet provided.
16. If properly maintained, your game should now be ready to earn consistently for years. Good Fortune!

OPERATOR ADJUSTABLE FEATURES

The following is a list of operator adjustable functions that are DIP switch adjustable.

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The following functions are controlled by **DIP Switch S2**

Switch# Function

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7. (ON)=No tickets to dispense. All credits go to one game.
8. Places the game in the test mode.

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The following maximum # of coins allowed per game are controlled by DIP Switch **S6 switches #1 and #2.** (See **Spinning Wheel Chart - Appendix A**)

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- 3) 5 tickets
- 4) 2 tickets
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- 6) Bankrupt - lose all tickets
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To set the DIP switches refer to the following charts in the appendix.

- 1) **Spinning Wheel Chart (See Appendix A)**
- 2) **PCB Layouts - for DIP Switch location (See Appendix A)**
- 3) **General Function Dip Switch Setting Chart (See Appendix A)**

MAINTENANCE

This game has been designed for years of trouble free use. However, like any mechanical device this game requires proper attention to its mechanical parts. The following list of items are to be regularly serviced in order to have a long service life.

- 1) Clean ball return area. Note the whole tray slides out. (Weekly)
- 2) Clean thoroughly around ball release solenoid and check for proper solenoid switch activation when ball rolls by.
- 3) Clean all glass (Daily)
- 4) Clean ball rolldown area. (Weekly)
- 5) Clean floor at the rear of the lower cabinet (Monthly)
- 6) Clean Outside of game cabinet (Daily)
- 7) Check for unusual wear in mechanics, pulleys and switches, and springs.(Monthly). Order replacements as necessary.

Note: a close regular inspection of your game on a regular basis can go a long way to increase its service life.

TROUBLESHOOTING

The following is a partial list of events that could occur to make your game inoperable. If you have problems first consult this section of the manual before calling for customer assistance.

Ball Switch Area

1. **The wheel doesn't spin when a ball is rolled down a slot.**
Remove glass on lower section of game. Visually inspect the long switch activation wire. It may have fallen off, or it may have broken. Replace as needed. Note a small amount of silicon will help insure the wire stays in place where it connects to the switch itself. A beep will be heard each time any switch is depressed and released while in the test mode. If you don't here a beep, something is wrong. Check all wiring. All switches are normally open and are pulled low upon activation. (This can be measured with a voltmeter)

BALL EJECTING

1. **The balls get stuck at the solenoid mechanism.**
Slide the ball return tray out to service this area. Note: harness disconnects for complete removal if necessary. Inspect area for cleanliness. Remove any build up of dirt and grime from this area; it will prevent the ball from smoothly rolling

out of the mechanism. Check the spring. Manually pull the solenoid in and see if a single ball gets released from the ball reservoir. Insure that the solenoid switch is activated after the ball is release by the solenoid. The computer looks for the optical switch to be activated a short while after the ball is released. If it isn't, the solenoid will be reactivated again and again until the switch is activated. A short phrase "BALL JAM" will be heard each time this occurs. The solenoid is 24Vdc, so a 1 second 24Vdc pulse should be sent to the solenoid each time a ball is to be ejected. To see if the solenoid is getting the pulse measure the voltage with a voltmeter and view this 1 second pulse. If you don't see it, the problem may lie in the Main PCB.

2. The balls get stuck right after they fall into a slot.

Pull out the tray and clean thoroughly. There is probably something blocking the free rolling of the balls. Remove any buildup of dirt and grime in the ball reservoir.

3. Optical ball eject sensor pcb is not seeing ball or is continuously "seeing" a ball.

Note: Red Leds on the pcb all should be **off** when no ball is in front of board. As a ball passes in front of photoreflective sensor both LEDs should go on for a short while and then shut off. One should stay on a bit longer than the other. You may have to adjust the potentiometer on board to adjust sensitivity of switch.

LIGHTING

1. Lights will not flash properly.

Check power supply LEDs for ON status. All four LEDs should be on. Replace any fuse(s) as necessary. Check fuses for continuity. Check for burnt out bulbs. Replace as necessary. The pointerlights behind the spinning wheel are Type 89 bulbs 14V.

2. Illumination lamps are not on.

Check for burnt out bulb and replace with the proper sized bulb. Note: oversizing of the bulb will cause too much heat buildup on the cabinet and may have adverse effects on all plastic, the overall game performance, and the logic board service life.

SOUNDS

1. Sound is not proper volume or no sound at all.

Check for LED3 being on on main PCB. This shows that there is power getting to the board for the sound circuitry. See if speakers have failed by swapping them out. Note: speakers should only be replaced with 8 ohm speakers such that the two speakers hooked up in parallel have a 4 ohm resistance between them. This can be checked with your ohmmeter. You may have to adjust the volume on the potentiometer inside the ticket door to obtain proper loudness of the game. Potentiometer R22 on Main PCB also adjust volume but should only be adjusted as a last resort.

TICKET DRIVE

1. Drive will not work properly

Check all wiring for continuity. Check to see if drive has 12VDC going to it. (See wiring diagrams). Check optoelectronic part on drive to sense the ticket notch. Clean as necessary. Clean out any jammed tickets in drive. Note: if computer does not receive any ticket notch pulses back within 2 seconds it stops the motor until the pulses are received. Any undispensed tickets will be dispensed at this time. Note: the 12 volt ticket notch pulse drops to 0 volts when a notch is present. The signal leaves the board and goes to the Main PCB through connector J2. On this board the signal is converted to a 5V signal that drops to 0 volts. This signal then is used for counting purposes.

Check the ticket DIP switch setting chart in the Operator Adjustable Features section of this manual for the proper ticket payout. Play the game and make sure the proper number of tickets are being dispensed. Adjust as necessary. Note: no tickets will be dispensed if the tilt switch (optional) is activated for any reason. Adjust it accordingly for the proper sensitivity. If problem still persists then try a replacement drive type Deltronics DL1275. When out of tickets or when the ticket notch is not being received by the computer the phrase "I Need Tickets" or "Help" will be heard through the speaker. This will continue until a ticket notch is seen by the computer.

OPTICAL ENCODING & WHEEL CALIBRATING

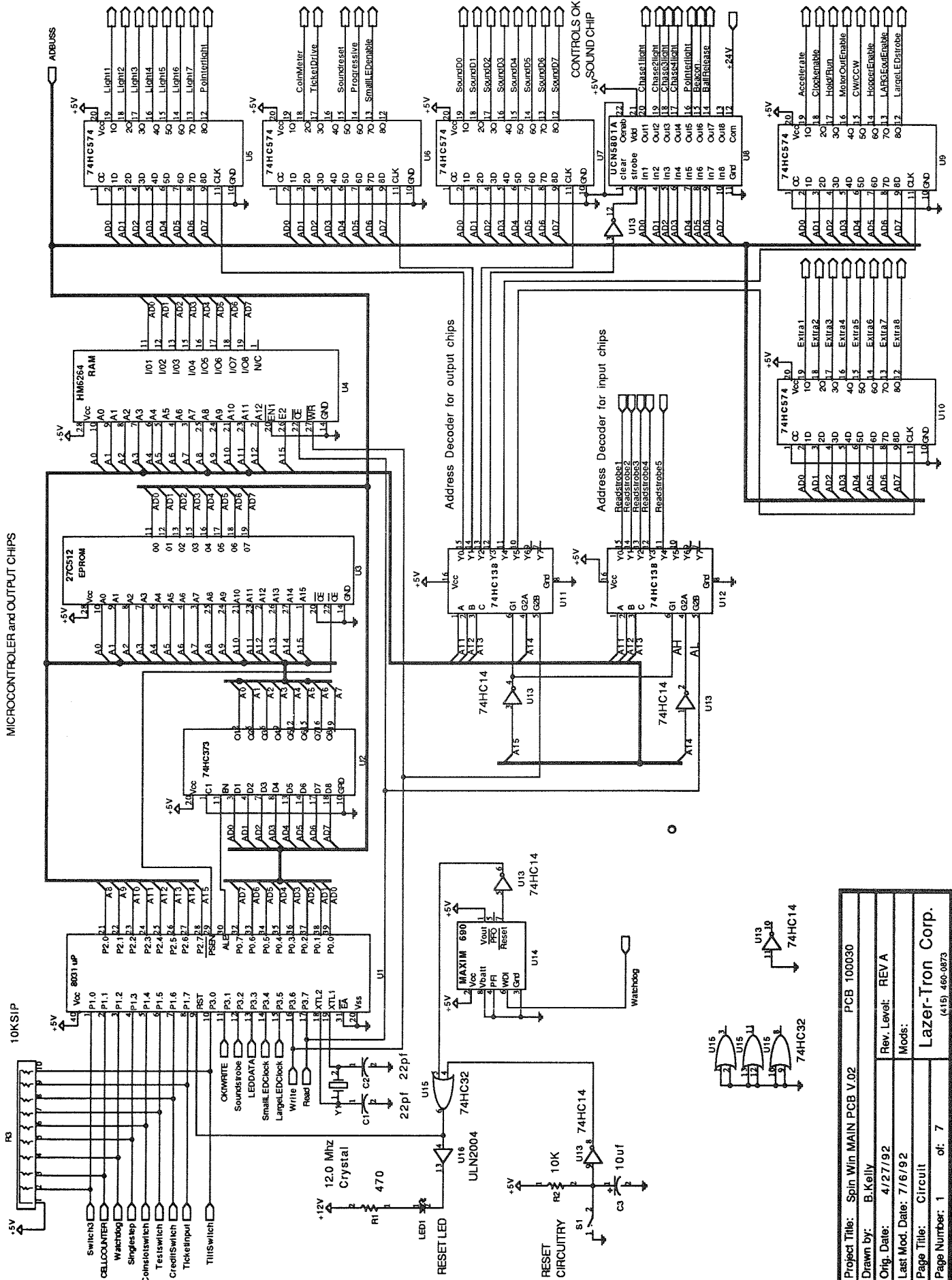
1. The game is misreading the optical sensors on the encoding disk. Optics may have come out of adjustment. See Optics and Wheel adjustment description at the rear of this manual. **STRAY AMBIENT LIGHT MAY CREATE ERRORS IN READING THE OPTICS WHEEL. THE REAR DOOR OF THE GAM CABINET SHOULD BE ON.**

To test other other functions of the game use the Test Mode software as described in Appendix A.

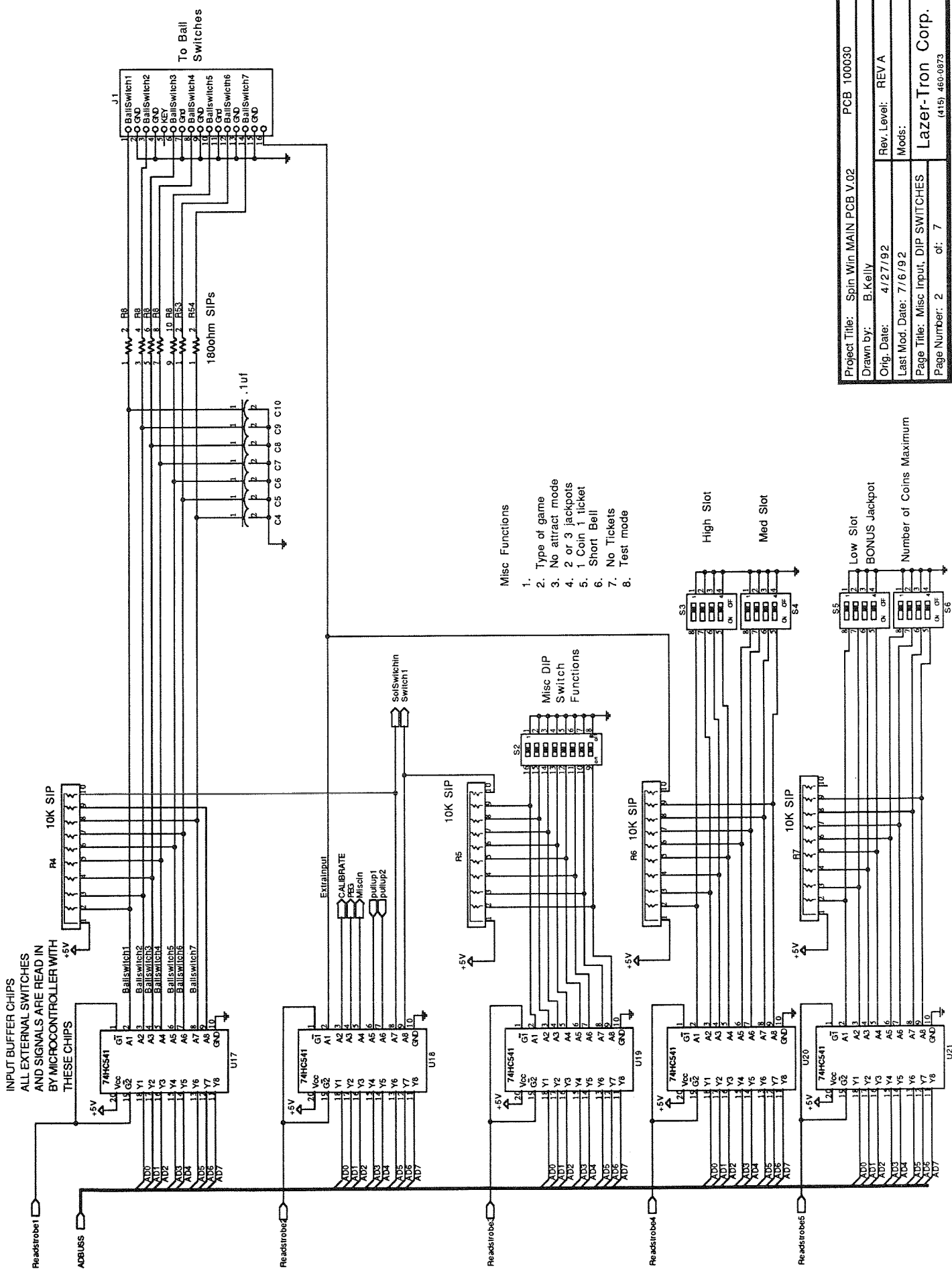
If you have any questions please feel free to call Lazer-Tron's Customer Service, and we will be pleased to help with the problem. (510) 460-0873.

