

HOLD ON LED RUNNING LIGHT 15 LED
CODE 176 **LEVEL 1**

Two directions running light circuit that used for light decoration or as a third breaking light. LED5 will run from the center outwards to both sides. With adjustable running speed.

Technical specifications:

- Power supply: 9-12VDC.
- Consumption: 80mA max. @ 12VDC.
- Adjustable running speed with trimmer potentiometer.
- Display : 15 LEDs
- PCB dimensions : 3.87 x 2.48 in.

How to work:

The circuit is composed of two main parts, oscillator and decade counter. The oscillator consists of TR9 and TR10 that being connected in the form of multi-vibrator frequency circuit and its generated frequency will be adjusted by VR1 and supplied to pin 14 of IC1 which acts as a decade counter. When the output of IC1 is fed to the base of TR1 to TR8, it will cause TR1 to TR8 to toggle on and off in accordance with the output of IC1. And when IC1 starts counting, it will send out the voltage to the base of TR1 to TR8 for bias, one at a time. When reaching pin 6 of IC1, some part of the voltage will be charged to C4 for being a time delay of all holding light on LEDs (in case of sliding switch SW to the right). Whenever having been forced by R21 and VR2 to discharge all voltage, C4 will move to pin 11 for resetting IC1 to start working. But when slide switch SW to the right and C4 reaches pin 6, voltage will be directly supplied to pin 13. Then the circuit will stop working with all LEDs are lighted on. However, in case of wanting it to move, slide switch SW to the left or take power supply out. Then LED5 will run around again.

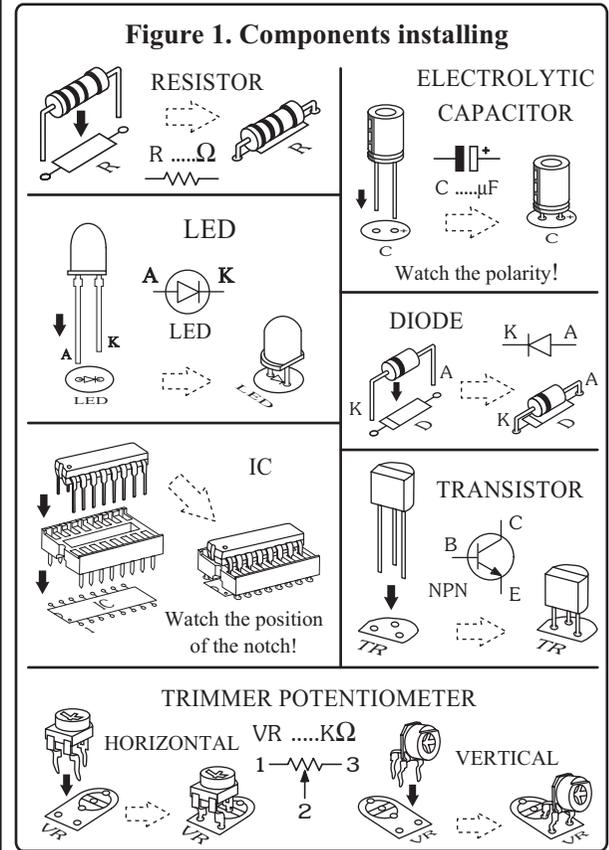
Circuit connecting:

External connecting and fitting of components are shown in figure 3. It is recommended to assemble the circuit starting with a less height component i.e. diodes, resistor, electrolyte capacitors and transistors etc. Be careful while assembling and check for the matching of PCB poles and components before soldering as shown in Figure 1. Use a max. 40W. solder and soldering lead with a tin and lead ratio of 60/40 together with a joint solution inside. Recheck the assembled circuit for your own confidence. Better using

a lead sucker or a lead wire absorber in case of misplacing component to protect PCB damage.

Testing:

Connect the power supply 9-12 volts to the circuit with the positive pole connected to point "+12V" and the negative pole to point "G". Slide switch SW to the right, all LEDs will run from center to both sides and stop (all LEDs are lighted on). And then slide switch SW to the left, all LEDs will run from center to both sides. When all LEDs are lighted on, then they will be off and repeat the same process again. In case of wanting to have a slow or fast blinking, adjust VR1 that placed nearby the LED. For another VR, it will be used to adjust the time for the last holding rhythm. The above results will show that the circuit is workable.



Troubleshooting:

As the circuit has only a few components, the main cause of troubles will come from misplacing component and defaulted soldering. When found out that the circuit does not work, check for the placing component and various soldering points.

