Nicad Discharger/Capacity indicator

This unit is used to discharge nicad batteries down to a level that doesn't hurt them so as to gain as much useful life out of the cells. Most sources say 1.1 volts per cell is ideal, it damages them if taken down to 0 volts repeatedly. You will be able to see what's left in the cells after each flight session which is particularly handy for Radio gear.

Features:

*Adjustable discharge voltage, (usually 1.1 v per cell.) up to 8 cells (pot)
*Adjustable discharge current level cutoff to 1.7 amps (pot)
*Clock reads cell amp/hour e.g.. Discharging 1.2 a/h cell at 1.2 amps, clock counts to 1 hr. hour if cell is good.

Method:

The circuit needs to be made up on a veroboard or similar as I have no printed circuit diagram designed yet.

The 2n3055 needs to be mounted on a heatsink as it gets quite hot on max load. I used a digital car clock as a timer, not sure what else if none is available.

It can be useful to also add to this a nicad charger. A LM 317 set as a constant current charger (shown in the diagram) works well as you only need to flick a switch from discharge to charge and the clock can be used as a check on how much time they have been on. Remember you will need to heatsink the LM 317, replace the resistor with a wire wound pot if you want it variable. Current out = 1.25/R1.

On the front panel there is:

* voltage and current control pots
*discharge LED (comes on when finished discharging)
*momentary action switch to reset clock to zero
*clock
*amp and volt meter if wanted (I just marked the relevant ratings around the pots)
*on off switch

and if you include the constant current charger-

*current control pot
charge/discharge switch .

Diagram 1

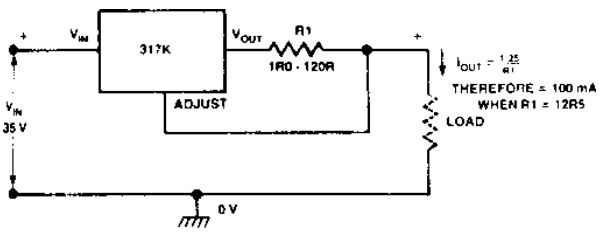
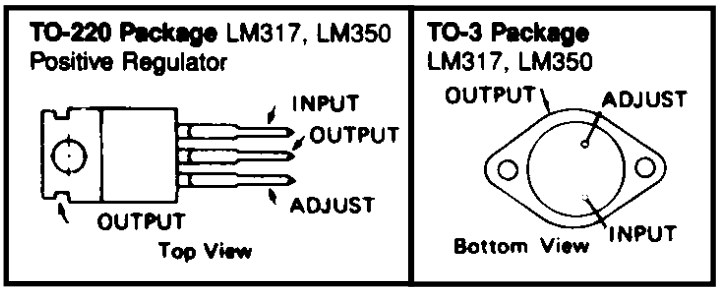
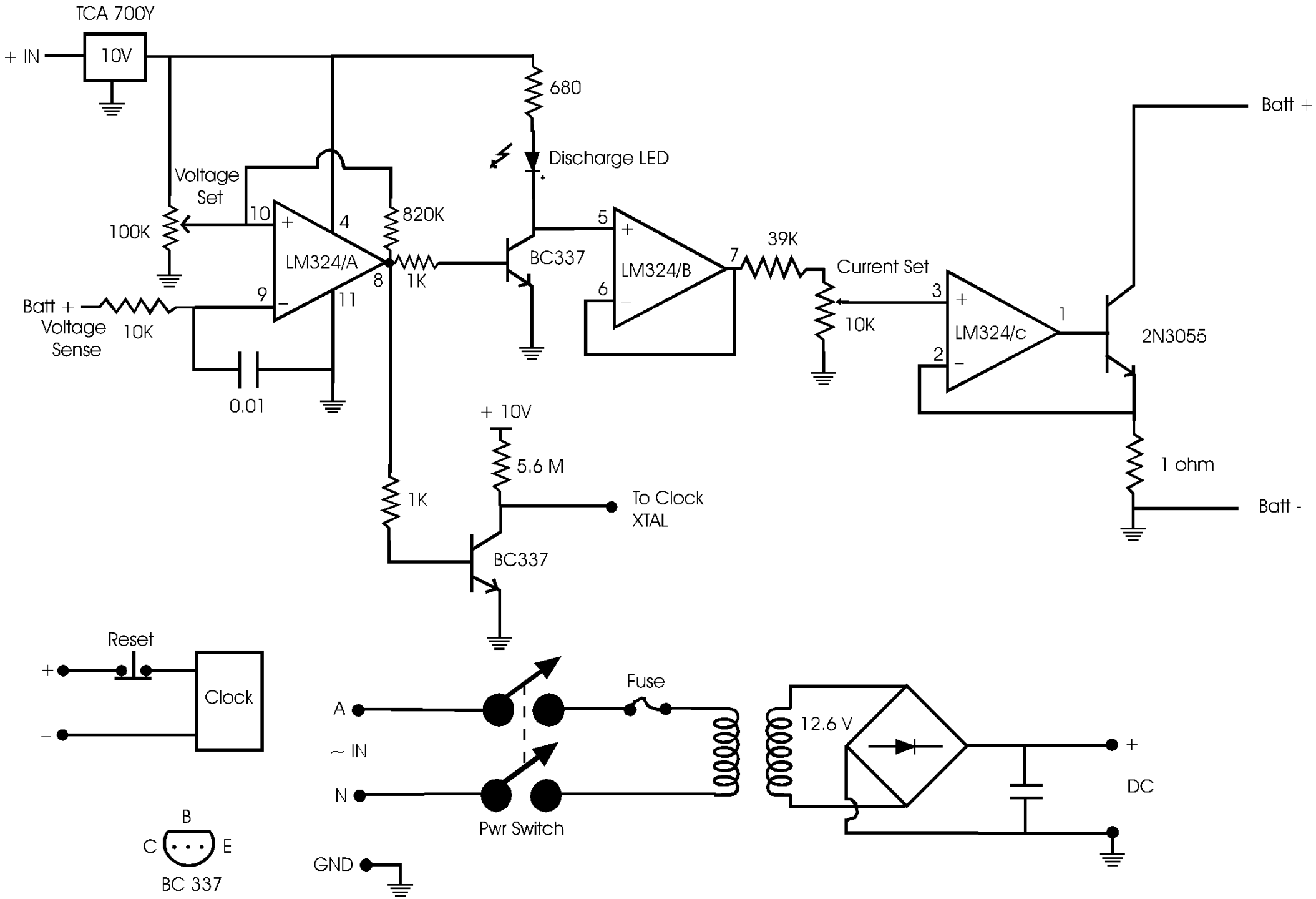


Diagram 2




TCA 700Y
+ IN
10V
680
Discharge LED
Voltage Set
100K
10
4
820K
LM324/A
8
1K
9
11
Batt +
Voltage Sense
10K
0.01
BC337
5
LM324/B
6
7
39K
Current Set
10K
3
LM324/c
2
1
2N3055
Batt +
1 ohm
Batt -
+ 10V
5.6 M
1K
To Clock XTAL
BC337
Reset
+
–
Clock
A
~ IN
N
Pwr Switch
Fuse
12.6 V
+
DC
–
B
C
E
BC 337
GND

Here is another nicad charger/discharger. It discharges nicads to 1.1v (set by trim pot) then switches the charger on to the batteries.