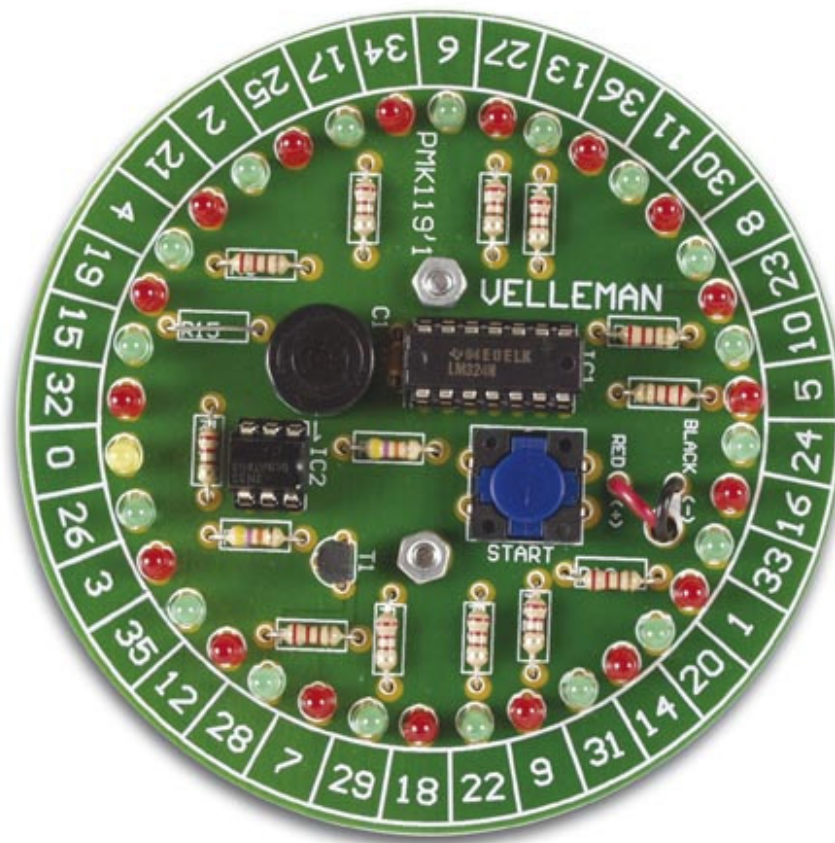


## **Assembly & Build Project (A)**

### **‘Roulette Wheel’**

**(TIME 1.5 HOURS)**



**Figure 1**

#### **Instructions:**

Assemble and solder the components onto the ‘Roulette Wheel’ printed circuit board (PCB) as shown in Figure1 following steps 1- 9

Marks will be awarded for:

- Completely assembled and soldered PCB.
- Quality of work.
- Working unit.

#### **INDUSTRIAL ELECTRONICS**

Submitted by:- Raymond Coyle  
TP16 Regional Competition  
United Kingdom  
Version 1.0 Date ----04-2012

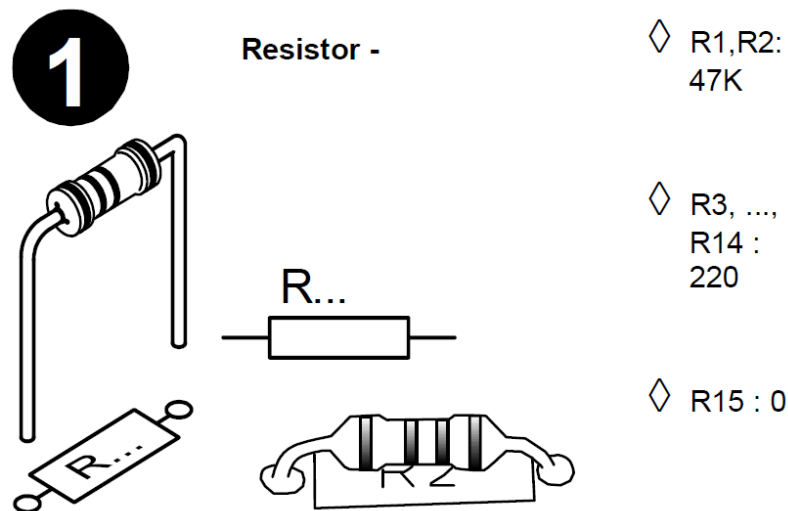
### Marking Criteria:

