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# KALKOMAT

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## Technical Information



**Hammer - Lumberjack**

**MANUFACTURED BY:  
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## 1. INTRODUCTION

Main purpose of this Technical Information is to:

- familiarize user with machine construction
- provide proper setup parameters, installation and power line hookup
- familiarize user with proper and safe usage procedures, exploitation and conservation

**WARNING! USER MUST FOLLOW ALL GUIDELINES INCLUDED IN THIS DOCUMENT FOR SAFE AND LONG LASTING MACHINE USAGE.**

## 2. USAGE / PURPOSE

The Hammer and are a coin operated machines testing of how hard a player can kick the ball. Each Hammer model measure kick power and force. Hammer's can be placed in amusement centers, lunaparks, pubs, bars, bowling centers, young and senior clubs etc. generating tons of positive fun and allowing users to check/measure their kicking skills without potential injury to players. How to play: traditional arcade game requiring to kick strongly to get the highest score. Complete and detail usage instructions are under paragraph 7 of this document (see "Exploitation") and on a sticker placed on each machine.

## 3. TECHNICAL DATA

Model		Hammer - Lumberjack
Dimensions	Depth	122 cm
	Width	104 cm
	Height	202 cm
Overall Mass		130 kg
Power consumption		200 [W]

## 4. ASSEMBLY / CONSTRUCTION DESCRIPTION

The key component is a mother board (electronic board) placed inside Hammer and bodies (block schematics drawing #1) to which mechanical elements and user interface components are connected.

Electric/electronic part contains following:

- power supply (drawing #3) – consists of transformer, fuses and broadcasters that control alarm sirens & electromagnet – transforms voltage from 120 V or 230 V (depending on the country) to 12 V (connected to main board J6)
- measuring mechanism – consists of sending and receiving diodes that measure blade fly speed through assembly
- verbal information mechanism – built using potentiometer and speaker, used to send voice messages warning siren (informs player of breaking top record),
- kicking ball lowering mechanism – consists of button START with backlight and electromagnets – actual lowering mechanism

- power supply switch on also halogen lamp .
- visual information assembly - displays on electronic panel (shows measurement result, credit amount, top day record – see drawing #2) and line of LED's used for visual representation of kick force measurement (represented in model)
- coin acceptor – used to deposit coins (can be reprogrammed to tokens or other currencies).
- bill acceptor – used to deposit bills
- mother board

## 5. TRANSPORT

Machines are shipped on wooden palette and sides are covered with special thick (~12 mm) multi-layer cardboard.

## 6. INSTALLATION

Machine after being taken out of the box should be placed in vertical position and base should be leveled. To level the machine correct tools should be used (exp. laser level or typical manual construction heavy duty level). Turning several screws under the base allows for level adjustment. After plugging the machine to power outlet it should be ready to use.

## 7. USAGE INSTRUCTIONS

- a) Before pressing the "START" button player must stand in the front of the Hammer/Kick Off.
- b) After pressing the "START" button player have to wait in front of the machine for the kicking ball to be released from the blocked position.
- c) After the kicking ball is released player must kick the ball at the center of the ball.
- d) After the kick, a score would be displayed on the front panel.
- e) Follow the same instructions before the next game.

## 8. FIXING POTENTIAL ERRORS

### EVERY TWO WEEKS:

- check the air pressure of the bag. It should be **no more** than 2psi
- check the position of the arm protector
- check all of the connections on the main board
- check the level/balance of the machine. If needed use adjusting legs under the machine to bring the machine to level.

**EVERY MONTH:**

- check mounting cover screws/nuts
- check the lubrication of the mechanism. For the instructions see point C in this section
- check the display lights
- clean the bill acceptor.

**A) COIN ACCEPTOR MAINTENANCE**

Coin acceptor should be cleaned periodically (every 2000 - 3000 credits). Best way to clean it is by using simple cloth slightly soaked in distilled alcohol. Focus should be placed on cleaning the area where coins slide thru (make sure sliding part is in open position).