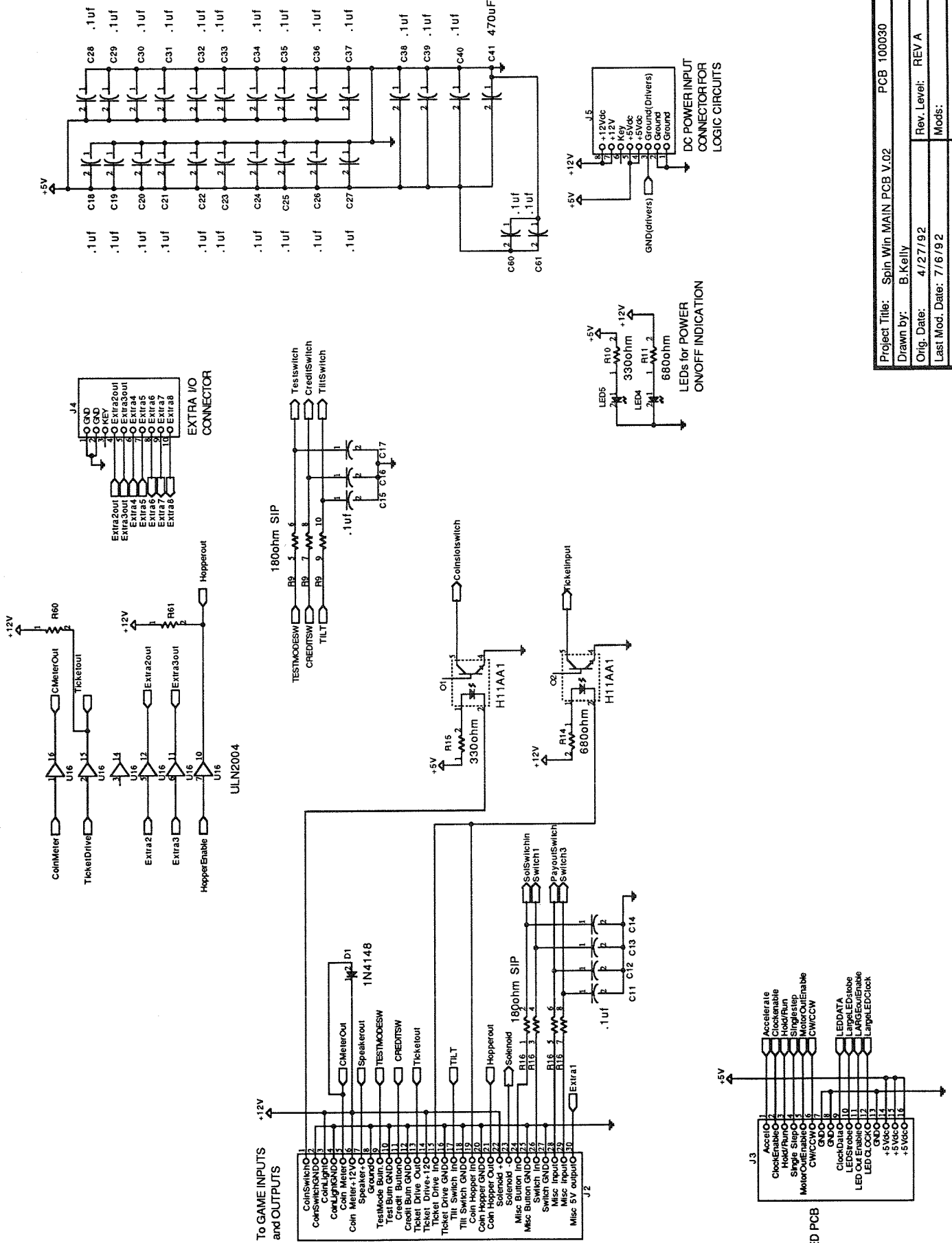
APPENDIX A

MICROCONTROLLER and OUTPUT CHIPS



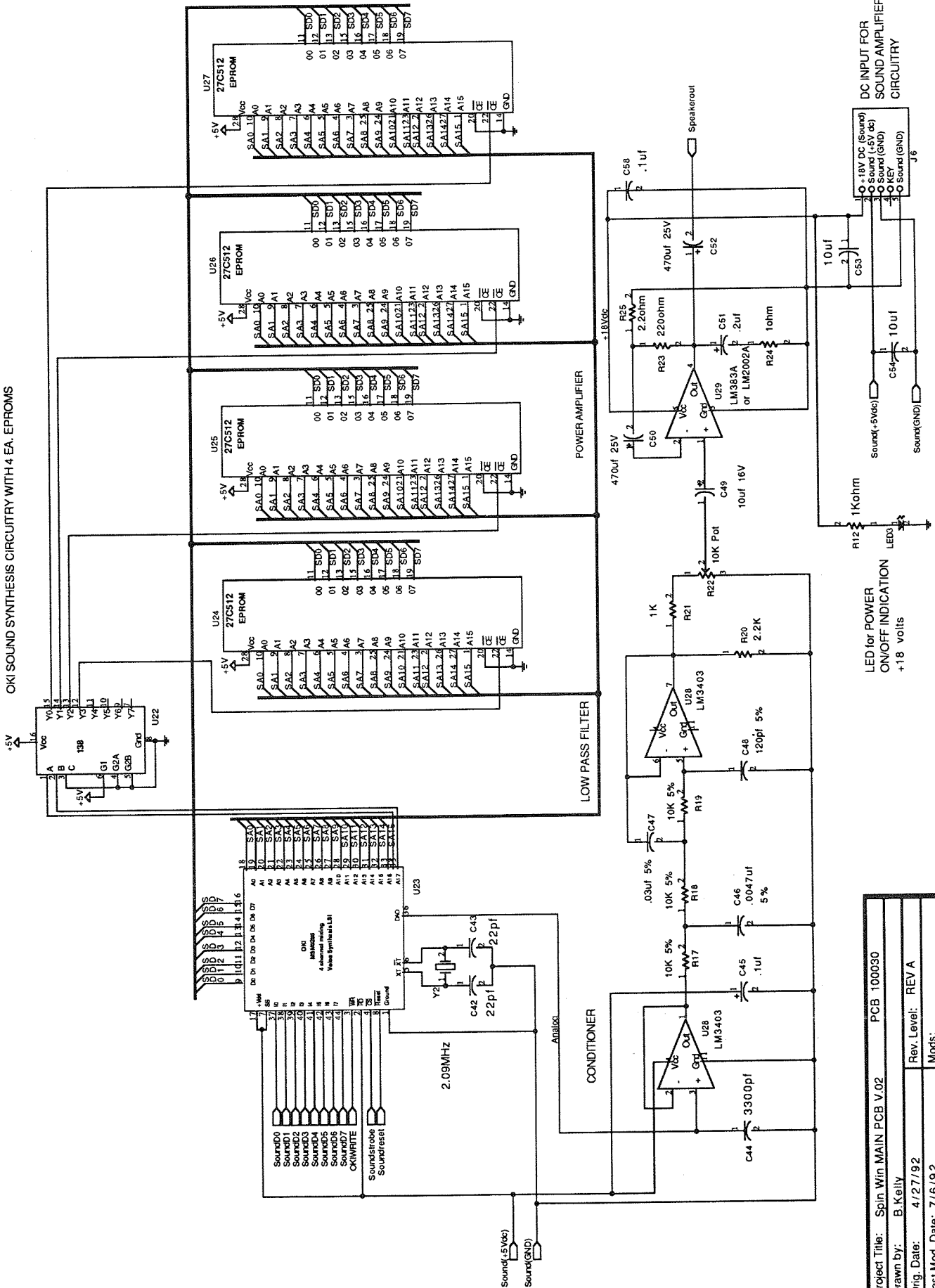
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Orig. Date:	4/27/92	Mod's:
Last Mod. Date:	7/6/92	Page Number: 1
Page Title:	Circuit	of: 7
Lazer-Tron Corp. (415) 460-0873		





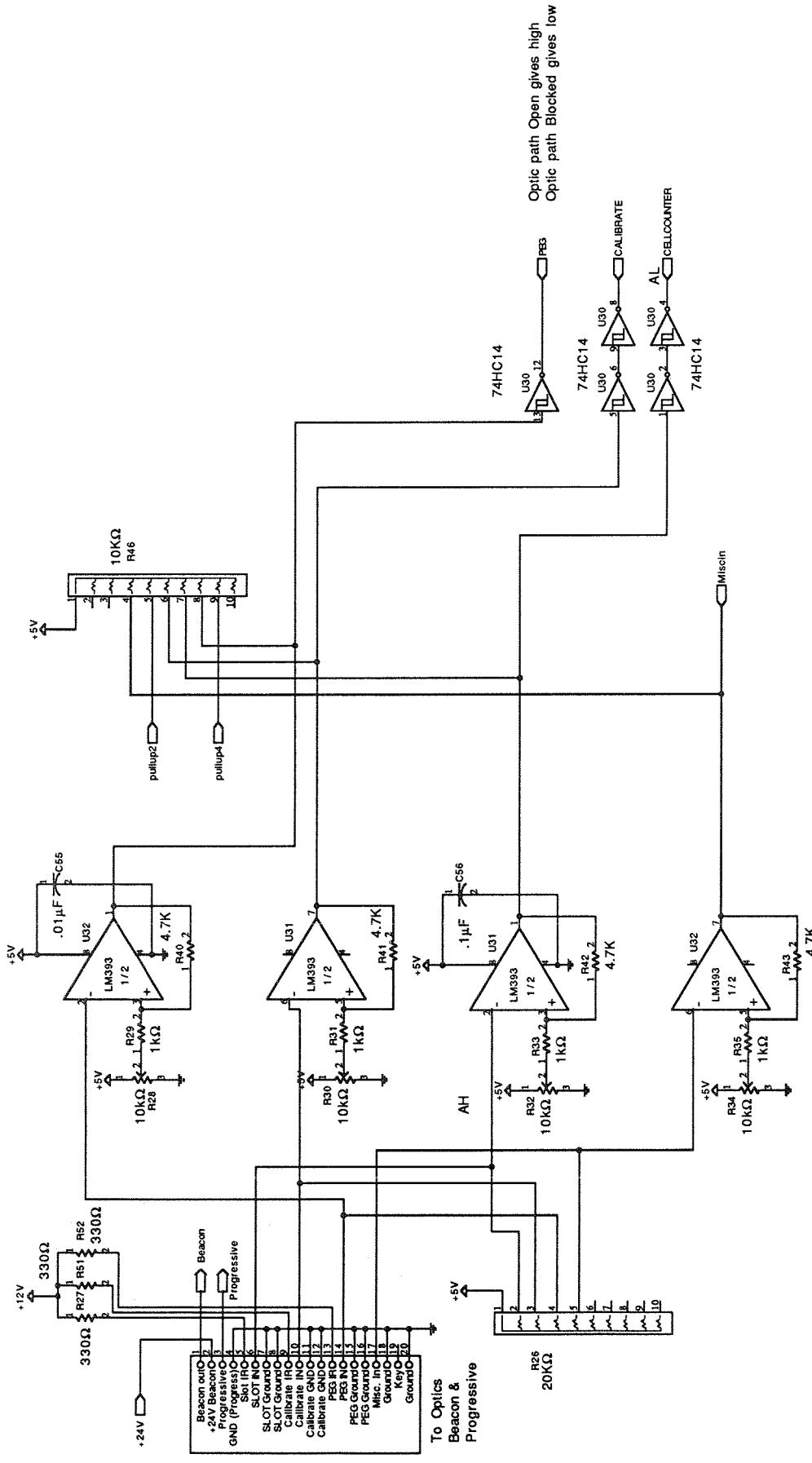
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Drawn by: B.Kelly	Orig. Date: 4/27/92	Rev. Level: REV A	
	Last Mod. Date: 7/6/92	Mods:	
Page Title: Misc I/O	Page Number: 3	of: 7	
Lazer-Tron Corp.			
(415) 460-0873			

OKI SOUND SYNTHESIS CIRCUITRY WITH 4 EA. EPROMS



Project Title:	Spin Win MAIN PCB V.02	PCB 100030
Drawn by:	B. Kelly	Rev. Level: REV A
Orig. Date:	4/27/92	Modis:
Last Mod. Date:	7/6/92	
Page Title:	Sound System	
Page Number:	4 of 7	

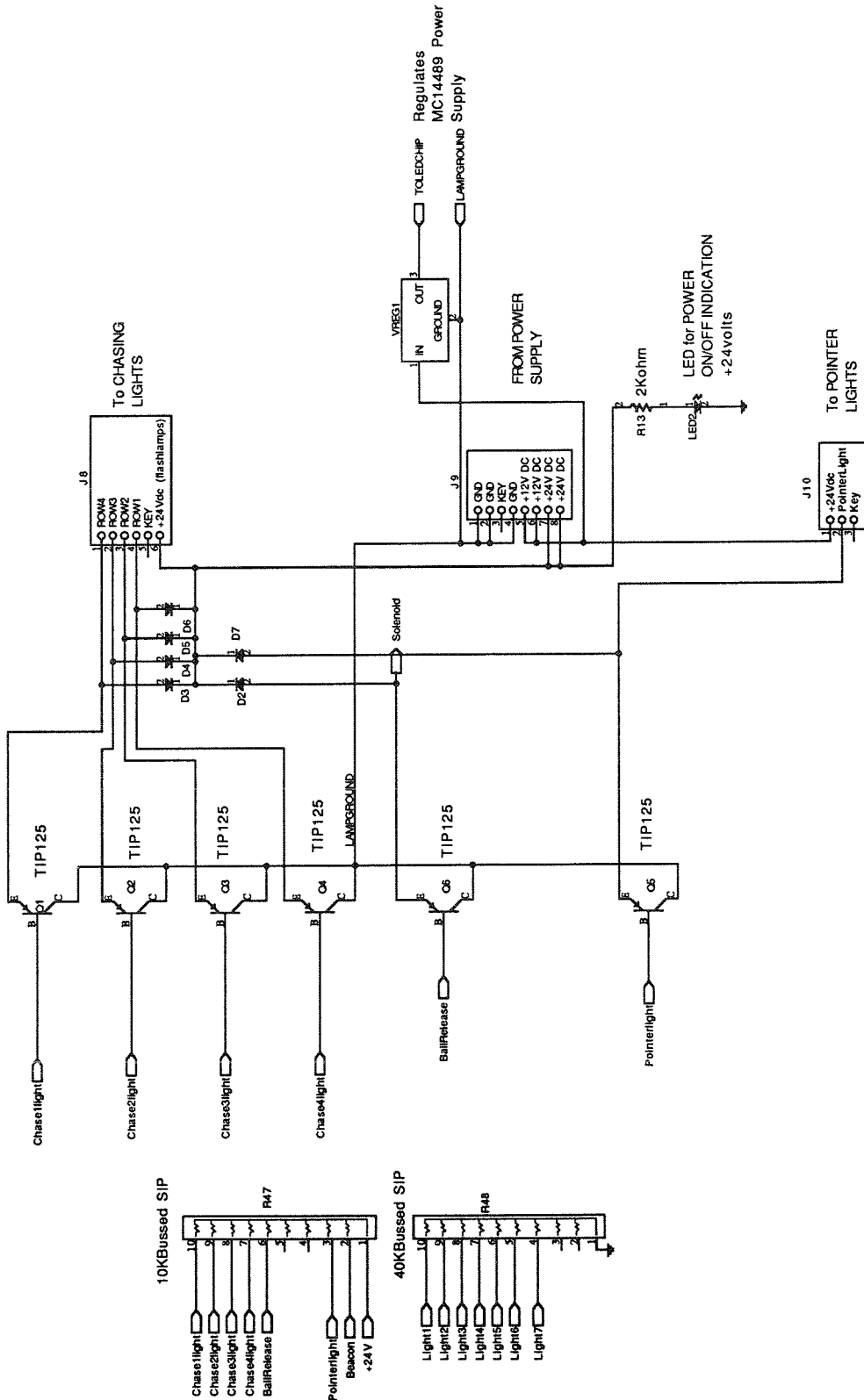
Lazer-Tron Corp.
(415) 460-0873



Optic path Open gives high
Optic path Blocked gives low

Project Title: Spin Win MAIN PCB V.02		PCB 100030	
Drawn by: B.Kelly		Rev. Level: REV A	
Orig. Date: 4/27/92		Last Mod. Date: 7/6/92	
Page Title: Bar Code Readers		Page Number: 5 of 7	
Lazer-Tron Corp. (415) 460-0873			

