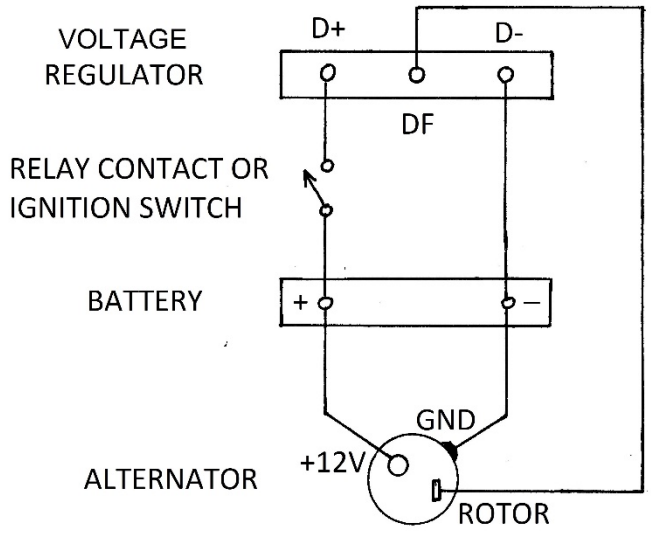
2CV BATTERY CHARGING CIRCUIT

By Graeme Dennes

Revision 2

This brief note describes the battery charging and voltage regulation arrangements used in the 2CV models which have an alternator fitted. The 2CV charging system consists essentially of the voltage regulator, the battery and the alternator. Although charging circuits in general can often appear quite daunting, there are in fact so very few components involved in the 2CV charging circuit, as the circuit diagram below shows. It is a simple arrangement.

2CV CHARGING CIRCUIT



The voltage regulator has three connections: D+ (Dynamo+), DF (Dynamo Field) and D- (Dynamo-)

The battery has two connections: + and –

The alternator has three connections: +12V, Ground, Rotor (a.k.a. Exciter)

When the ignition switch is ON, the regulator D+ terminal connects to the battery + terminal either via a relay contact (if a relay is fitted) or via the ignition switch (if a relay is not fitted).

In operation, the voltage regulator senses the battery voltage across its D+ and D- terminals. If the regulator senses that the battery voltage is a little lower than that required to provide optimum charging of the battery, such as, say, at the moment we switch on the headlights and the battery voltage drops a little, the voltage regulator senses the battery voltage drop and responds by increasing the control voltage at its DF terminal, which increases the voltage at the alternator's rotor terminal, which causes the alternator's output voltage to increase, which increases the voltage across the battery terminals to the point where the battery is being charged at the optimum voltage as sensed by the regulator's D+ and D- terminals.

Conversely, if the regulator senses that the battery voltage is a little higher than that required to provide optimum charging of the battery, such as, say, at the moment we switch off the headlights and the battery voltage increases a little, the voltage regulator senses the battery voltage increase and responds by decreasing the control voltage at its DF terminal, which decreases the voltage at the alternator's rotor terminal, which causes the alternator's output voltage to decrease, which decreases the voltage across the battery terminals to the point where the battery is (again) being charged at the optimum voltage as sensed by the regulator's D+ and D- terminals.

That’s the way the voltage regulator operates to exercise control over the alternator so the battery is always being optimally charged, irrespective of the engine speed, the electrical loading on the battery or the state of charge of the battery. It’s all accommodated automatically for us by the voltage regulator. Clever little suckers! It’s also conditional upon the voltage regulator operating to its specifications and the integrity of the wiring and the wiring connections, including crimp connectors. Any failings with the wiring connections shown in the circuit diagram above *will* result in battery charging problems. Deadset!

(This document may be updated in the future, after which a new Revision number will be assigned.)