**B) SOUND VOLUME REGULATION**

R362 potentiometer (see drawing #1) used to control volume is placed on the right side of the electronic board. The volume adjustment can be done by rotating the potentiometer to the left or right.

**C) MAINTENANCE OF MECHANISM AND REGULATING SPRING**

Periodically (once a month or more often, if the lowering ball mechanism of the ball is fairly low) all moving elements should be rubbed/sprayed with WD-40 or grease.

If kicking ball lowers slowly or too fast one should check if spring is properly stretched. Spring can be adjusted with screw that is in the front/left side after taking the masking net.

**E) REPLACEMENT OF INNER KICKING BALL BLADDER**

To replace inner bladder of the kicking ball one should untie rope, take out old insert and replace it with a new rubber bladder. A special attention must be given to the location of the bladder valve. The valve must be placed in the opening of the lather cover.

**G) FUSES REPLACEMENT**

Machine is equipped with two long term fuses. One at power supply assembly and the second one on the main electronic board [specs: 250V & 4 A]. In case of short circuit situation and/or insufficient power supplied to the electronic main board one should first check the fuses and if they are burned, precede with replacement set. Make sure fuses used to replace old once have the same specifications.

## **9. QUICK CHECK FOR POTENTIAL ERRORS.**

### **Main board not functioning:**

- 1 Check all fuses (5A).
- 2 Check connection between power supply and the main board.
- 3 Make sure that main processor and other connectors are well seated.
- 4 The main display can be checked by turning the switch #1 to "ON" position than turning machine off and back on.

### **Coin Acceptor is not functioning:**

- 1 Check if it is not clogged up.
- 2 Check for dust and dirt.
- 3 Check strip connecting main board with the acceptor.

### **Mechanism is not functioning:**

- 1 Check for burned fuse 25A (in power supply [red cable]).
- 2 Check button functionality and if they have proper connection.
- 3 Check for unhooked cable from power supply spools.
- 4 Check strip connecting main board with the power supply.

### **Sensor is not functioning:**

- 1 Check sensors in service mode (using switch 1 and manipulating switch SW1) go to mode PO7. In Kick Off model if is moving UP/DOWN and on the main board (depending on ball position) HI – LO shows (this would indicate that sensor is working)  
In Hammer model if is moving LEFT/RIGHT and on the main board (depending on ball position) HI – LO shows (this would indicate that sensor is working).
- 2 Check if sensor cable is firmly connected to the main board.
- 3 Check all wires to/from sensor.

### **Halogen lights are not functioning:**

- 1 Check power supply cable if it is connected.
- 2 Check power supply wire integrity.
- 3 Check connector plug if halogen did not come lose.
- 4 Check if halogen is not burned by swapping it with a new one (12V 20W).

### **Computer power supply is not functioning:**

- 1 Check if power supply cable is plugged in securely.

### **Power supply is refusing to work:**

- 2 Check if "car" fuse in power supply is not burned 7.5A (brown).
- 3 Check if transformer cable is correctly hooked up to power supply socket.

### **Machine is not starting:**

- 1 Check power cable fuse 5A placed in feeding module (filter).
- 2 Check if filter is not damaged.

### **Counter is showing Err:**

- 1 Check if mechanical counter did not come loose (then turn the machine OFF and ON).

### **Bill Acceptor is not functioning:**

- 2 Check if power supply cable is hooked up to main board (J3).
- 3 Check if cable from bill acceptor is correctly hooked up.
- 4 Check acceptor settings using switches from 1-8 set it at ON 7, and from 1-4 set ON 3 & 4.

