

Magnetic Pulse Generator Notes

There is a severe danger if shocked while testing the circuit (it could be fatal). I use a thick rubber coated gardening glove on one hand. Very easy to put on.

Don't bother to wind your own coil (aside from the spiral coil). Much easier to buy one.

Be extremely careful around these voltages. There is more than enough voltage and amperage to kill you!

This applies to 50V or more and especially the 330VDC used in this device

Grease those transistors!

Make sure to use plenty of silicone grease on the transistors and the heat sinks for good heat transfer. The SCR does not need a heat sink.

Q1 and Q2 must be rated at 100V, 7A min. I used 2SC4688. I like these because they are all-plastic and do not require a mica insulator. You can also use 2SC3281 or 2SC4029 or NTE 2328 (easier to get from some US distributors including Mouser). There are many others that will work.

Transformers can pop caps

The MPG uses a 12V, 1A transformer. Be careful not to use a larger 12V transformer as the output voltage may be high enough to cause the cap's to blow up.

The wrong 1A transformer may possibly give you similar results. So to play it safe (and with the power off) attach two 6W, 110V night lights, **wired in**

series to the 220V transformer output **BEFORE** you wire anything else to this transformer winding.

Measure the voltage with an accurate meter. Anything above 260VAC is not recommended. If too high the cap's may blow up.

If the power in your house is 220V use one 6W, 220V night light (two in parallel or a larger one would be better).

Better double up on diodes

I recommend using two 1,000V diodes in series, for each of the single diodes in the bridge rectifier circuit for the caps. They're cheap enough and this will increase reliability.

Two 1,000V diodes wired across the caps (cathode to + side of caps of course) will protect the caps from the damaging effect of the voltage kickback from the coil.

Capacitors

You can use as many as six 100uF caps in parallel. Try to get some that are rated at 400V or higher (the ones rated for use in camera flash units last longer).

The 300V ones, which are found in most disposable cameras, may work, but I wouldn't power it up with the case open, to be safe. Some of them may possibly blow up later so it's better to use the proper ones if possible (typically 20% higher than the applied voltage).

Some stores will give you the cameras, which have been dropped off for photo processing, for free. Need a glove to pry them apart (I've been shocked several times from these too - the shock could be fatal for some people).

Neon or trigger diode?

If the neon light doesn't fire the SCR use a trigger diode instead. It's in the parts list. There are some neons which don't conduct enough current and using a sensitive gate SCR may not be the answer as they are more likely to blow out than a standard SCR.

Coil Cord Safety

Use a round type appliance cord to wire the coil (doesn't get tangled up, is double insulated and is much safer than speaker wire). 6 feet of the gray type, which is sold by the foot at hardware stores. 18 gauge, 300V, 2 wire cable, one black and one white wire.

North or South?

The side of the coil which is facing the area being treated should in most cases be producing a magnetic field with a north polarity

After wiring the round cable to the magnetic coil (and before wiring this cable to the magnetic pulser do the following to check the polarity.

Take a compass and set it a few inches from and facing one flat side of the coil, then momentarily apply the voltage from either a 6V lantern battery or two D-cells wired in series. POSITIVE to the white wire and negative to the black wire.

Leaving the battery hooked up too many seconds will burn out the battery.

Make sure to make a note as to which wire was attached to the positive side of the battery during this test. After the test this wire must be attached to the output of the SCR and the other wire to ground.

The North pointing side of the compass needle will point to the North side of the coil (the side of the needle that points to the North Pole of the Earth).

Mark this side north and only use this side unless you have instructions, which indicate that you need the south side for a particular condition.

Final Coil Check

Hold the compass about 3 feet away from the coil and turn the magnetic pulser on. The side of the compass needle that normally points to north should be pointing to the coil each time it pulses.

You may have to slowly bring the compass closer to get this effect. If the "wrong" side of the needle points to the coil then the other side of the coil is north. Mark it North and use this side.

If you bring the compass too close or pulse it too long the magnetic needle will become weak. You can re-magnetize it with your pulser if it no longer points to the north pole of the Earth. I forget which side of the coil to use, no problem, just try both. Only takes a pulse or two to fix it.

Large parts

It's perfectly o.k. to use diodes, transistors or capacitors which have a higher voltage or amperage rating. However the transformer must be rated at 12V, 1A. I can not guarantee that the transformer **you** use will output the proper voltage when used in reverse (12V to 220VAC).

If you don't understand all of this I don't recommend building this device (the voltage and current from the charged cap is lethal!). Wear a thick rubber coated gardening glove on one hand when testing (very easy to put on and remove, so you will more likely use it).

Duct tape is kinda ugly

Instead of using duct tape for the flat coil I prefer that clear packaging tape.

Good luck building this and let me know how it's going

Bil