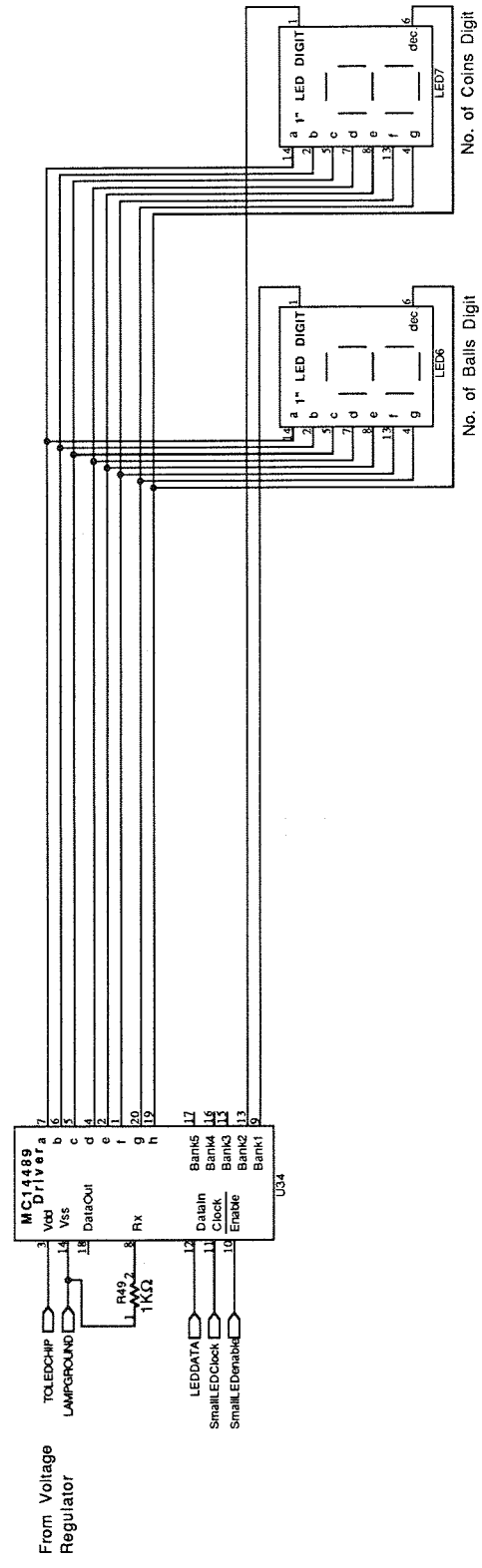
To All Flashing Lights



Note 2ea. 14V lamps are in series

Project Title:	Spin Win MAIN PCB V.02	PCB 100030
Drawn by:	B. Kelly	
Orig. Date:	4/27/92	Rev. Level: REV A
Last Mod. Date:	7/6/92	Modis:
Page Title:	Flashing Lights Drivers	Lazer-Tron Corp.
Page Number:	6 of 7	(415) 460-0873

LED Display Drivers



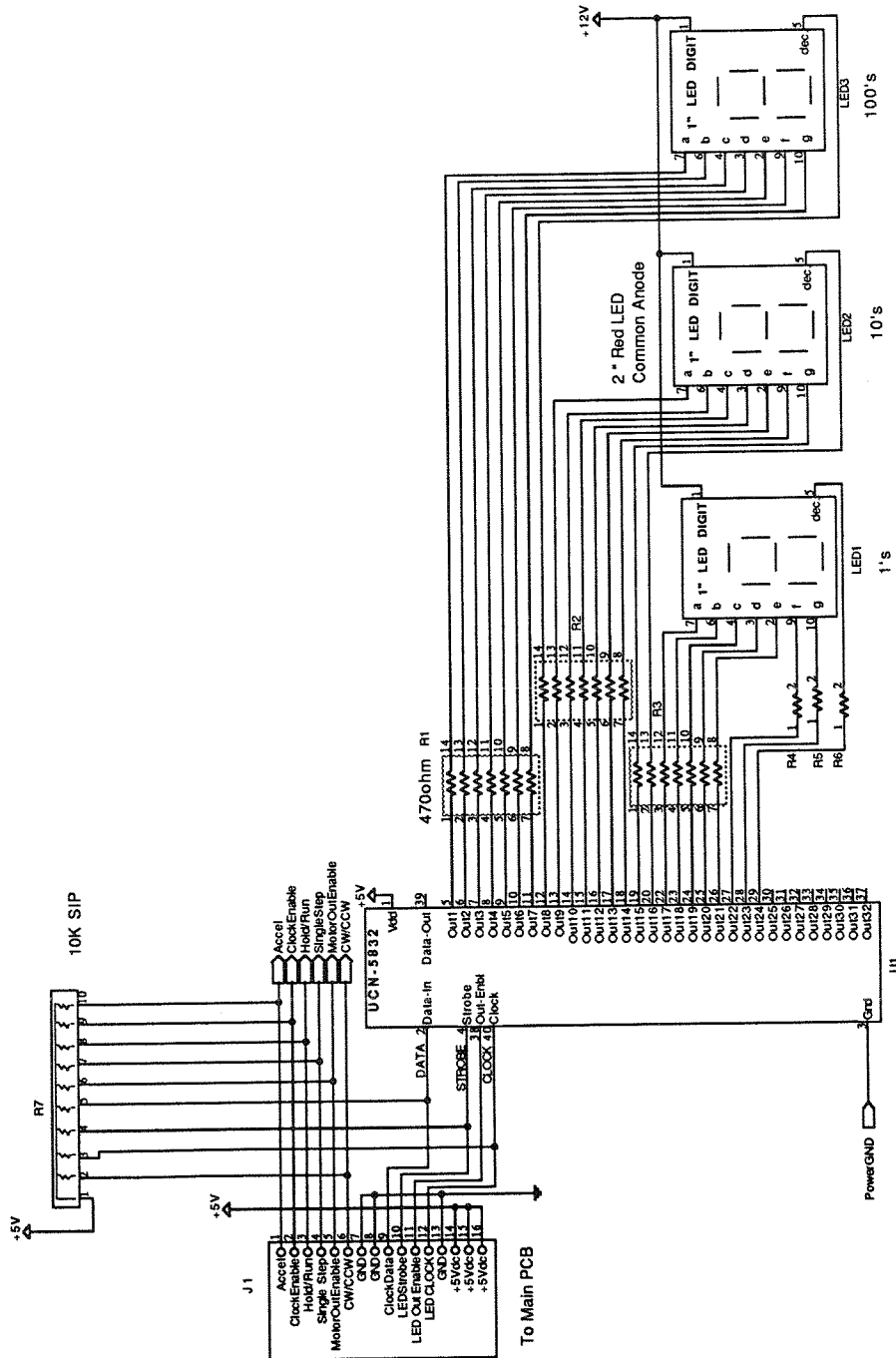
LAST ASSIGNED REFERENCE DESIGNATORS

- CAPACITORS (C): C58
- DIODES (D): D7
- CONNECTORS (J): J10
- LIGHT-EMITTING DIODES (LED): LED7
- OPTO-ISOLATORS (O): O2
- TRANSISTORS (Q): Q13
- RESISTORS (R): R61
- SWITCHES (S): S6
- INTEGRATED CIRCUITS (U): U34
- CRYSTALS (Y): Y2

DEVICES STILL AVAILABLE

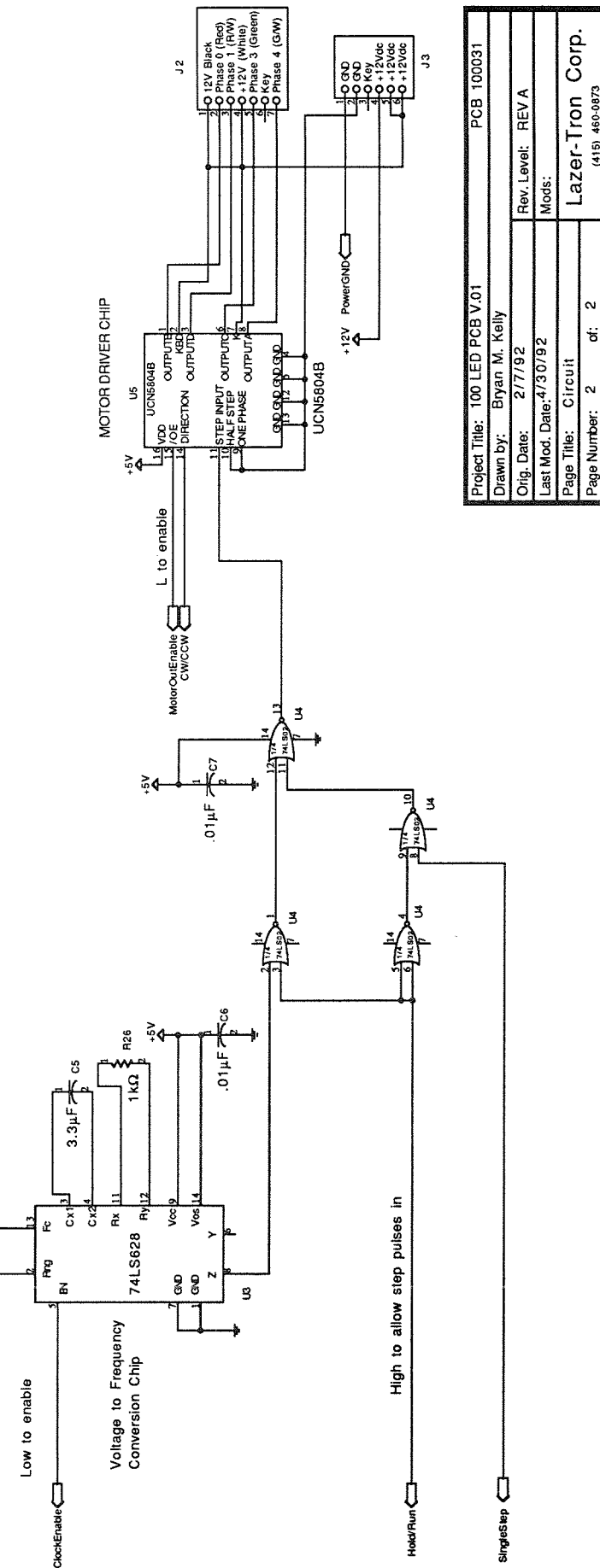
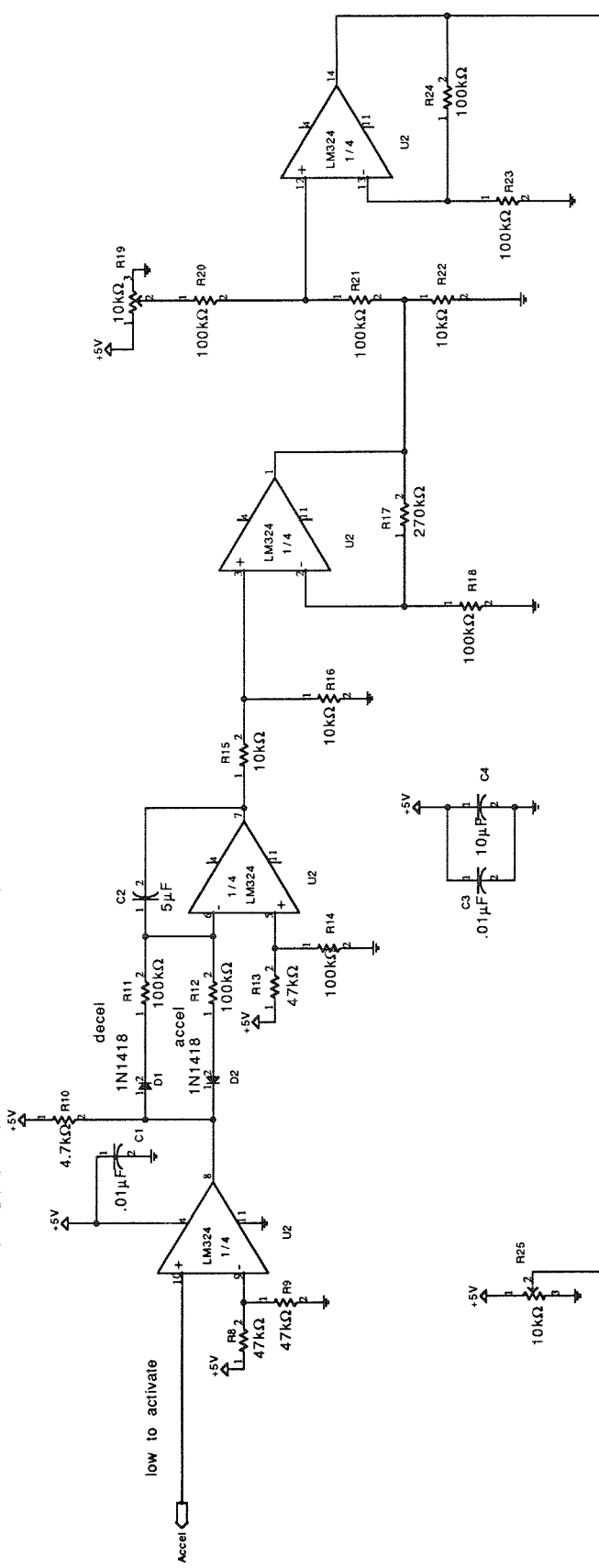
- 1) 74HC14 -- 2 NOR GATES
- 2) 74HC32 -- 3 OR GATES
- 3) 180ohmSIP (R16) -- 1 RESISTOR

Project Title:	Spin Win MAIN PCB V.02	PCB 100030
Drawn by:	B. Kelly	
Orig. Date:	4/27/92	Rev. Level: REV A
Last Mod. Date:	7/6/92	Mods:
Page Title:	Small LED Circuitry	Lazer-Tron Corp.
Page Number:	7	of: 7
		(415) 460-0873