**Sound is not working:**

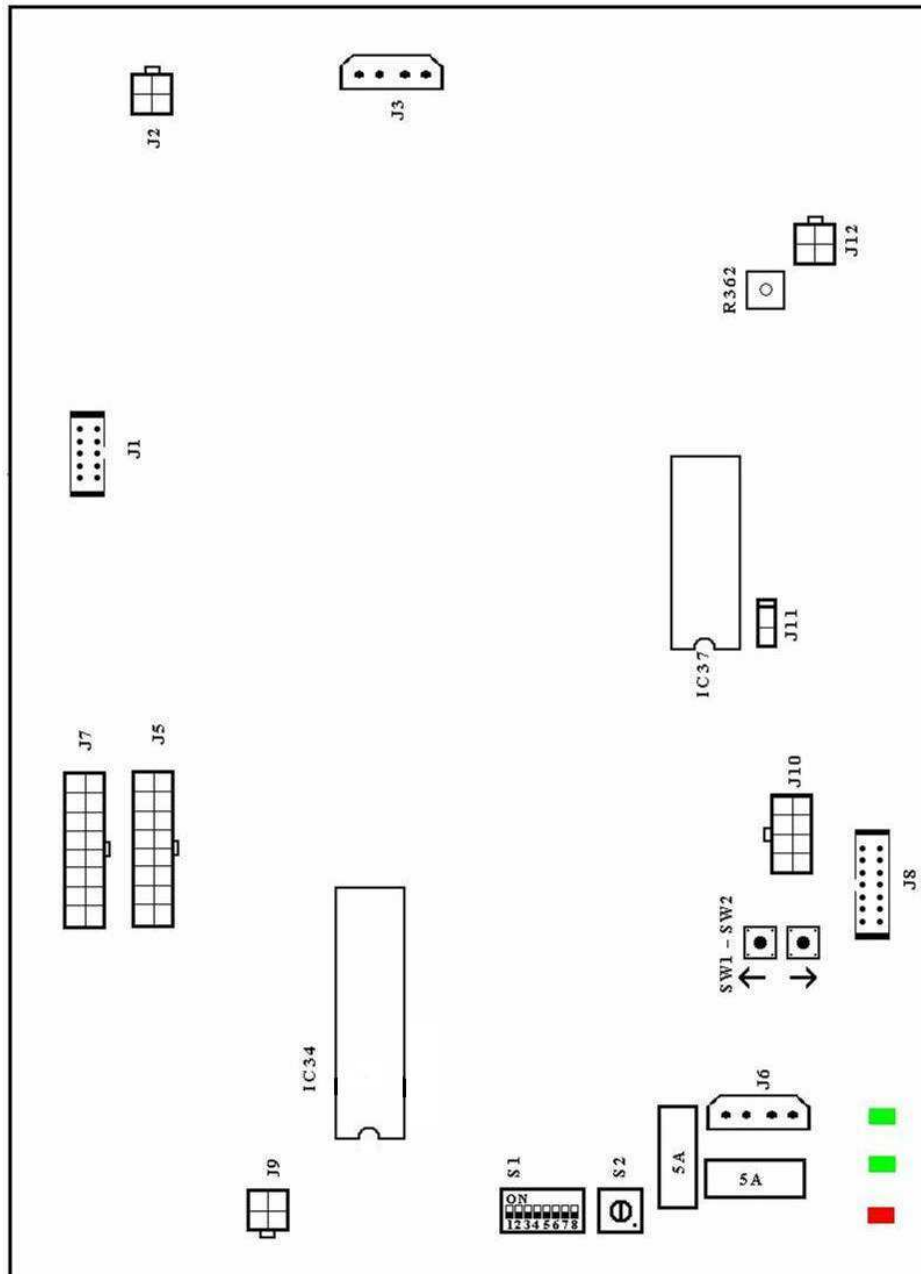
- 1 Check if it is not at low volume or mute (R362)
- 2 Check if cable is correctly connected to the main board.
- 3 Check if cable to speaker is correctly connected.

**Red diode active on main board:**

Usually caused by circuit being shorted at scale bulb array, check all cables for potential shortage.

