A portable DC electro-fisher.

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Below is circuit diagram of a 300 Volt DC transformerless portable electro fisher powered by small 350 W Honda generator. The unit and generator mounted on a back pack weigh 12 kg. It is very effective gear for sampling in rivers with 20-200 micro Siemens conductivity; it has very good taxis (attraction) and can also be used in still water. The sampling process can easily be performed by one person, but it is convenient to have a helper to collect the samples. Only DC units are used for sampling in Icelandic rivers.
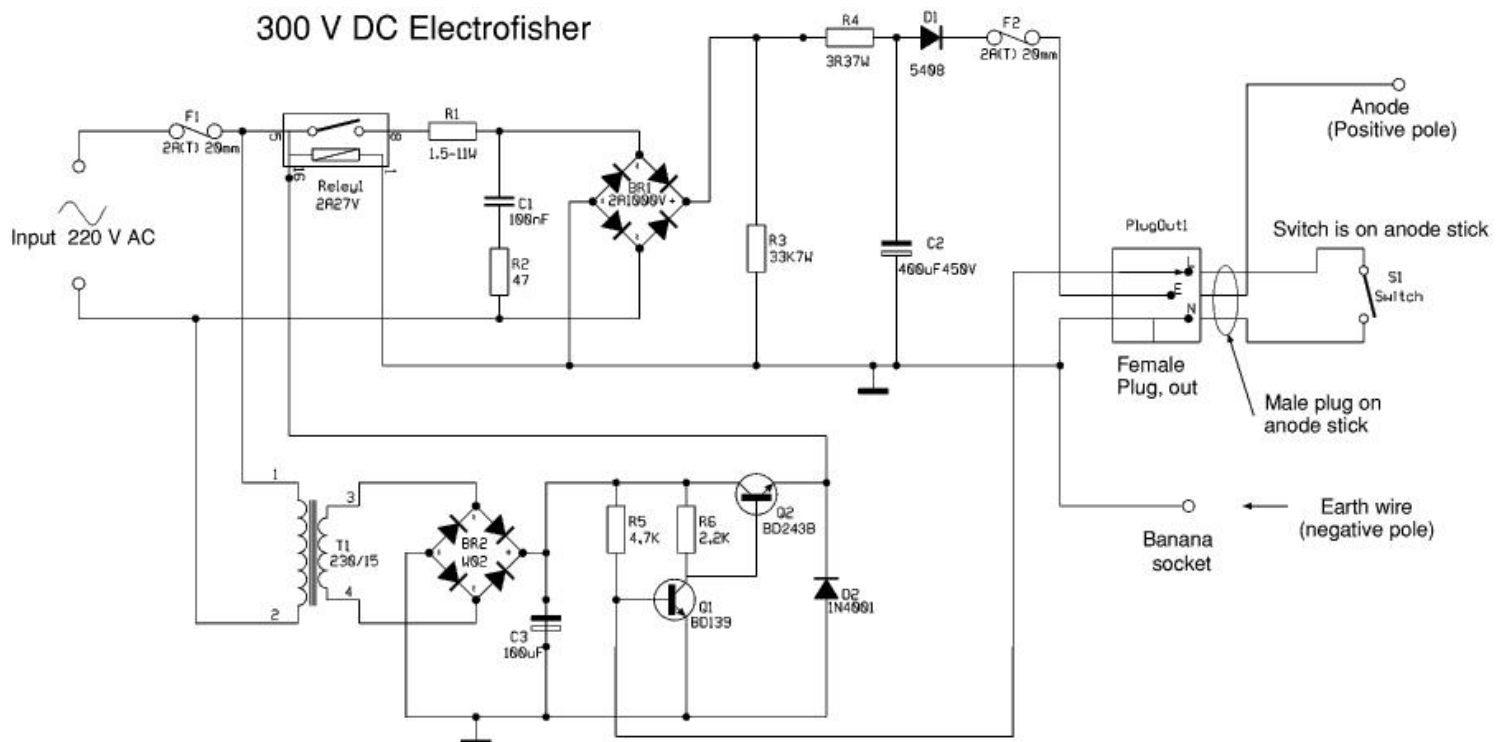
Unfortunately Honda does not produce the light 350W generator any more, but ordinary "off the shelf" 600-800W can be used instead. These are then placed on the river bank and an extension cable used to supply power to the electronic unit.
The electronic unit is easy and inexpensive to build. It is put into a suitable water thigh plastic box with suitable input and output connectors put in place, or leads out with the plugs/ sockets on the end.

The anode stick can be made of a glass fibre rod. The anode wire is inside the rod, soldered to an 8 mm brass bolt, (head cut off) which is glued into the tube. First the tip of the rod is split 2 cm up and the bolt glued with Araldite. Immediately the tip is tightly wound by a thin strong thread and smeared with Araldite.
The anode is made of 3 mm stainless steel wire, drilled and welded through a nut (used for furniture assembling). A suitable, preferably a magnetic switch is taped on the road. I use a 3 wire electric cable in the road: the yellow/green wire (earth) is used to carry the 300 volts. The blue and brown wires (live and neutral) are used to connect to the switch.

The dip net should be rather small and shallow with as coarse mesh as possible for good through flow and swift operation.

300 V DC Electrofisher

There is a video on the usage of the electrofisher here:
http://www.youtube.com/watch?v=sLOay7UFxrg&list=UUNLsmv0GWAFxmDfRXjaDTng&index=14&feature=plcp