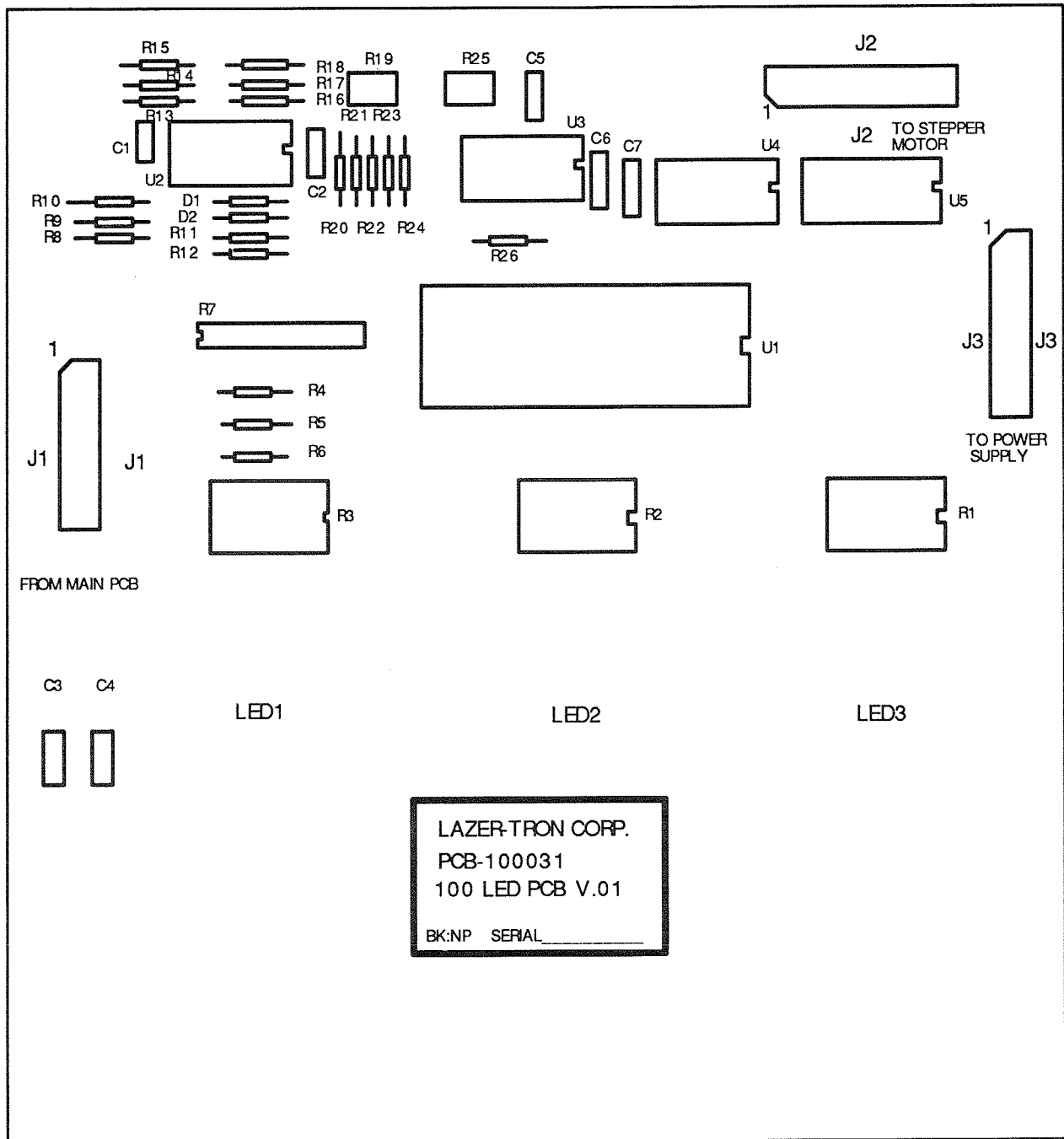


Project Title: 100 LED PCB V.01		PCB 100031	
Drawn by: Bryan M. Kelly		Rev. Level: REV A	
Orig. Date: 2/7/92		Modis:	
Last Mod. Date: 4/30/92		Page Title: Circuit	
Page Number: 1		of: 2	
Lazer-Tron Corp. (415) 460-0873			

EXPONENTIAL GROWTH AND DECAY CIRCUITRY FOR MOTOR

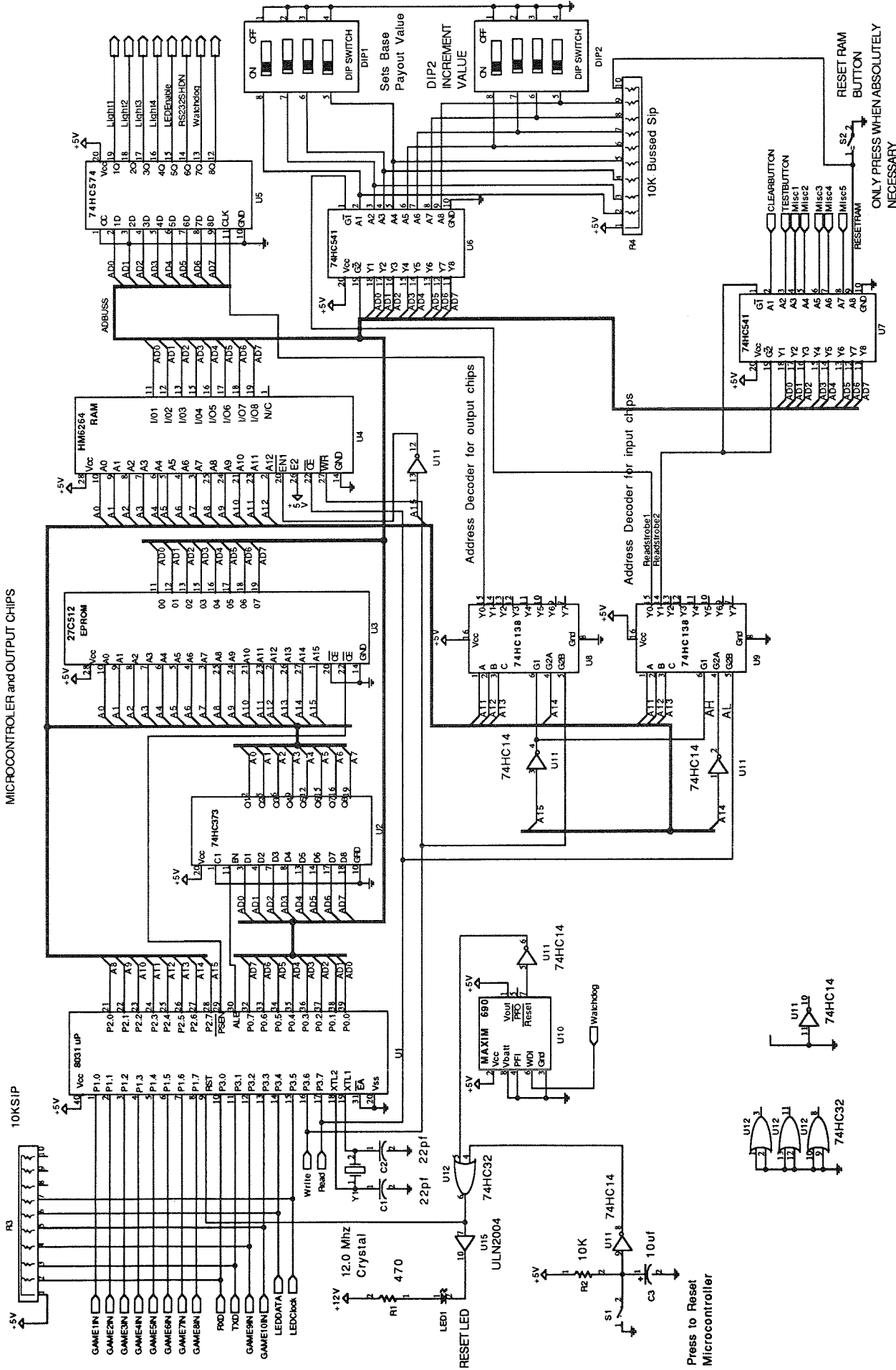


Project Title: 100 LED PCB V.01	PCB 100031
Drawn by: Bryan M. Kelly	Rev. Level: REV A
Last Mod. Date: 4/30/92	Mod:
Page Title: Circuit	Lazer-Tron Corp.
Page Number: 2 of 2	(415) 460-0873



100 LED SILKSCREEN V.01
 Tue, Feb 25, 1992 5:25 PM
 Component Side Scale1:1

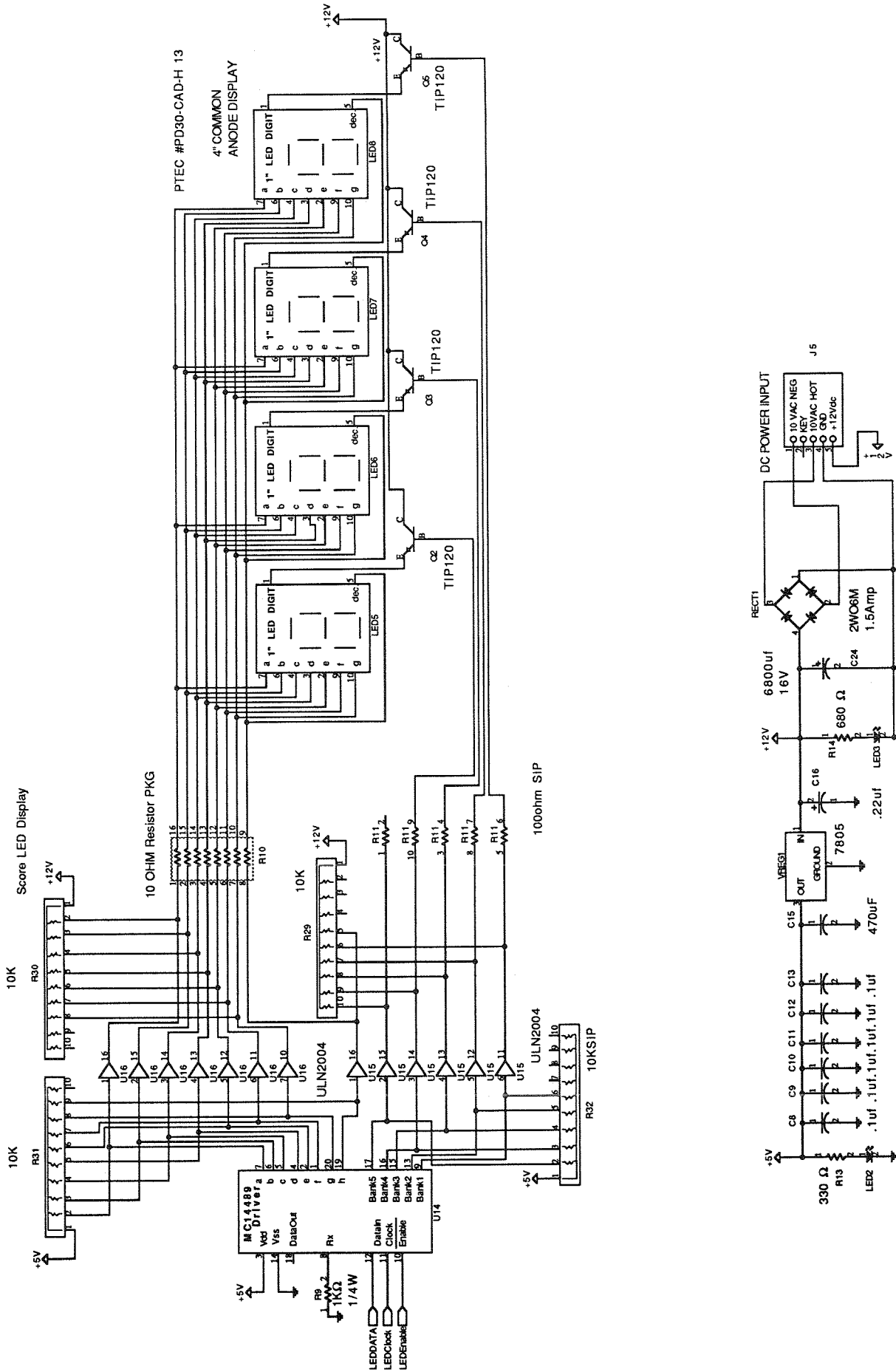
MICROCONTROLLER and OUTPUT CHIPS



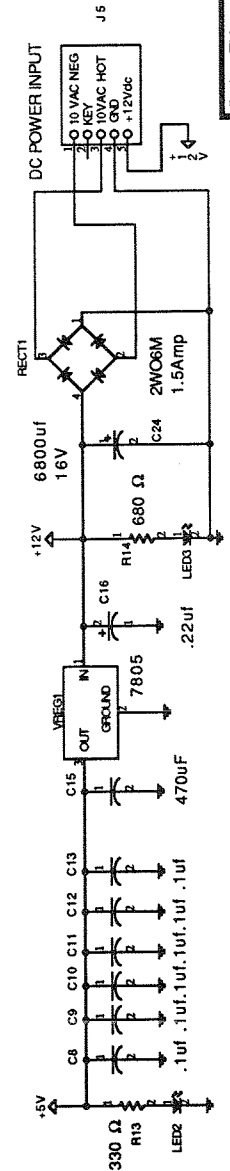
Project Title: 100 Prog Display V.02	PCB 100034
Drawn by: B. Kelly	Rev. Level: REV A
Orig. Date: 6/22/92	Mods: & Mods
Last Mod. Date: 6/22/92	Page Title: MICROCONTROLLER
Page Number: 1	of: 4
Lazer-Tron Corp. (415) 460-0873	