**Drawing #1**

# Main Board Layout (Back Side)



**J1 –connector for coin acceptor**  
**J2 –connector for bill acceptor**  
**J3 –connector for power supply to bill acceptor (12V supplied by AC power supply)**  
**J7 & J5 – front panel backlight**  
**J6 – connector for main board power supply (12V supplied by AC power supply)**  
**J8 – connector for power supply**  
**J9 – sensor connector**  
**J10 – connector for button Service Key - optional**  
**J11 – connector for mechanical counter**  
**J12 – connector for speaker**  
**S1 – service setting switch**  
**S2 – step potentiometer for setting sensor sensitivity (0 – min, 9 - max) – difficulty of the game**  
**SW1 & SW2 – help buttons (top)**  
**R362 – potentiometer for volume control**  
**IC37 – speak synthesizer**  
**IC34 – main processor socket**

### **Dip Switch 1-8 (S1)**

THE BLUE (BLACK OR RED) SWITCH BOX WITH 8 SWITCHES. THIS SWITCH BOX IS LOCATED ON THE LEFT SIDE OF THE MAIN CIRCUIT BOARD. TO PROGRAM SWITCH #1 MUST BE SET TO “ON” POSITION.

PUSH BUTTONS SW1 ↑ OR SW2 ↓. THEY ARE LOCATED IN THE LOWER LEFT PART OF THE MAIN CIRCUIT BOARD.

DURING REGULAR USAGE OF THE HAMMER AND KICK-OF ALL OF THE SWITCHES MUST BE IN “OFF” POSITION (LEFT SIDE).

#### **Switch #1**

SERVICE KEY. PLEASE USE BUTTONS SW1 ↑ OR SW2 ↓ FOR FINDING THE RIGHT PROGRAM P01-P20. DESCRIPTIONS FOR EACH PROGRAM ARE LISTED BELOW. SERVICE KEY - AFTER PUSHING SMALL BUTTONS ↑ YOU WILL SEE P01-P20 ON THE MAIN DISPLAY (THE BIGGEST).

REMEMBER FOR SOME SETTINGS YOU NEED TO USE SERVICE BUTTON PLACED ON THE RIGHT SIDE OF SIDE POWER SUPPLY (SMALL RED BUTTOM)

#### **P01**

TEMPORARY COUNTER OF POINTS. YOU CAN RESET IT TO 0000 BY PUSHING AND HOLDING THE SERVICE BUTTON FOR 10 SECONDS.

#### **P02**

COUNTER OF POINTS. THIS IS LIFE LONG - NOT ERASEABLE.

#### **P03**

COUNTER OF THE FREE HITS WHICH YOU ACTIVATE BY DIP SWITCH # 2 FOR “ON” POSITION.

#### **P04**

COUNTER OF THE POINTS FOR ONE CREDIT, ANOTHER WORDS HOW MANY POINTS ARE NEEDED FOR ONE CREDIT. THE POINTS ARE SET BY THE SERVICE BUTTON.

Example: I game (credit) is worth four points, so the P04 will be set to 4.



**P05**

YOU CAN ADJUST ADDITIONAL CREDITS FOR SOME BILL OR COINS. USING THE SERVICE BUTTON YOU CAN ADJUST FOR HOW MANY POINTS (5\$, 10\$, 20\$, 50\$) YOU WILL RECEIVE DESIRE NUMBER OF CREDITS WHICH YOU SET BY SERVICE BUTTON.

Example USA: you want to set 8 credits (kicks) for 5\$, you should set 20-8.  
Example Europe: 5 credits for 2 EURO, you should set 4-5

**P06**

YOU CAN ADJUST ADDITIONAL CREDITS FOR SOME BILL OR COINS, ANOTHER THAN IN P05, **BUT ALWAYS FOR BIGGER VALUE OF THE BILL OR COIN THAN IN P05**

WITH THE SERVICE BUTTON YOU CAN ADJUST FOR HOW MANY POINTS (5\$, 10\$, 20\$, 50\$) YOU WILL RECEIVE DESIRE NUMBER OF CREDITS WHICH YOU SET BY SERVICE BUTTON.

