

Auto SCR Charger for Car Batts

By G8MNY

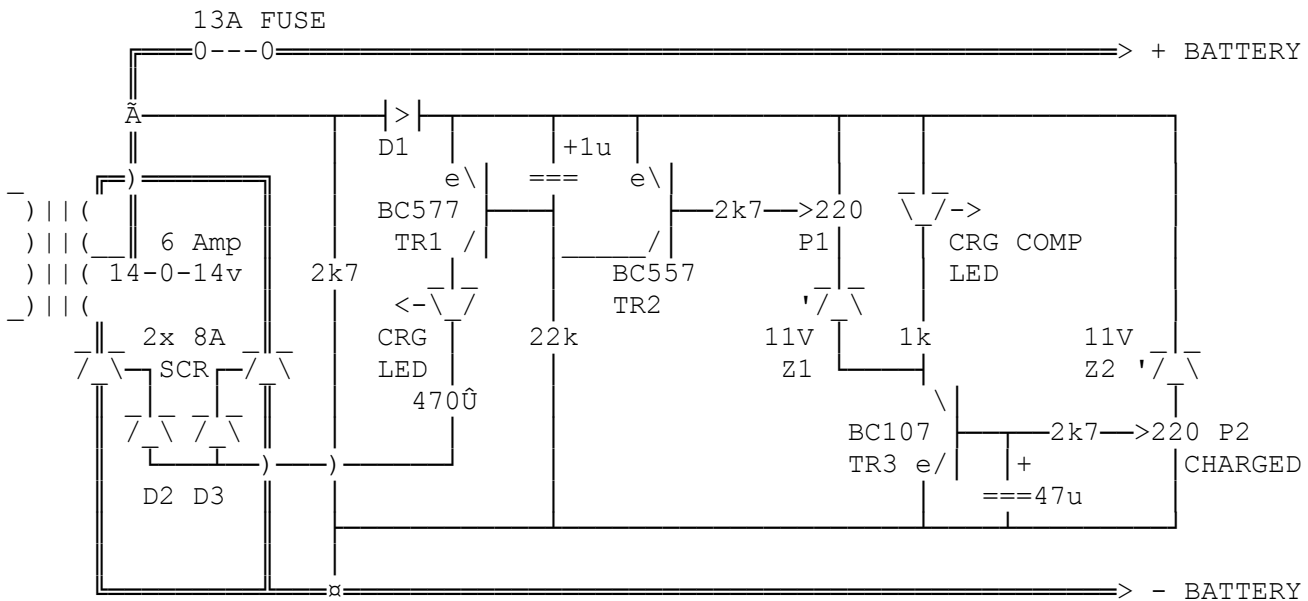
(Updated Mar 13)

(8 Bit ASCII graphics use code page 437 or 850, Terminal Font)

Here is a commercial design I came across, ideal to leave across your spare battery knowing it will not damage it with overcharge.

FEATURES

- Reverse connection protection
- Auto charge on low battery
- Auto shutoff on charged battery
- LED Charging state indicators



Not shown for simplicity is the mains fuse & mains neon indicator.

HOW IT WORKS

With mains connected nothing happens until voltage from a correctly connected battery is applied (not a totally flat battery!). Then TR1 will be turned on through D1 & spike filter 22k & 1uF.

TR1 turned on, lights the Charge LED, & via D2 & D3 triggers the 2 charging SCRs. Charging current is limited only by the transformer type, leads & SCR voltage drop, it flows through the 13A protection fuse to the battery.

When the battery voltage exceeds the threshold of about 14.5V, TR3 is turned on via Z2, pot P2 & filter 2k7/47uF. TR3 turning on lights the charge completed LED, & via Z1, pot P1, turns on charge stop transistor TR2. The charged completed LED starts to light up more & more indicating the battery state until the charge is eventually stopped. Preset Pot P1 sets the loop gain & stop/restart start sensitivity.

CONSTRUCTION

The transformer must be suitable for this purpose or have tappings to let you adjust the current to be safe.

The 2 SCRs are mounted on an aluminium plate or the case with insulation kits, but they do not get very hot in practice (less than a bridge rectifier).

Thick leads (top & bottom of the drawing) must be used to the battery, as added voltage drop can make the battery seem charged early!

DRAWBACKS from Frank IOZV & Harry M1BYT...

- 1/ There is some discharge current flowing all the time. (10s of mA)
- 2/ The mains is still powering the unit.
- 3/ Not able to charge a totally flat battery of 0v.

These could have all been designed out, but the above unit I have not modified.

MODIFICATION

With some old batteries I found cells would short out some time during the charge & get yhe charger & battery very hot & take out the fuse.

To speed things up I added a resettable 10A trip. This breaks the circuit much earlier.

Why Don't U send an interesting bul?

73 De John, G8MNY @ GB7CIP