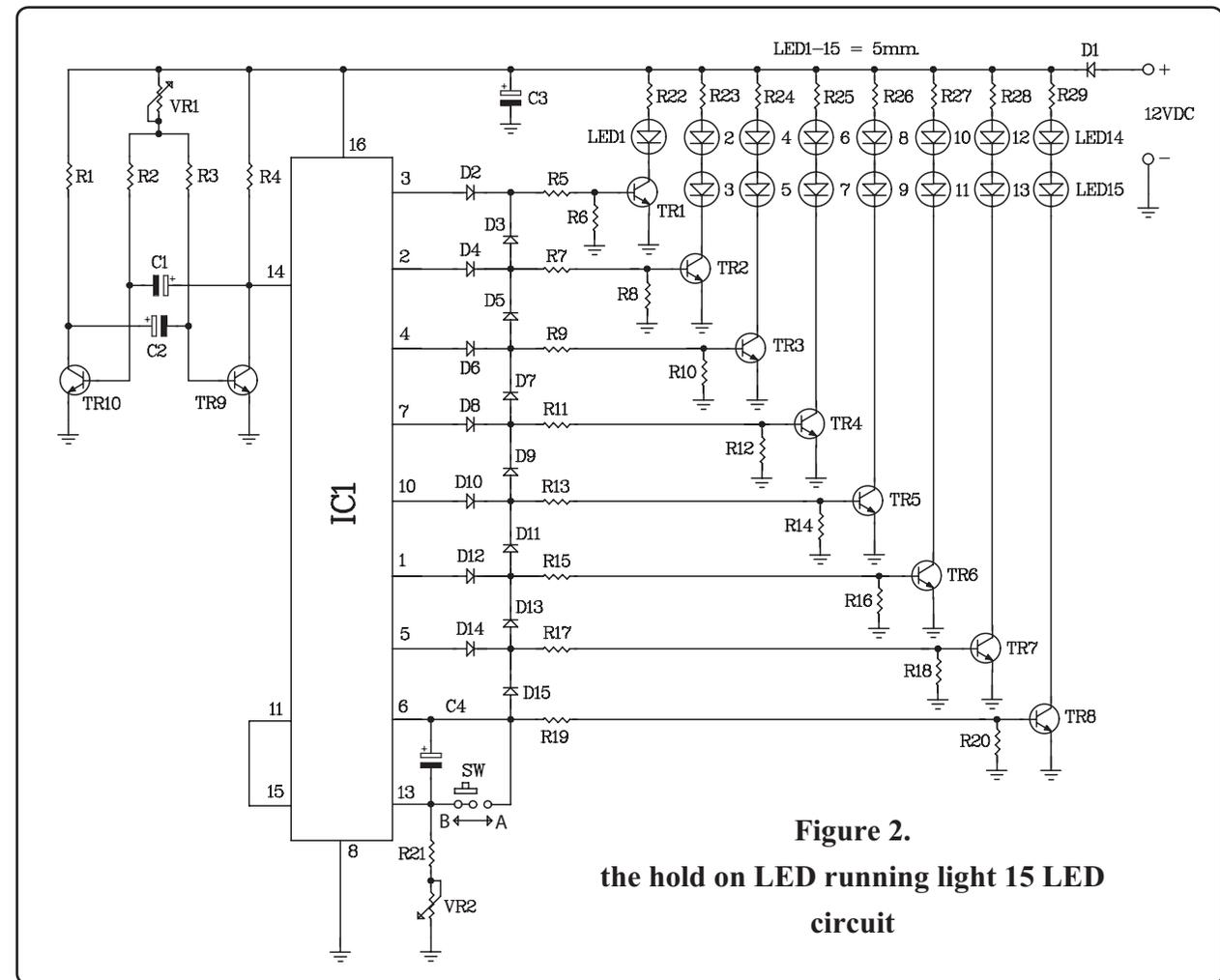
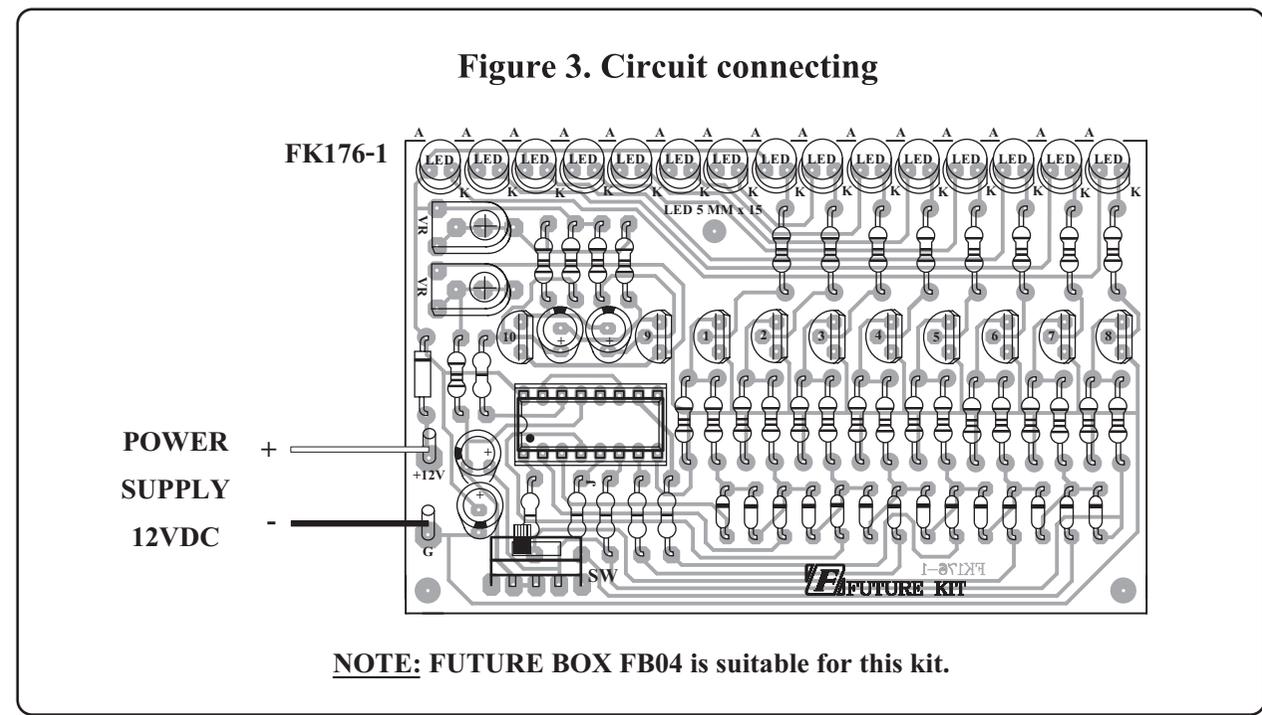


Figure 2.
the hold on LED running light 15 LED circuit



NOTE: FUTURE BOX FB04 is suitable for this kit.