Example: you want give for 5\$-8 (credits) kicks, you should set 20-8.  
you want give for 10\$-18 (credits) kicks, you should set 40-18

**P07**

TESTING OF THE SENSOR. IF IN KICK OFF MACHINE BALL IS IN THE DOWN POSITION - ON THE DISPLAY YOU WILL SEE - "LO". BALL IS IN THE UP POSITION - DISPLAY SHOWS "HI".

TESTING OF THE SENSOR. IF IN HAMMER MACHINE BALL IS IN THE LEFT POSITION - ON THE DISPLAY YOU WILL SEE - "LO". BALL IS IN THE RIGHT POSITION - DISPLAY SHOWS "HI". THIS IS USED FOR DIAGNOSTIC ONLY

**P08**

YOU CAN SET THE BEST SCORE UNBEATABLE RECORD WHICH WILL BE ON THE DISPLAY FOR **POWER** ONLY.

PLAYERS WILL NEVER BE ABLE TO RECEIVE HIGHER SCORE.

THIS SET UP YOU CAN MAKE BETWEEN 900 AND 990. THE VALUE OF THE BEST SCORE YOU CAN ADJUST BY USING SERVICE BUTONS. AFTER YOU SET THE DESIRE RECORD YOU MUST TURN "ON" SWITCH # 5.

**IMPORTANT: AFTER YOU SET THE RECORD AND PUT SWITCH #5 TO "ON" POSITION YOU MUST TURN OFF THE MACHINE FOR 5 SECONDS.**

**P09**

IS USED FOR DIFFERENT SETTINGS OF THE COIN ACCEPTOR, FOR EXAMPLE: 0-USA, 1-CANADA

**P10**

PARAMETER USED BY FACTORY. DEFAULT SETTINGS IS 0

**P11**

TICKET DISPENSER 1 - "ON", 0 - "OFF".

**P12**

HOW MANY TICKETS FOR 1 CREDIT (RANGE FROM 0-5)

**P13**

HOW MANY TICKETS FOR THE RECORD (RANGE FROM 0-20)

**P14**

"BREAKING POINT"- BP

SETTING THAT WOULD ENABLE THE TICKET DISPENSER TO START GIVING OUT THE TICKETS (RANGE FROM 0-990). FACTORY SETTING IS "0"



**P20**

YOU CAN CLEAR THE CREDITS BY PUSHING THE SERVICE BUTTON

**P21**

IT SHOW HOW MUCH COINS/NOTES WERE INSERTED WHILE MECHANICAL COUNTER WAS OFF.

**P22**

SHOWS HOW MANY TIMES THE TOP SCORE/RECORD WAS BROKEN

**Switch #2**

WHEN "ON" MACHINE IS SET FOR FREE KICK.

**Switch #3**

IF ON "DEMO" WILL PLAY EVERY 2 MINUTES, WHEN THE MACHINE IS NOT USED. IF "OFF" THE SOUND IS TURNED OFF.

**Switch #4**

WHEN "ON" THE HIGHEST SCORE FOR EACH GAME WILL BE RESET. AFTER YOU PUSH THE SERVICE BUTTON. WHEN "OFF" THE TOP SCORES WILL STAY DISPLAYED.

**Switch #5**

WHEN "ON" YOU WILL ACTIVATE UNATTAINABLE RECORD WHICH YOU MUST SET BEFORE IN PO8 (SERVICE KEY).  
REMEMBER: TO ACTIVATE THIS RECORD YOU MUST TURN OFF FOR 5 SECONDS AND TURN ON THE MACHINE.

