

## Automobile Battery Charge Maintenance by Ivan Baggett

Do you have a classic car whose battery is dead every time you want to drive it, even though the battery is nearly new?

If you have a car you don't drive often, you need to take special steps to maintain the battery charge. If a car is not started and run more often than once a week, the battery will deteriorate if not constantly maintained with a low charging current. The problem with battery chargers is that most of them overcharge the battery, even the "trickle chargers". A car battery cannot withstand a constant charging current of 1 or 2 amps, which is what most trickle chargers produce.

Batteries run down over time due to a "self-discharge" characteristic. This is not a defect in the battery or an intentional design flaw; it is a property of the electrochemical process. The ideal maintenance charge for a car battery is just enough to overcome the self-discharge current and run any car accessories that are always powered, such as clocks, digital radios, alarm systems, etc. These accessories typically use 5 to 20 mA each. For a typical car, a battery maintenance charging current of 100 mA is sufficient to power accessories and overcome self-discharge. However, chargers with this low current output are not generally available.

You can make your own battery maintainer by using a common automobile battery charger and a 10 ohm, 2 watt resistor as shown in the figure below. If a 2 watt resistor is not available, higher power ratings (such as 5 or 10 watt) may be used. Set the charger for a 10 A charging current if it is selectable. Do not set it for "boost" or high current, since this will cause too much current to flow. If you want to avoid leaving the hood open, you can make a cigarette lighter plug adapter as shown. Note that your cigarette lighter socket must be always powered in order the plug adapter to work. Some cars have cigarette lighter sockets which are only powered when the ignition is active; these will not work with the plug adapter. You can also use this concept for motorcycle and lawn equipment batteries if you use a 47 ohm, 2 watt resistor.

I have used this arrangement with my 1975 Cadillac Eldorado convertible for nearly three years now, and it works well. The battery is always fully charged and ready to go, even if I have not started the car for weeks.

