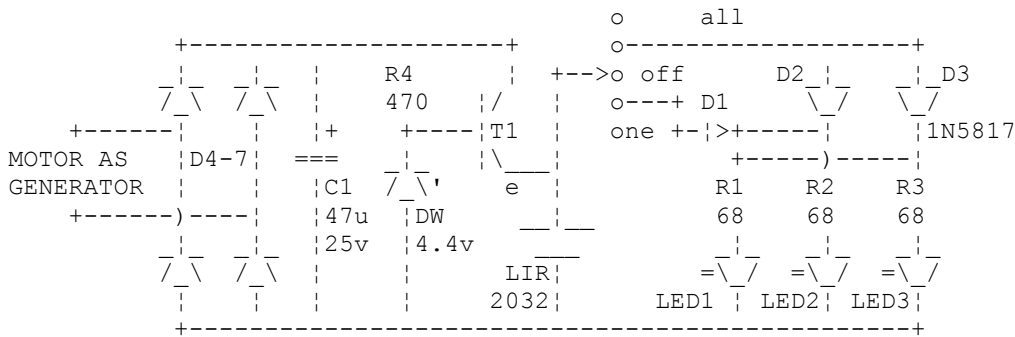


Title : Windup Torch info

By G8MNY

(New Dec 05)

Not being one to leave a new toy unexamined, here is info I reverse engineered from one of these fairly cheap LED torches.

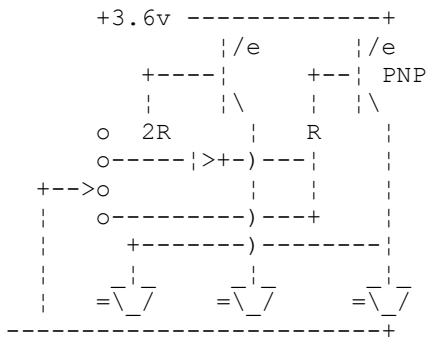


HOW IT WORKS

A small motor spin from a 4 gear chain from the crank handle. The motor generates over 5v & feeds a silicon bridge rectifier D4-7, which I guess is there just in case the rotation is reversed. This DC feeds C1 & powers up the zener DW to make T1 conduct current into the 3.6v Lithium Iron rechargeable button cell until the cell is fully charged & the voltage rises to cut off the current from T1's emitter. With normal winding speed this takes only 30-60 seconds.

A 4 way push action rotary switch powers the LEDs, either one or all 3 through low voltage drop steering diodes D1-3 to a current limiting resistor to the 2.6V Hyper-Bright white LEDs. The battery can light all 3 LEDs for more than 30 mins on one charge. The light output is quite feeble compared to a normal torch of the same size, but it is quite enough to read at night etc.

Looking at the circuit I think I would have preferred this LED circuit, as it gives almost constant LED current until the battery fails. The values depended on the transistor gain to give the right LED currents, values in the range 10K to 100K.



Why don't you write an interesting bulletin

73 De John, G8MNY @ GB7CIP