**Switch #6**

**NOT USED**

**Switch #7**

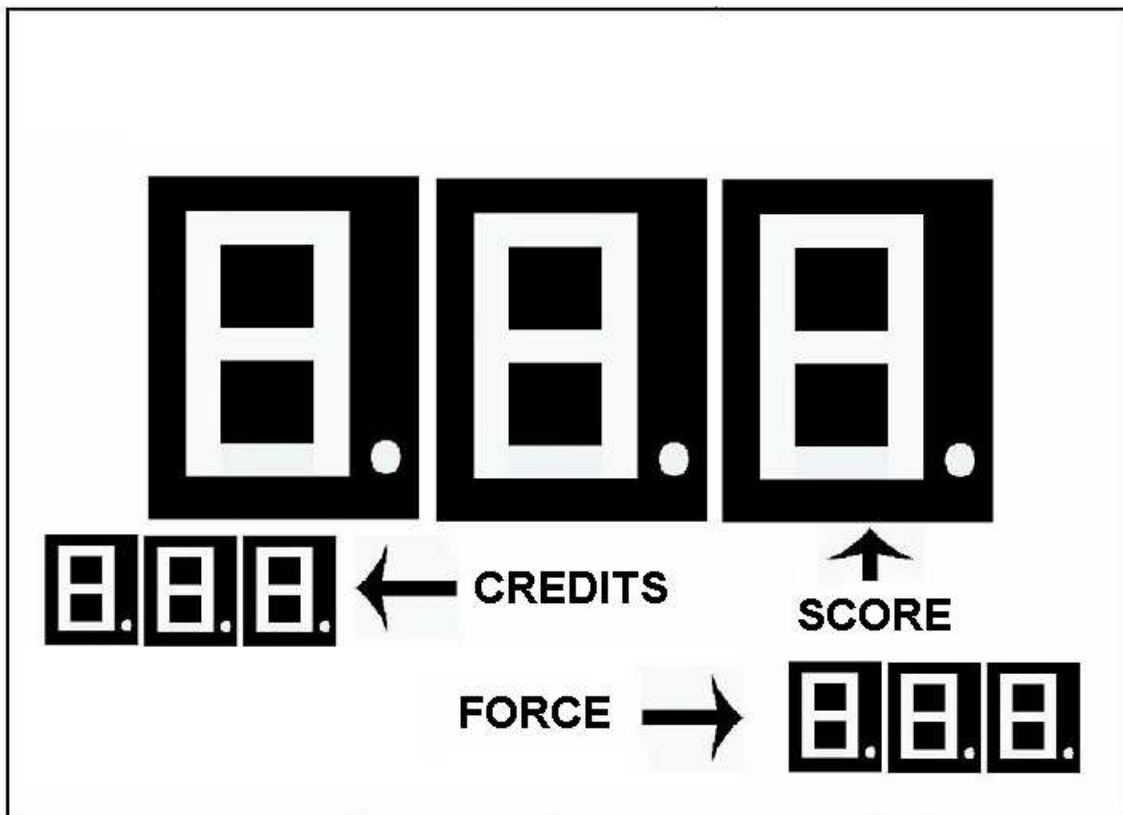
IF IS ON RESULTS ARE SHOWN IN YARDS

**Switch #8**

**NOT USED**

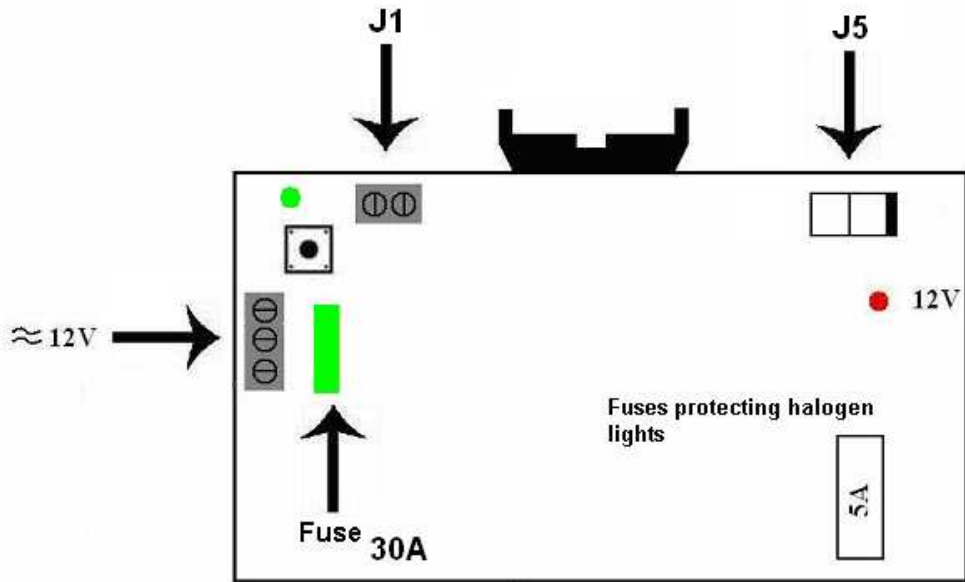
Drawing 2

## Main Board Layout (Front)

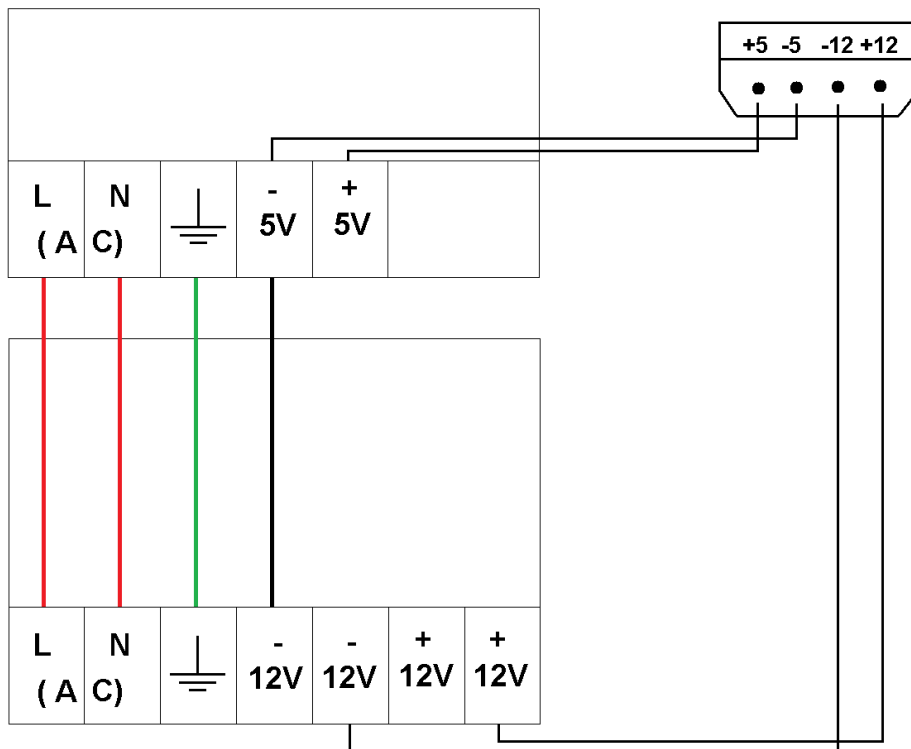


Drawing 3

# Power Supply Layout:



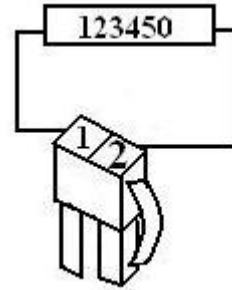
Drawing 4



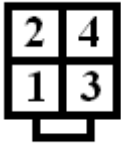
### Mechanical counter



2 – red wire from mechanical counter  
1 – black wire from mechanical counter

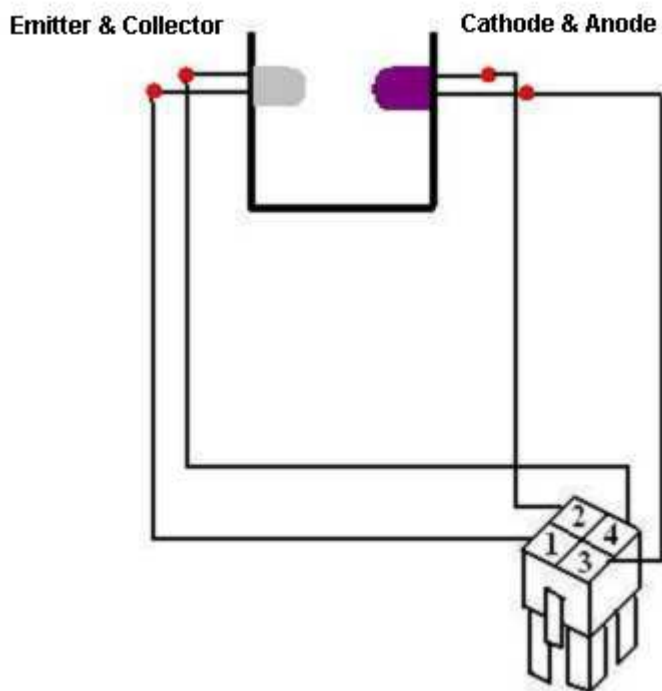


### Sensor

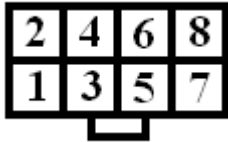