A0	<b>Assembly Project</b>	<b>Total---20.00 marks</b>
A1	<b>Correct Assembly (component placement and lead forming)</b>	10 Marks
A2	<b>Soldering Quality</b>	8.0 Marks
A3	<b>Working unit.</b>	2.0Marks

Note - 0.5 marks will be deducted for **each**:

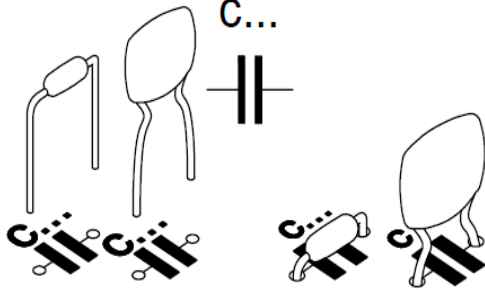
- a) missing component, including screws and nuts etc.
- b) component leads not trimmed to acceptable quality standard.
- c) damaged component .
- e) observed unsafe working practice. (if judges deem that a candidate’s working method(s) is likely to endanger the candidate’s safety or another competitor’s safety, said competitor could be eliminated from the competition)

### Assembly Instructions: (A):



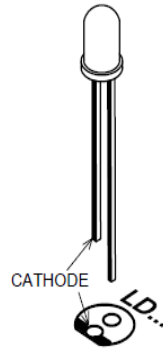
## Assembly Instructions: (A):

### 2 CAPACITOR



◇ C1 : 100nF (104)  $\mu$ 1

### 3 LEDs

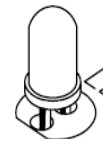


0 : Yellow

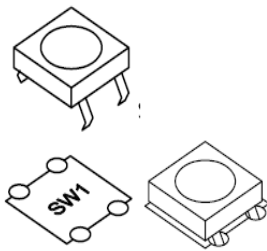
32,19,21,25,34,27,36,30,23,5,16,1,14,9,18,7,12,3  
Red

15,4,2,17,6,13,11,8,10,24,33,20,31,22,29,28,35,26  
Green

Watch the polarity !  
Att. à la polarité !