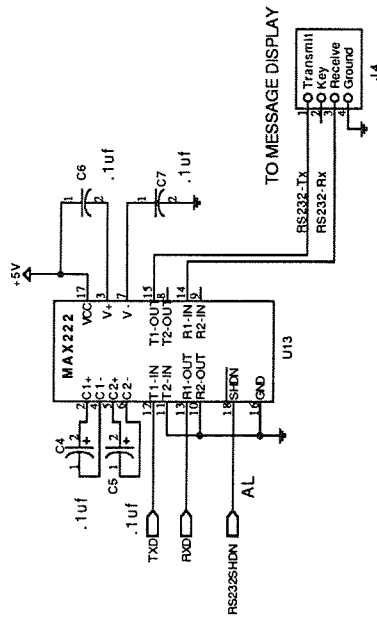
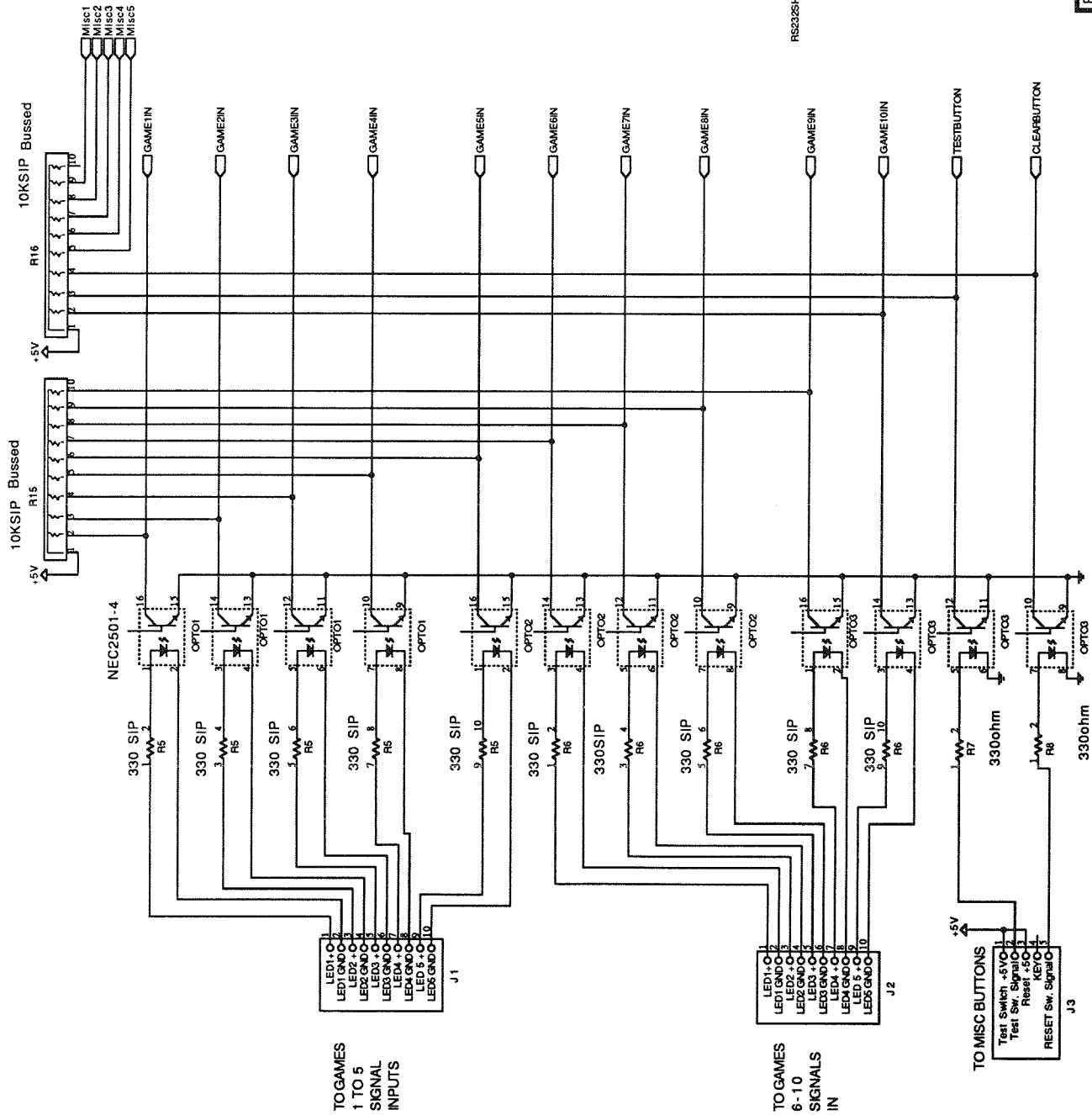
ONLY PRESS WHEN ABSOLUTELY NECESSARY

Press to Reset Microcontroller

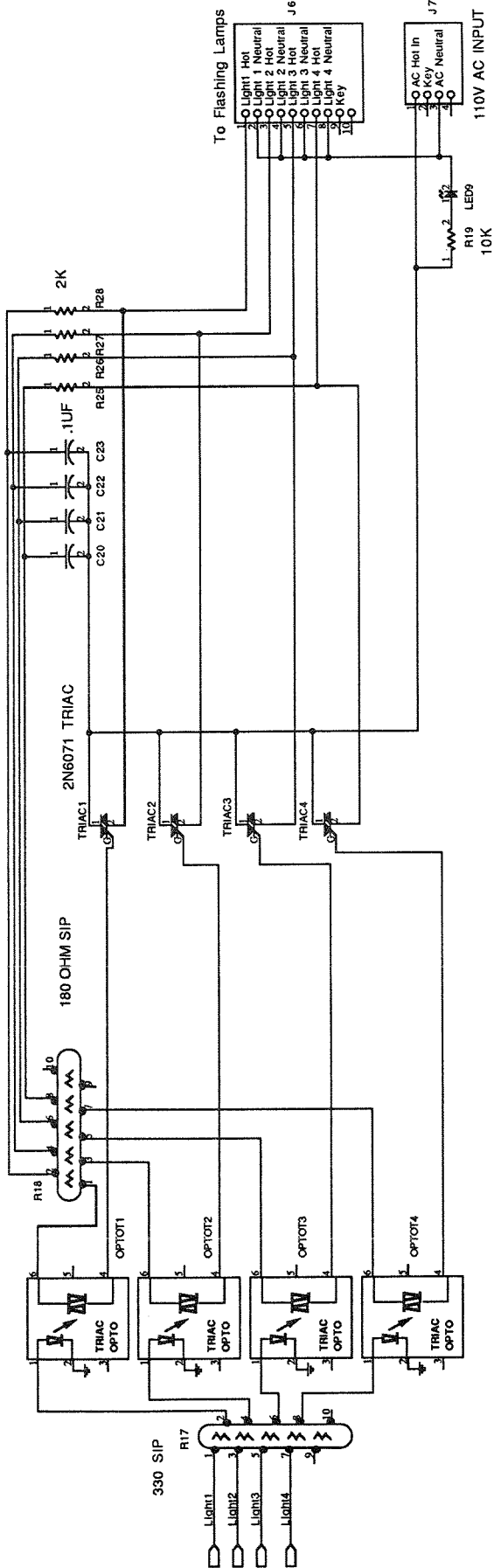


Project Title: 100_Prog_Display V.02		PCB 100034	
Drawn by: B. Kelly	Rev. Level: REV A		
Orig. Date: 6/22/92	Mod: &Mods		
Last Mod. Date: 6/22/92	Page Title: LED Display Circuitry		
	Page Number: 2	of: 4	
Lazer-Tron Corp. (415) 460-0873			



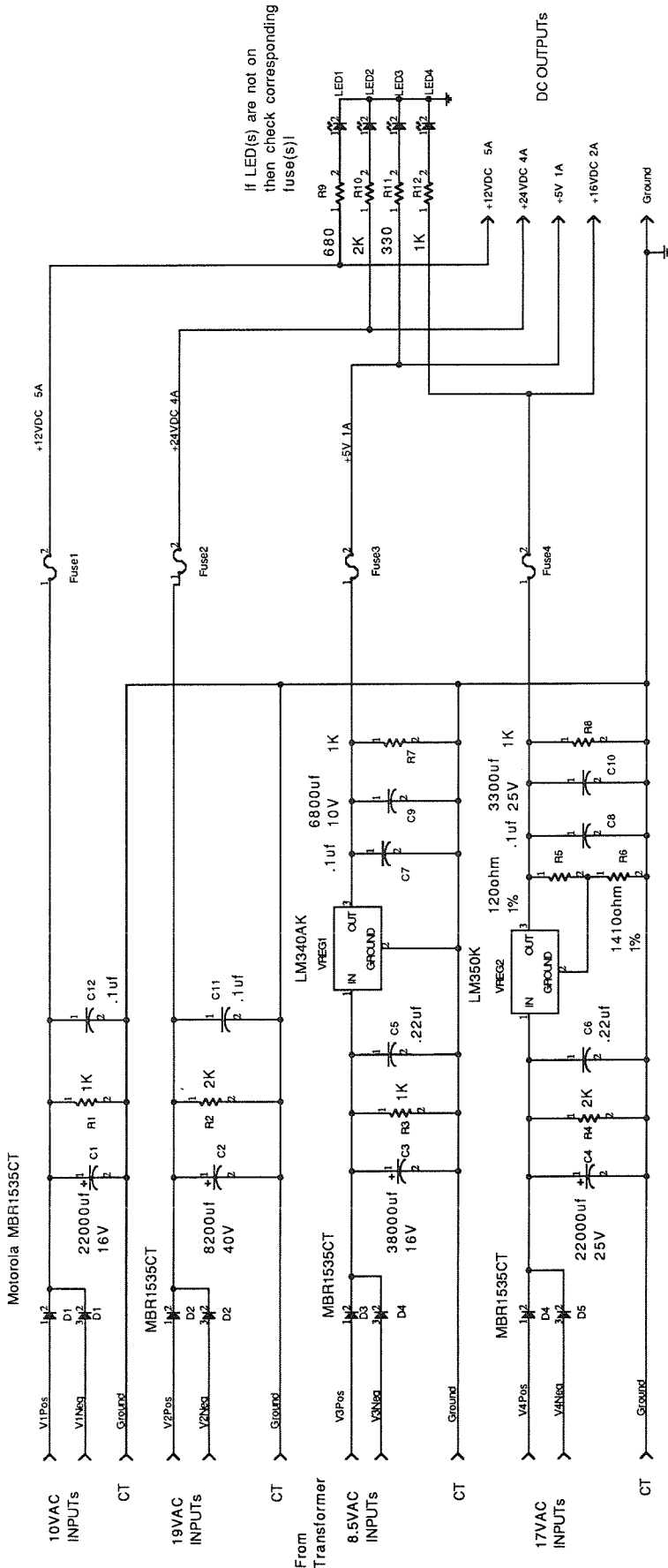


Project Title: 100_Prog_Display_V.02		PCB 100034	
Drawn by: B. Kelly		Rev. Level: REV A	
Orig. Date: 6/22/92		Last Mod. Date: 6/22/92	
Page Title: INPUTS		Page Number: 3 of 4	
		Lazer-Tron Corp.	
		(415) 460-0873	

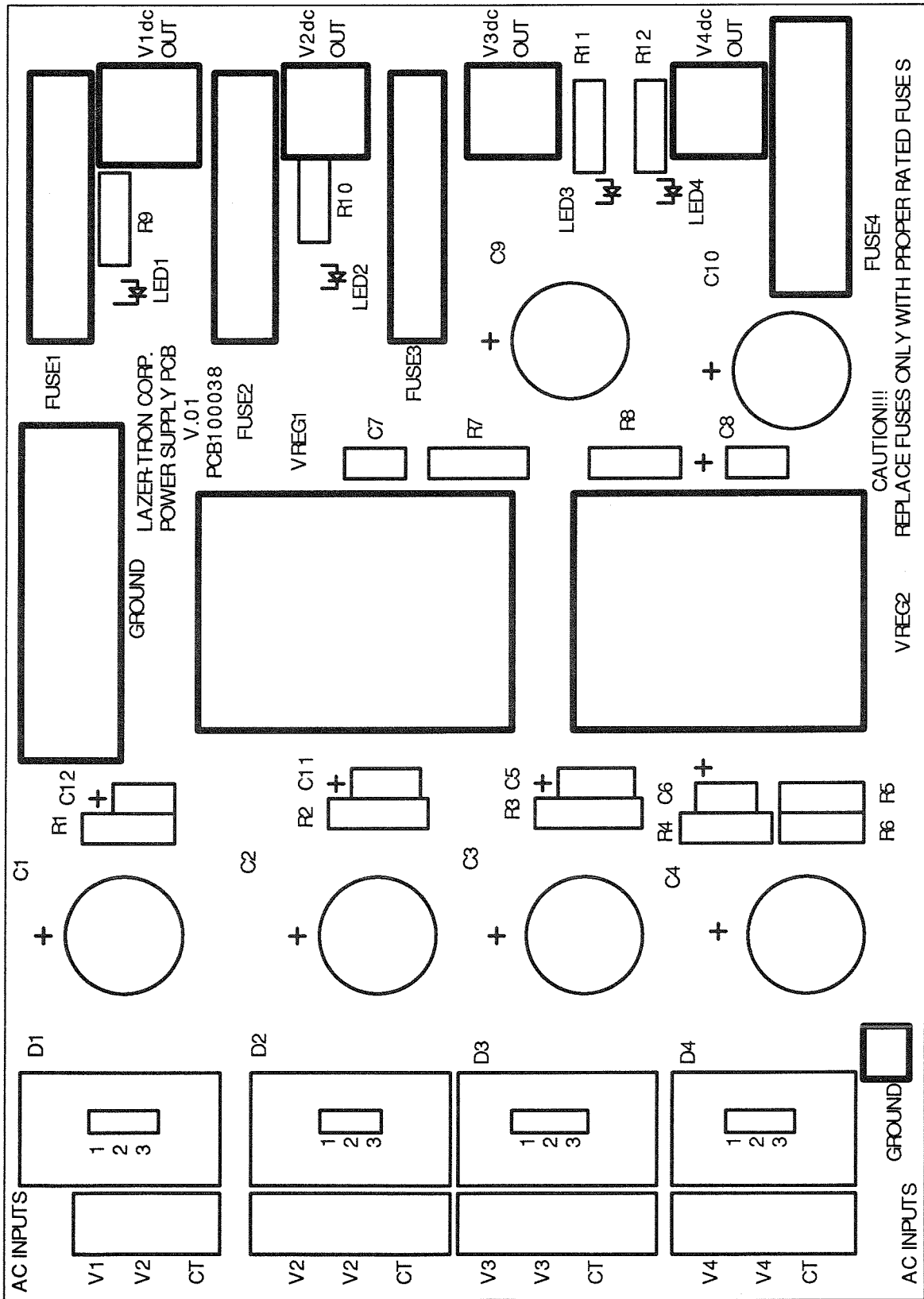


Warning!!! Make Sure
Power is off when
servicing this circuitry!

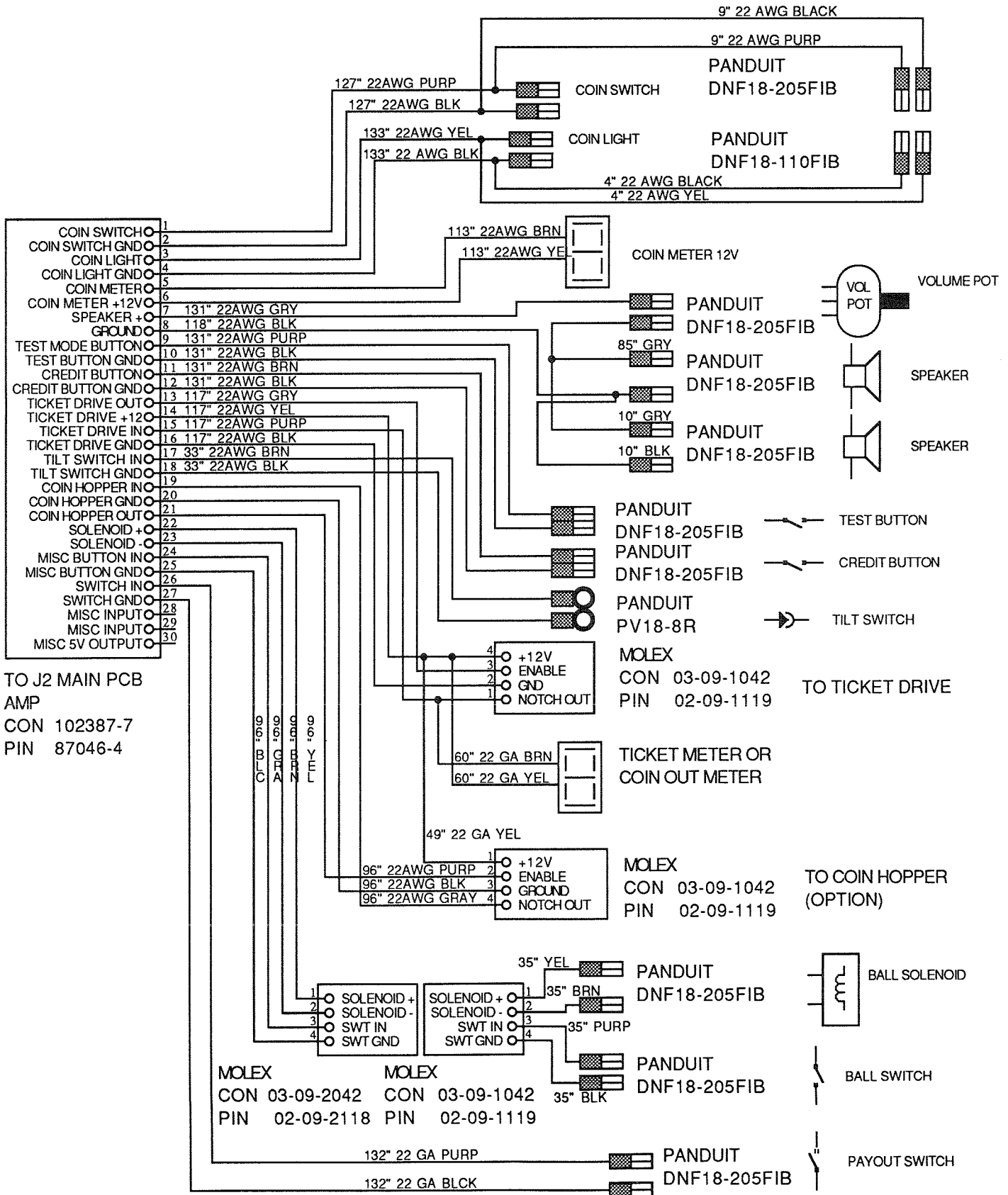
Project Title: 100_Prog_Display_V.02		PCB 100034
Drawn by: B. Kelly		Rev. Level: REV A
Orig. Date: 6/22/92		Mods: &Mods
Last Mod. Date: 6/22/92		Page Title: 120V Lamp Drivers
Page Number: 4 of 4		Lazer-Tron Corp. (415) 460-0873