1- Emitter  
2- Cathode  
3- Anode  
4- Collector

### **Drawing #5**



### Buttons Start & Game

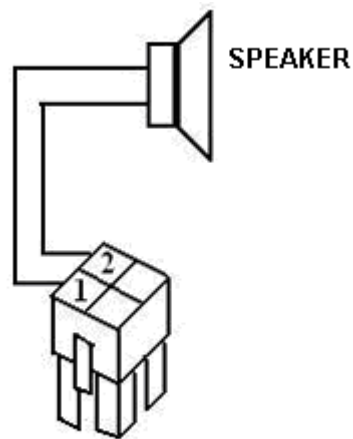


1 & 2 – bulbs lighting button  
5 & 6 – service button  
7 & 8 – Start button

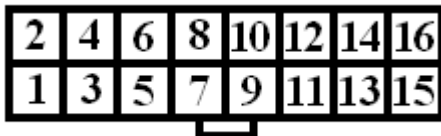
### Speaker



1 - speaker  
2 - speaker  
3 - unused  
4 - unused

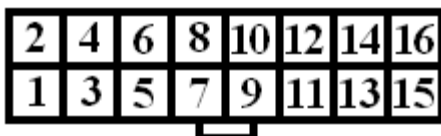


### J 5 In Hammer Machine



6 – Eyes Led's (-)  
5 – Eyes Led's (+)

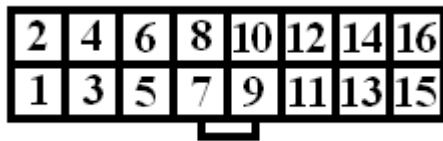
### J5 In Kick Off machine



6 – Eyes Led's (-)  
5 – Eyes Led's (+)  
4 – Led's (-)  
3 – Led's (+)

- 2 – Led's (-)
- 1 – Led's (+)

### **J7 In Kick Off machine**



- 8 – Eyes Led's (-)
- 7 – Eyes Led's (+)
- 6 – Led's (-)
- 5 – Led's (+)
- 4 – Led's (-)
- 3 – Led's (+)

### **Paper Money Depositor**



- 1 – Credit relay (Common) normally purple. Pin#8 at the ICT connector
- 2 – +12V (Power) normally red. Pin#5 at the ICT connector
- 3 – GND (Power) normally orange. Pin# 9 at the ICT connector
- 4 – Credit relay (N.O) normally blue. Pin# 7 at the ICT connector

### **10. SPARE PARTS AND EQUIPMENT**

- leveling legs 4 pieces
- punching bag pump 1 piece
- bladder 1 piece