



CARR211 / CARR221 are designed to replace original alternator rectifier / controller on Honda CBX class bikes, and others.

The alternator has no permanent magnets, instead it has an electromagnetic "energised field coil" or ROTOR. The magnetised rotor spins round inside the stationary STATOR upon which the power windings are built. The alternating magnetic field induces a 3PHASE AC current in the stator windings, which is rectified by the RR21 / RR22 and wired directly to the battery studs, this is how the battery gets charged up. The electrical connections to the rotor are effected by slip rings and carbon brushes. The current through the rotor is typically about 1/10 of the total current output from the stator rectifier.

Very often, the rotor suffers from "shorted turns", reducing its magnetising effect (and reducing its measureable resistance), and ultimately drawing so much "excitation current" from the RR that the RR goes eventually overheats and goes pop. It is often very hard to measure the rotor resistance, it is a very small number of Ohms, but please try anyway. 4 Ohms to 6 Ohms is probably okay, more than that means your brushes are worn out, less than 4 Ohms means the rotor is partially shorted and it **MUST BE REPLACED OR REWOUND** before fitting a new RR.

A good workshop test of alternator function can be easily made, with the RR21 / RR22 wired up correctly on the bike: Solder 2 wires to a spare 55Watt headlight bulb. Pop the **WHITE** wire from the back of the bike harness 6way block. Connect your DC voltmeter across the battery terminals. Start up the engine. Briefly connect the "bulbtool" between the loosened white wire (bottom end of the field coil) and the battery **NEGATIVE** stud. Doing so will energise the field coil to just about its full capacity. The light bulb limits potential fault current to about 4Amps, you could use just a plain piece of wire, but risk you could set your bike on fire with unlimited fault current.

OBSERVE: Battery voltage should creep upwards, 13Volts, 14Volts, 15Volts... better stop soon.

OBSERVE: Bulbtool lights up to about ½ brightness only. Too bright indicates your rotor is partially shorted. Too dim indicates your brushes or wiring is high resistance.