Project Title: Mod 100 Power Supply PCB V.01		PCB100038	
Drawn by: N. Petermeier		Rev. Level: A-1	
Orig. Date: 6/17/92		Mods:	
Last Mod. Date: 7/6/92		Page Title: Power Supply	
Page Number: 1		of: 1	
Lazer-Tron Corp.			
(415) 460-0873			



MAIN I/O HARNESS
CUS 250307



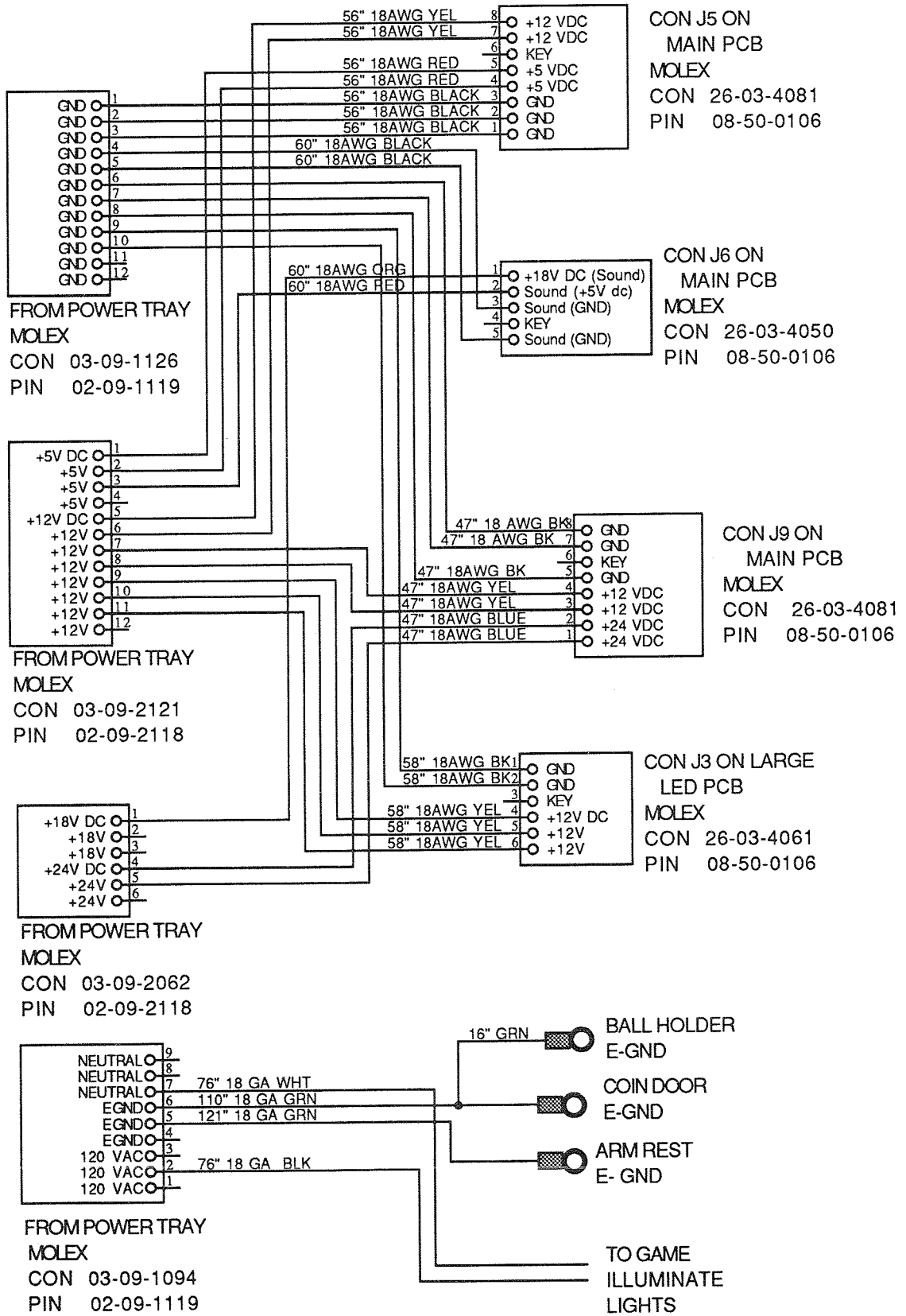
TO J2 MAIN PCB
AMP
CON 102387-7
PIN 87046-4

MOLEX CON 03-09-2042 PIN 02-09-2118
MOLEX CON 03-09-1042 PIN 02-09-1119

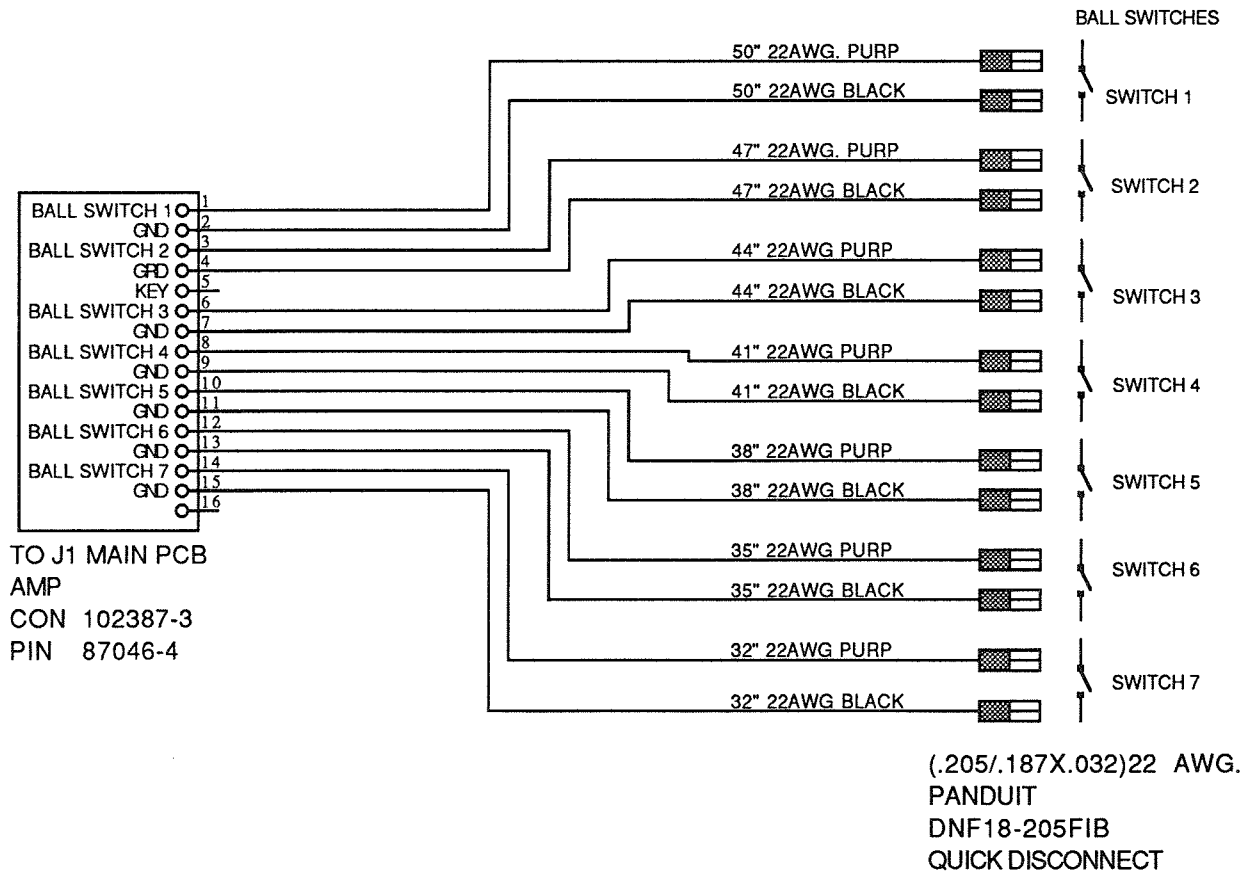
MOLEX CON 03-09-1042 PIN 02-09-1119
TO TICKET DRIVE

MOLEX CON 03-09-1042 PIN 02-09-1119
TO COIN HOPPER (OPTION)

POWER DISTRIBUTION HARNESS
CUS 250313

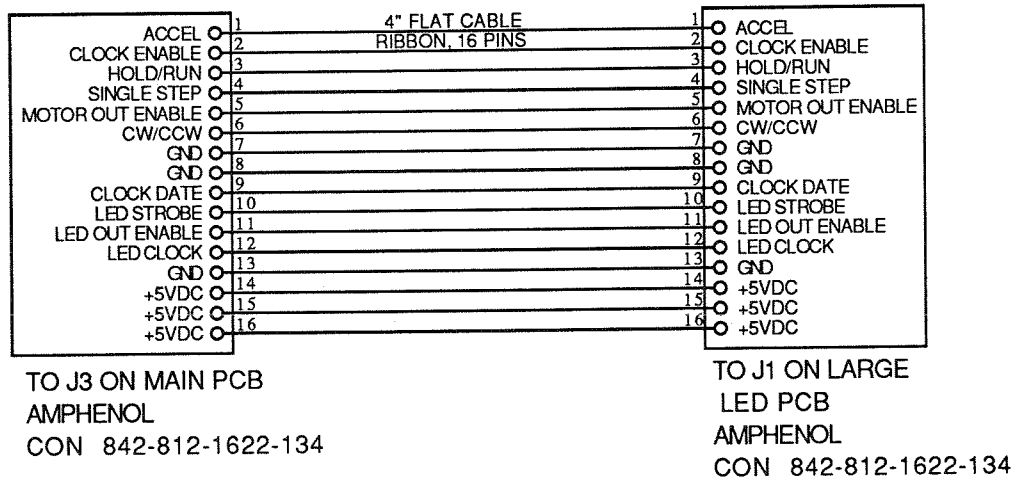


BALL SWITCHES HARNESS
 CUS 250306

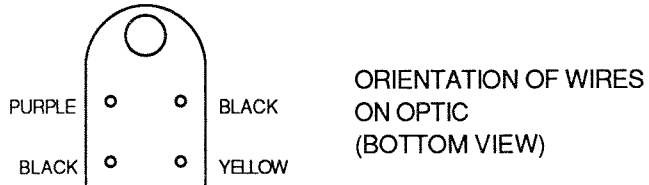
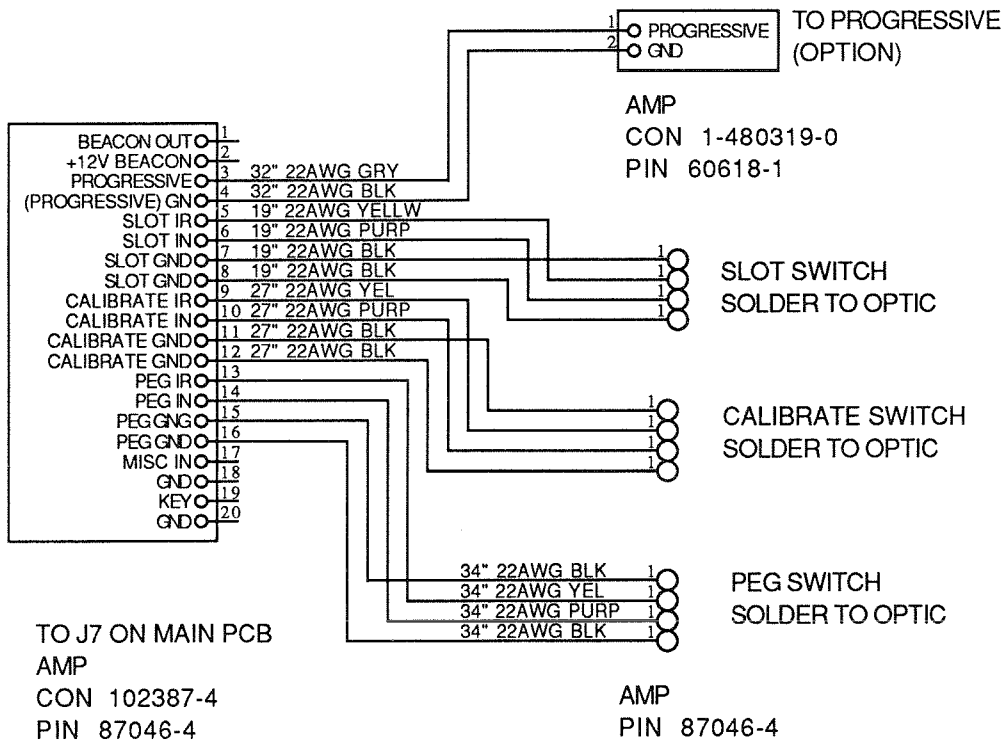


NOTE: ALL 22AWG WIRES ARE SEMI-RIGI-PVC INSULATION 80 DEGREES CELSIUS
 300V UL 1061 19 STRAND OR HIGHER

FLAT CABLE HARNESS
CUS 250308

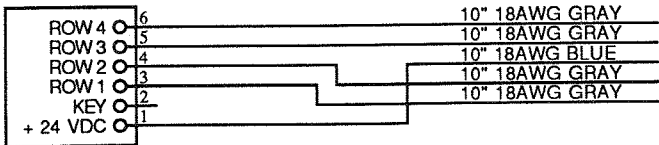


OPTICS HARNESS
CUS 250309



CHASING LIGHTS HARNESS
 CUS 250310

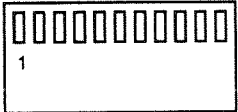
97" OF RUNNING LIGHTS ARE REQUIRED PER GAME



