

**ELECTRONIC WINDMILL 25 LED**  
**CODE 153** **LEVEL 1**

This circuit is the running light circuit. The shape is the same to the propeller. This circuit is consist of 25 LEDs. Idea as light-shows for model construction etc.

**Technical specifications:**

- power supply: 9-12VDC.
- consumption: 26-56mA max.
- adjustable running speed with potentiometer.
- PCB dimensions : 2.53 x 2.79 inch.

**How to works:**

TR1, TR3 and TR5 is configured as frequency generator. TR1, TR3 and TR5 will step operation 3 steps. The frequency generate is depending on R 10KΩ and C 10 μF which configured as speed of chasing light. TR2, TR4 and TR6 are invert the frequency and drive LEDs. R 220Ω is voltage drop for each LED. VR10K is used to adjust the speed of blinking.

**PCB assembly:**

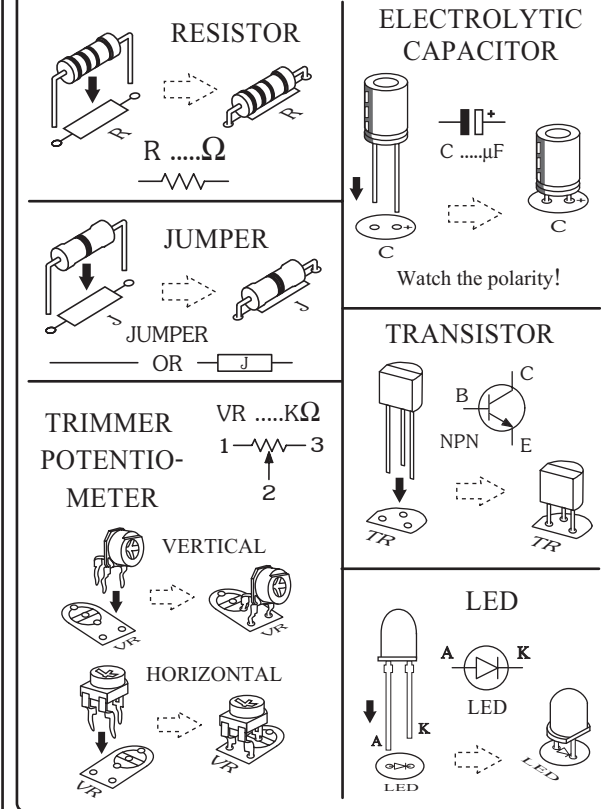
Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. All components with axial leads should be carefully bent to fit the position on the PCB and then soldered into place. Make sure that the electrolytic capacitors are inserted the correct way around. The LED has a flat spot on the body which lines up with the line on the overlay. Now check that you really did mount them all the right way round!

**Testing:**

The board should be given a final inspection before power is applied. After connect the battery 9V to the circuit. With the positive pole is connected to "+"

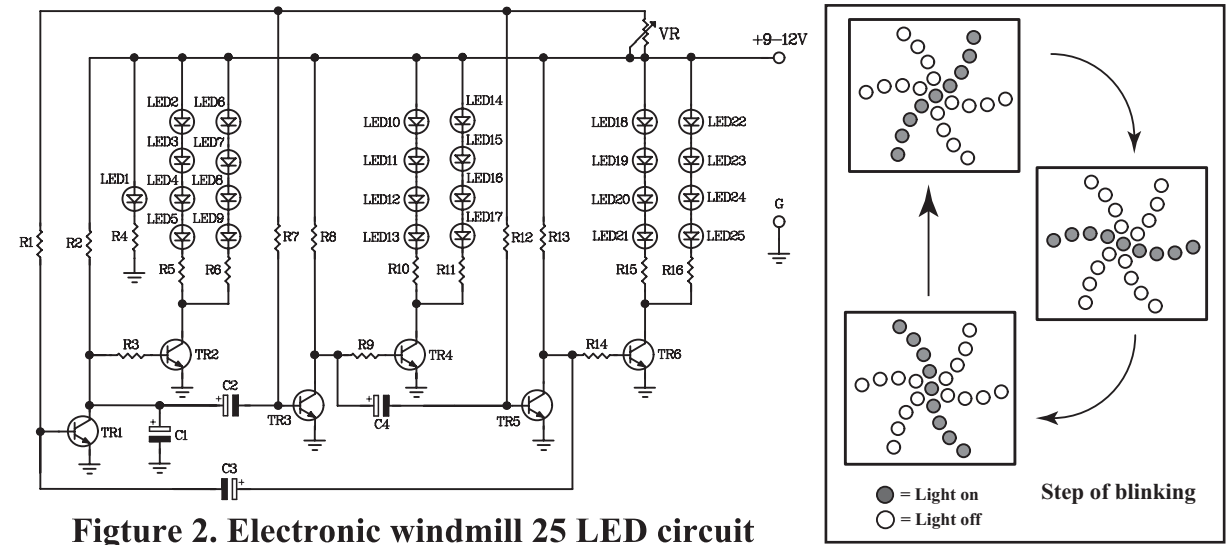
point and the negative pole is connected to "-" point. LEDs will be rotating the same propeller. If you want to adjust the speed of LEDs can be adjusted by VR10K. And if you want to use a long time, you caused to the power supply 9 to 12VDC/300mA. instead of the battery 3 volts.