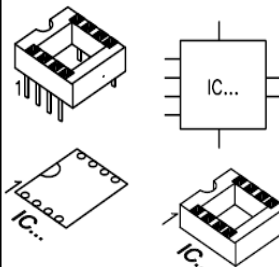


### 4 PUSHBUTTON



◇ SW1

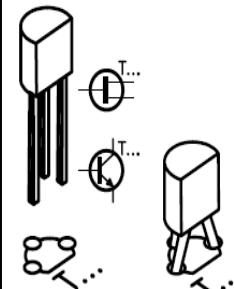
### 5 IC SOCKET



◇ IC1 : 14P

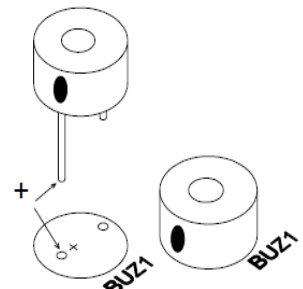
◇ IC2 : 6P

### 6 TRANSISTOR



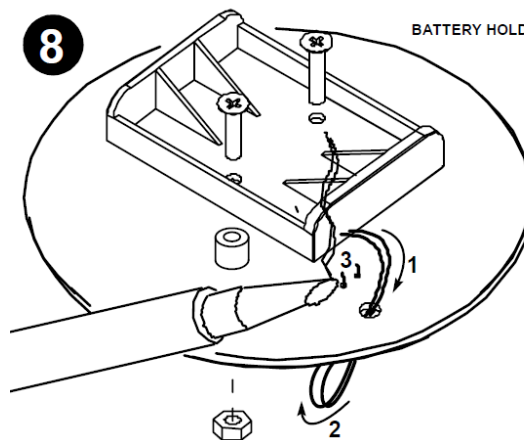
◇ T1 : BC557

### 7 BUZZER

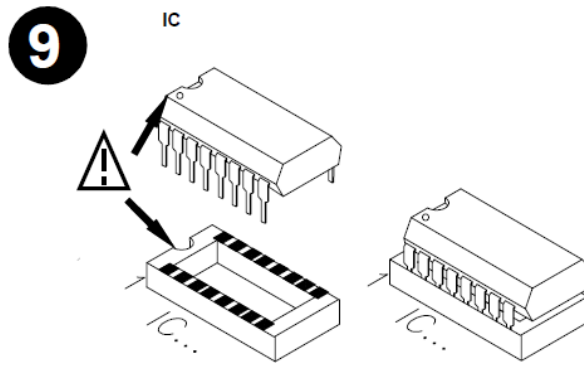


◇ BUZ1

### 8 BATTERY HOLDER

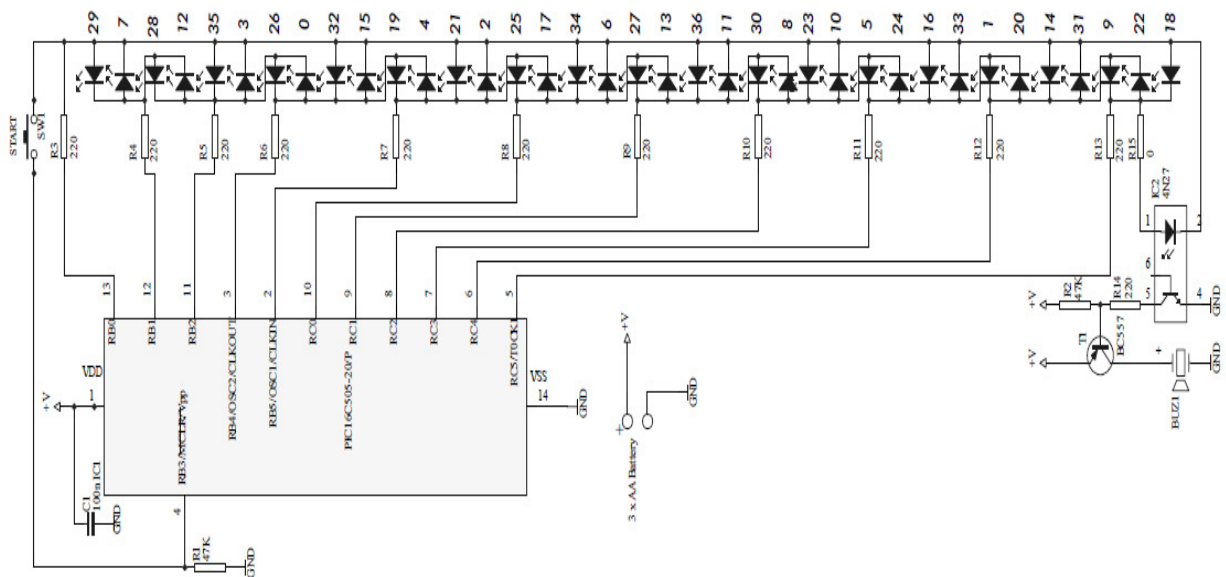


## Assembly Instructions: (A):



- ◇ IC1 : VMK119 (prog. PIC16C505)
- ◇ IC2 : 4N33 or eq.

## Circuit Diagram: (A)



## Testing Instructions: (A)

- Connect the appropriate voltage supply to the unit.
- Operate the push – button switch and observe that each of 37LEDs operate in turn.
- Listen for a ‘Spinning’ sound.
- Listen for a ‘Winning’ sound for each colour.
- Observe that the LEDs spins/illuminates between games.
- Note the auto power off time---(approx..)