TO CHASING
 LIGHTS

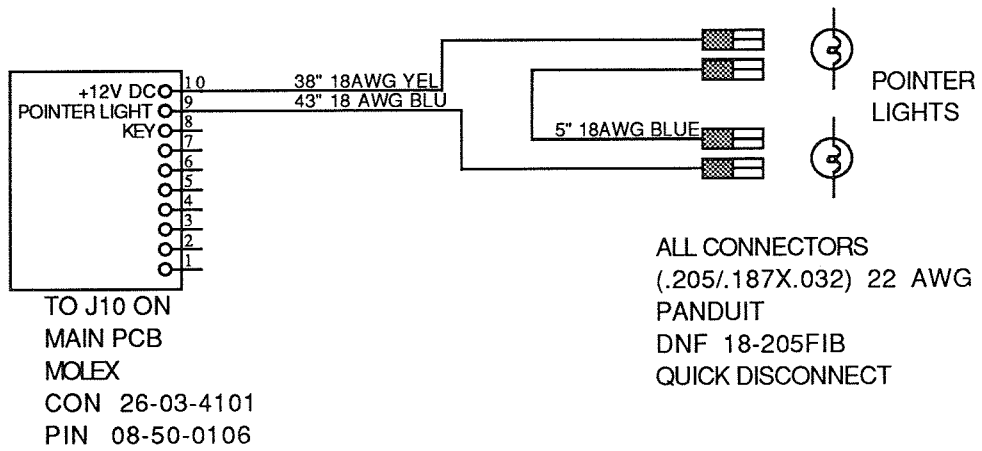
TO J8 ON MAIN PCB
 MOLEX
 CON 26-03-4061
 PIN 08-50-0106

CUT AND STRIP
 INSULATION
 SOLDER WIRES
 DIRECTLY ON
 CONDUCTORS

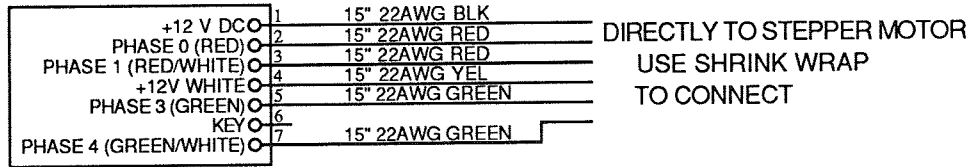


POLARIZATION OF
 .156 MOLEX CON.

POINTER LIGHT HARNESS
CUS 250311



STEPPER MOTOR HARNESS
CUS 250312



TO J2 ON LARGE
LED PCB
MOLEX
CON 26-03-4070
PIN 08-50-0106

SPIN TO WIN SPARE PARTS LIST

DESCRIPTION

LAZER-TRON

ELECTRONICS

Main PCB	BBA 300030	Fuse 2A 1 1/4 SB	HRD 200793
LED PCB	BBA 300031	Fuse 5A 1 1/4 SB	HRD 200794
Power Supply PCB	BBA 300038	Pointerlight TYPE 89	HRD 200699
Fuse 4A 1 1/4 SB	HRD 200647	15W 120V Clear Blub	HRD 200805
Fuse 3A 115VAC,11/4" SB	HRD 200648	Optical Wheel sensor	IC 110175
Fuse 1A 1 1/4 SB	HRD 200649	Motor Driver Chip	IC 110167

BONUS JACKPOT DISPLAY (BJD) (option)

BJD Display Assy	SUB 400174	Harness-progressive	CUS 250320
POD PCB	BBA 300034	Marquee Plexiglass	CUS 250255
Harness 5 game signal	CUS 250319	Mounting Bracket	CUS 250302
15W 120V Light Bulb	HRD 200805	Transformer	PS 160022

HARNESSES

Flat Cable	CUS 250308	Main I/O	CUS 250307
Optics	CUS 250309	Power Distribution	CUS 250313
Chasing Lights	CUS 250310	Stepper Motor	CUS 250312
Pointer Lights	CUS 250311	Ball Release	CUS 250307
Light string Rope	HRD 200783	Ball Switch	CUS 250306

GLASS & ACCESSORIES

Glass Support, Right	CUS 250325	Glass Plastic Edge Rail	CUS 250268
Glass Support, Left	CUS 250326	Z Bracket to hold glass	CUS 250267
Glass Clip	CUS 250265	Glass edge rail	CUS 250272
Top Cabinet Glass	CUS 250263	Glass Tape	HRD 200807
Lower Cabinet Glass	CUS 250264	Light String Clip	CUS 250266
Plastic Ball Guide	CUS 250270	Double Sided Tape	HRD 200610

ARTWORK (decals)

Rules Sign	CUS 250253	Wheel Cap Decal	CUS 250254
Backwall Decal	CUS 250252	Decal # Set	CUS 250254
Progress Display Plexiglass	CUS 250255	Spin Wheel	CUS 250279

MISCELLANEOUS

Ticket Dispenser DL1275	OEM 190032	ON/OFF Switch	SWT 140015
Rubber Balls 2.5"	HRD 200797	Switch Bracket	CUS 250273
Speaker 8 ohm	HRD 200061	Power Supply Tray Assy	SUB 400169
Speaker Grill	HRD 200091	Ball Release Assembly	SUB 400170
Red Test Button	SWT 140007	Owners Manual	CUS 250329
Green Credit Button	SWT 140008	Colored Caps for chase lights	HRD 200429
Mechanical Counter 12V	HRD 200092	Wheel Cap	CUS 250282
Volume Potentiometer	RES 120057	Stepper Motor	OEM 190037
Large Green Button	SWT 140018	Timing Belt	HRD 200777
Ball Switch CCW	SWT 140017		

STOOL ASSEMBLY (option)

Stool Wood Base	CUS 250262	3/8 x 1 1/2" hex head bolt	HRD 200804
Mushroom Seat (tomato)	CUS 250304	3/8x 3/4" hex head bolt	HRD 200803
Seat bolt down base	CUS 250305	Stool Mounting Hardware	HRD 200782

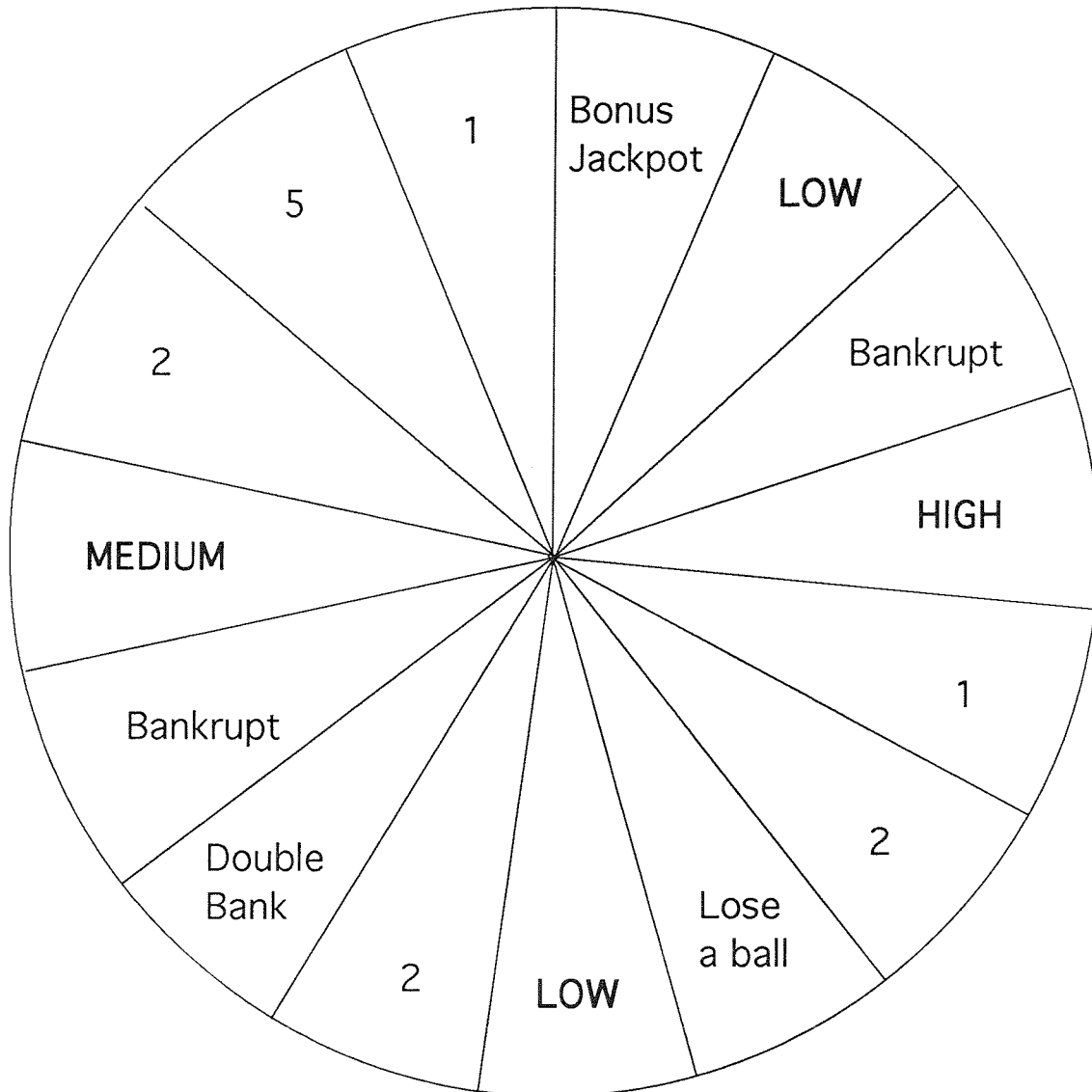
PEG ARM ASSY

Optic	IC 110175	Optic Switch Dowel	CUS 250289
Spring	CUS 250286	Curved Washer	HRD 200773
Flipper Rubber	CUS 250285	Flanged Ball Bearing	HRD 200774
0-80 x 3/4" Screw	HRD 200791	Thrust Bearing	HRD 200775
Spring Dowel	CUS 250288		

BALL RELEASE MECHANISM

Link	CUS 250292	Retainer Ring	HRD 200781
Pivot Pin	CUS 250293	Solenoid 24VDC	RLY 150010
Pivot	CUS 250294	Switch CCW	SWT 140017
Stop	CUS 250295	Cotter Pin	HRD 200778
Extension Spring	CUS 250296	Washer	HRD 200779
Roll Pin	HRD 200780		

Spinning Wheel Chart



Note: LOW, MEDIUM, HIGH Slots are the only slots that can be individually set to allow ticket payout percentaging. After Setting DIP switch you must change the decal # on the spinning wheel to correspond with your desired setting.

To Set a Maximum # of Coins

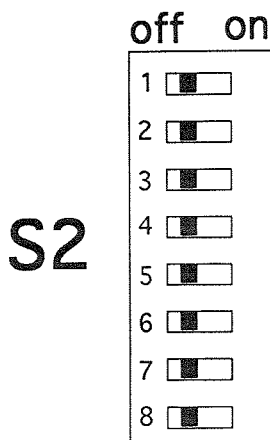


Switch#		# Coins Max.
#1	#2	
OFF	OFF	100
ON	OFF	10
OFF	ON	4
ON	ON	1

Switch#3
ON= 2 coins to play min/max

GENERAL FUNCTION DIP Switch Setting Chart

To enable the Function move the Dipswitch to ON.
Then Turn off the game. Wait 5 seconds and then
turn on the game again.



1. Washington Legal Version (ON=yes)
2. Type of Game
3. No attract Mode (ON=yes)
4. 2 or 3 jackpots in a row for Super Jackpot 2=ON
5. 1 coin gives one ticket to loser (ON=yes)
6. Short bell at when tickets paying out (ON=yes)
7. No tickets to dispense. (ON=yes)
8. Places the game in test mode (ON=yes)

To SET Ticket Values for Spining Wheel

See Spinning Wheel Chart and PCB Layout Chart for
Dip Switch Location

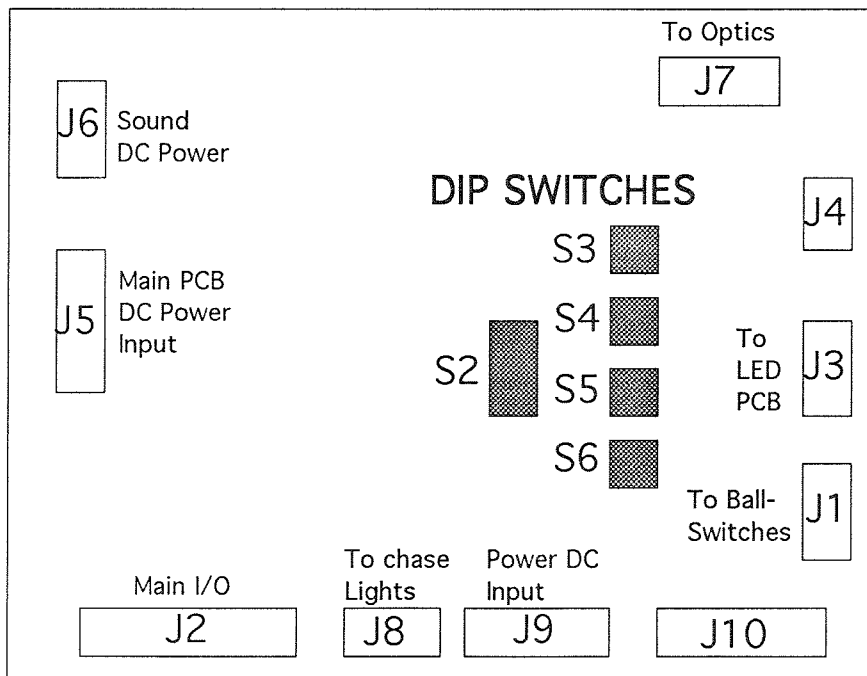
				LOW Tickets	MEDIUM Tickets	HIGH Tickets
Switch #				DIP SWITCH		
#1	#2	#3	#4	S5	S4	S3
off	off	off	off	1	20	35
on	off	off	off	2	18	30
off	on	off	off	3	16	25
on	on	off	off	<u>5</u>	14	<u>20</u>
off	off	on	off		12	<u>15</u>
on	off	on	off		<u>10</u>	10
off	on	on	off		9	9
on	on	on	off		8	8
off	off	off	on		7	7
on	off	off	on		6	6
off	on	off	on		5	5
on	on	off	on		4	4
off	off	on	on		3	3
on	off	on	on		2	2
off	on	on	on		1	1
on	on	on	on		0	0

PCB LAYOUTS

YOU MUST INSTALL DOOR BEFORE POWER UP
OPTICAL SENSORS ARE SENSITIVE TO AMBIENT LIGHT

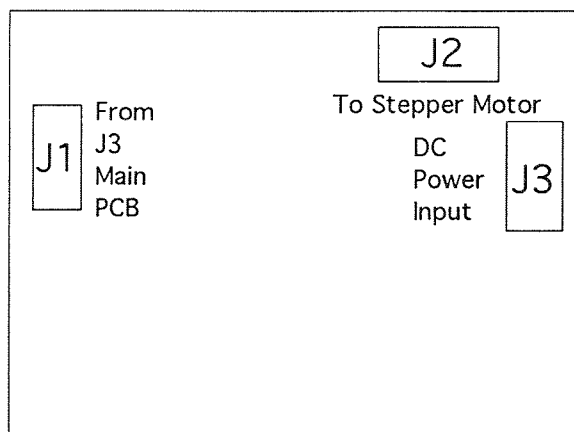
Main PCB Layout

DIP Switch and Connector Locations



LED PCB LAYOUT

Connector Location



TEST SOFTWARE

The following gives a description of the Test Software which is activated by depressing the Test Button inside the coin door and releasing it. To leave the test software you have to press the button again and normal game play will continue.