**Figure 1. Installing the components**



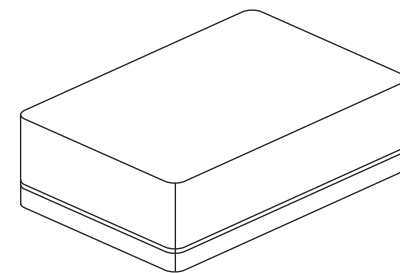
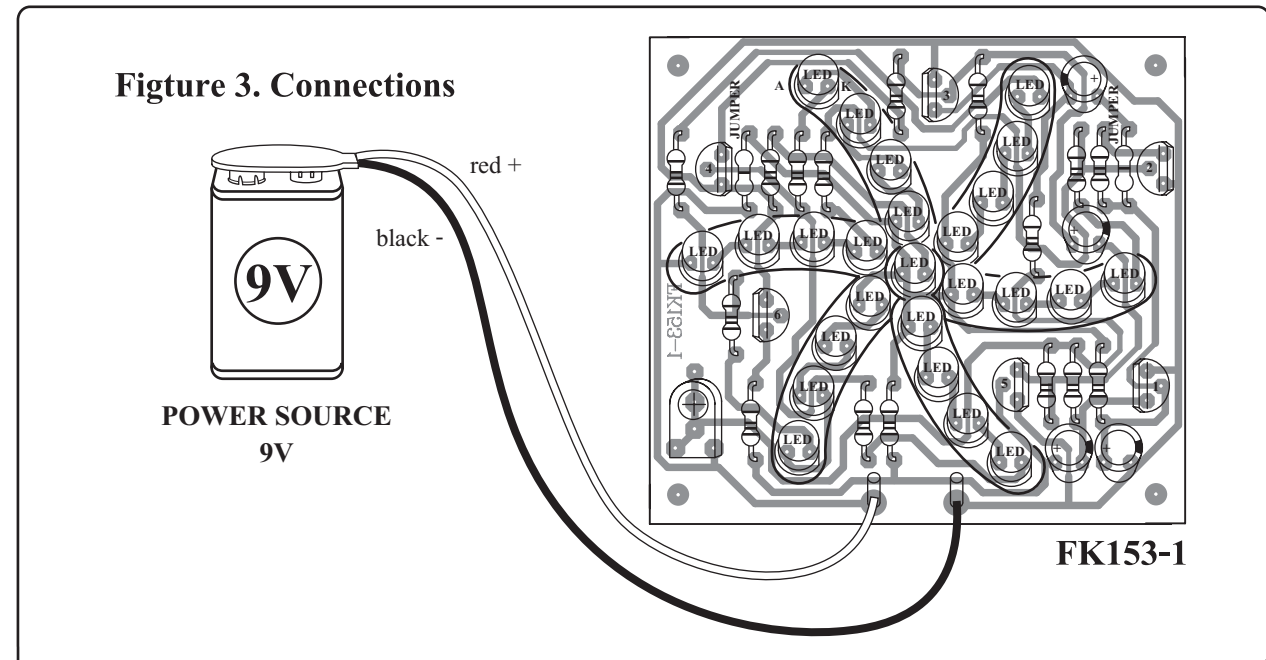
**Troubleshooting:**

The most problem like the fault soldering. Check all the soldering joint suspicious. If you discover the short track or the short soldering joint, re-solder at that point and check other the soldering joint. Check the position of all component on the PCB. See that there are no components missing or inserted in the wrong places. Make sure that all the polarised components have been soldered the right way round.



**Figure 2. Electronic windmill 25 LED circuit**

**Figure 3. Connections**



**NOTE:**  
FUTURE BOX FB04 is suitable for this kit.

NEW KIT SET **NEW**

CODE FK	DESCRIPTION	POWER
271	LIGHT ACTIVATE ALARM (COCK VOICE) WITH SPEAKER	3VDC
272	SPACE GUN 3 TONE WITH SPEAKER	9VDC