The Test software has typically three functions:

- 1) To show the average # of tickets paid per coin inserted for the current day.
- 2) To spin the wheel and display wheel calibration information on the Large LED Displays.
- 3) Test all ball switches in the game.

- 1) The first number that comes up on the TICKET BANK LED display is the average number of tickets paid per coin inserted for today only. Thus if the display says 7 then you are giving 7 tickets out for every coin inserted or $(7 * (100 / .25) * 1) = 28\%$ for a U.S. quarter play and 1 cent ticket. This number is useful for it can help you percentage the game to your desire by changing the 4 modifiable slots on the spinning wheel. We suggest that when you get your game you run it at the factory settings and at the end of the day press the test button to get the payout percentage. With this data you can modify the slots on the wheel with the new ticket values to raise or lower your payout percentage. Note the DIP switches on the main board will have to be modified to accomodate this change.
- 2) After a few seconds the payout percentage # is removed and the wheel begins to spin for a few seconds. While the wheel spins you will here the familiar beep that the moving peg activated and you will see the TICKET BANK LED display the following numbers as it spins.

When peg is in following section	The TICKET BANK DISPLAY WILL READ
1) Bonus Jackpot	999
2) 1 ticket	1
3) 5 tickets	5
4) 2 tickets	2
5) MEDIUM ticket slot	whatever you set by DIP switch
6) BANKRUPT	888
7) Double Ticket Bank	777
8) 2 tickets	2
9) LOW ticket slot	whatever you set by DIP switch
10) Lose a ball	666
11) 2 tickets	2
12) 1 ticket	1
13) HIGH ticket slot	whatever you set by DIP switch
14) Bankrupt	555
15) LOW ticket slot	whatever you set by DIP switch

The above is useful in seeing if the computer is reading the DIP switches the way you say they should be set. The above is useful to see if the optics reading the spinning wheel are working properly. The wheel will alternate directions between spins. Thus, we can make sure the wheel is recalibrating itself each time around the wheel. This spinning will continue every few seconds indefinitely.

- 3) By depressing any of the ball switches you should get a short beep sound each time one is pressed. This will be useful in finding any broken switches.

All other miscellaneous game functions can be tested by just playing the game and observing how the game is operating.

You must press the test button again to exit the test mode routine!

BONUS JACKPOT DISPLAY (Optional)

Thank you for purchasing the Bonus Jackpot Display. This B.J.D. adds a new level of excitement and earning potential to the redemption arcade. Many of your sophisticated players will play for several hours attempting to win the super amount of tickets that are displayed on the B.J.D. The Super Bonus Jackpot is won when a player skillfully ends his game while being on the Red Bonus Jackpot slot on the spinning wheel 2 or 3 games in a row. (See page 38 to make it 2 or 3 games). The default setting for a Spin to Win is 3 games.

The Bonus Jackpot Display can be operated in three ways:

The first way is when a coin is inserted into any Spin to Win game the B.J.D. increments by a predetermined amount. If for example there are 3 games attached to the same B.J.D. and a coin is inserted into game #1,#2, or #3, the sign could be set to increment by one ticket. The B.J.D. will keep counting up until a Super Bonus Jackpot is won by any individual player or the B.J.D. shows 9999. *If the sign is set to increment by +1 for every coin inserted into any game, you then have a token counter for you bank of games. This allows for a quick daily check on how much money the games have made.*

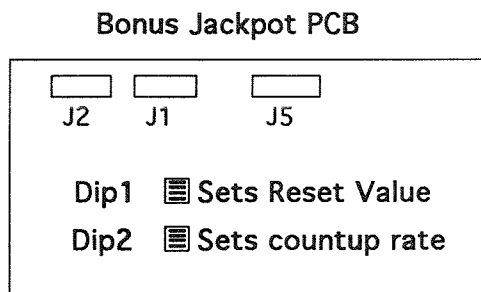
The second way (factory setting) is when the sign has a permanent fixed # of tickets that can be won. For example a player can win 1000 (factory setting) tickets by ending on the Bonus jackpot 3 straight games in a row. (Set DIP2 #1=off, #2=off)(Set DIP1 #1=ON,#2=ON)(See charts below. Note: DIP2 #3 must be set to ON to enable this function.)

The third way is when the sign is allowed to count from a predetermined amount to a maximum. Once the display reaches this number it will stop counting until the Super Bonus Jackpot is won. For example the sign could be set to start counting at 250 and count up to 1000 and then stop. (Set DIP1 #1=ON, #2=OFF) (Set DIP1 #3=OFF,#4=ON)

When Super Bonus Jackpot has been won.

The attendant is to pay the player the amount of tickets shown on the display. Then the operator must open the coin door on the game that won the Super Jackpot and press the test button once. This will reset the Bonus Jackpot to its base setting and will enable the game to be played again. *Note: to insure that there is no technical problem in the sign, make sure the winning game shows 2 or 3 bonus jackpots up on the 1" led display on his individual game. The Super Bonus Jackpot cannot be won unless the player has successfully landed on the Bonus Jackpot 2 or 3 games in a row (operator selectable on main game pc board).*

Test Routine: By depressing the Test Button and releasing the total # of Super Bonus jackpots that have been won to date will be displayed. The lights will flash real fast to indicate the test mode has been entered. If the Reset Button is hit during the test mode the display will reset to its base value that is determined by the Dip switch DIP1 #1 & #2. Press Test Button again to continue normal game play.



DIP2 #1	DIP2 #2	Count Rate
OFF	OFF	0
ON	OFF	1/2
OFF	ON	1

DIP1 #1	DIP1 #2	Reset Value
OFF	OFF	100
ON	OFF	250
OFF	ON	500
ON	ON	1000

DIP2 #3	Maximum Count ON/OFF
OFF	Endless counting
ON	Count up to max. value set by DIP1 #3 & #4

DIP1 #3	DIP1 #4	Count up to
OFF	OFF	250
ON	OFF	500
OFF	ON	1000
ON	ON	2000

* Note: Some jurisdictions may not allow a progressive style of display but will allow a super jackpot, so set your display to increment by zero and have a super bonus jackpot of 1000 for example.

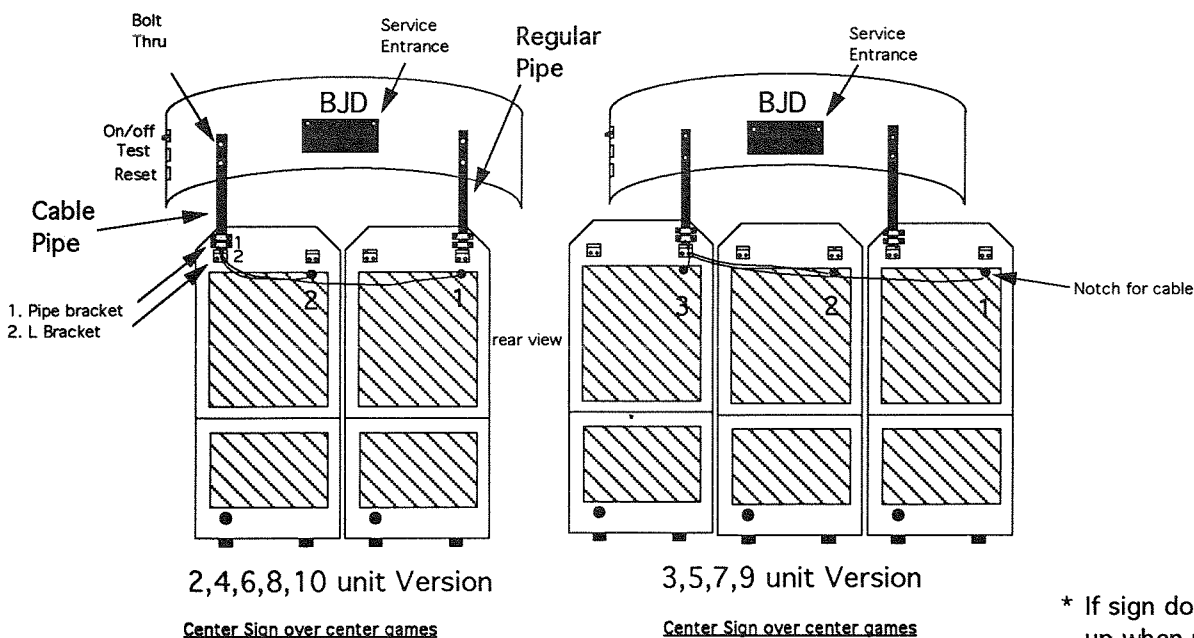
INSTALLATION of (BJD) Bonus Jackpot Display.

To install:

- 1) Remove Plexiglass from front of B.J.D. by removing 10 screws holding it.
- 2) Bolt the pipe with cable in it to the B.J.D in the location shown below. Nuts are on the outside of box.
- 3) Bolt the regular pipe to the back of the B.J.D in the location shown below.
- 4) Attach the cable to the PC Board into Connector J1. (See board layout on previous page)
- 5) Set any DIP Switches as you may require.
- 6) Reinstall Plexiglass to front of B.J.D.
- 7) Secure the L brackets with the supplied screws to the upper cabinet in the positions shown below. If you have more than five games to be banked up read NOTE BELOW. Next, with 2 or more people, support the BJD above the games and rest it on the L brackets. Screw the four pipe brackets into the top cabinet, around the pipes, to secure the poles.
- 8) The cable that comes out of the pipes has 5 individual connectors. Take the connector labeled #1 and pass it through the notch in the upper back door in the left most game and connect it to its mate inside the top cabinet.
- 9) Repeat with connector #2 and so on until all games are hooked up.
- 10) Neatly secure all wires (used and unused) with the ring ties provided.
- 11) Plug in the 120VAC Power Cord.
- 12) Turn on the BJD and insert a coin into a game that is turned on. The sign should increment for each coin inserted. Check all games. Call Lazer-Tron if there are any problems.

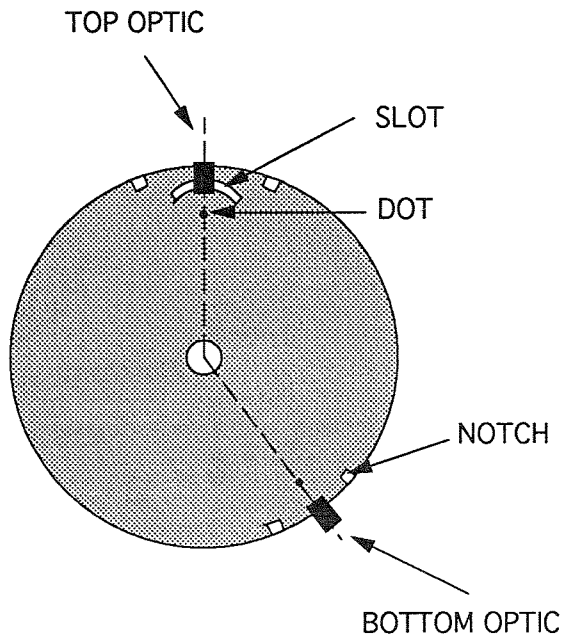
***If you have more than 5 games banked** then you will need to order another cable support pipe which has the cable coming out of the pipe. This new cable support pipe allows another 5 games to be hooked up to the Display PCB through Connector J2. You may have to remove the front plexiglass to hook up the extra cable pipe cable to the Display PCB. You will now have 10 individual connectors coming out of the B.J.D. that can be hooked up to 10 individual games. **DO NOT WORK ON BOARD WITH POWER ON!**

A Maximum of 10 games
can be hooked up to
one progressive sign.



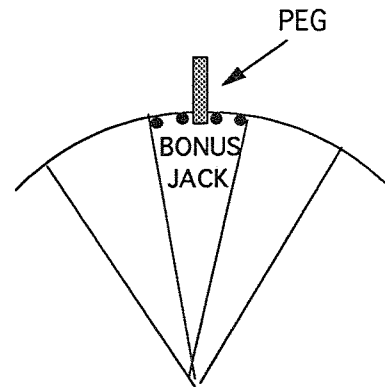
* If sign doesn't light up when power is applied then check fuses.

SPIN TO WIN OPTICS AND WHEEL ADJUSTMENT



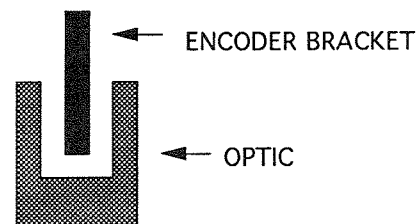
**ENCODER BRACKET AND OPTICS
inside top cabinet**

FIG. 1



**WHEEL
front of game**

FIG. 2



OPTICS CLEARANCE

FIG. 3

1. VERIFY THE WHEEL IS ALIGNED PROPERLY (FIG. 2). WHEN THE "BONUS JACKPOT" CELL IS CENTERED ON THE PEG, THE TOP OPTIC SITS HALFWAY BETWEEN THE NOTCHES ON THE WHEEL AND IS CENTERED ON THE SLOT (FIG. 1).
2. IF THE WHEEL IS NOT ALIGNED, UNDO THE NUT HOLDING THE ENCODER BRACKET. HAVE SOMEONE HOLD THE WHEEL CENTERED WITH THE PEG. MOVE THE ENCODER BRACKET TO THE RIGHT POSITION AND TIGHTEN THE NUT. YOU WILL HAVE TO HOLD THE WHEEL AND BRACKET TIGHTLY SINCE THEY TEND TO SLIP.
3. ALIGN THE BOTTOM OPTIC TO THE DOT ON THE ENCODER BRACKET. MAKE SURE THE FRONT OF THE OPTIC POINTS TOWARDS THE CENTER OF THE CIRCLE AND IT SITS BETWEEN THE NOTCHES IN THE ENCODER BRACKET (FIG. 1). MARK WITH A PENCIL THE EXACT LOCATION OF THE PRE-DRILLED HOLE.
4. SCREW THE BOTTOM OPTIC INTO PLACE. THE TOP EDGE OF THE OPTIC SHOULD BE AS CLOSE TO THE SLOT AS POSSIBLE WITHOUT GOING OVER IT.
5. TAP THE OPTIC LEFT OR RIGHT UNTIL IT IS CENTERED. TIGHTEN SCREW SO BRACKET HOLDING THE OPTIC DOES NOT ROTATE LEFT OR RIGHT.
6. MAKE SURE THE OPTICS **DO NOT** RUB THE WHEEL (FIG.3).