

4 Pole SSG data

from Jason Schmidt

The coils are 1mm wire ,2 windings per coil,50 metres long each wire -lightly twisted 25m one direction 25m the other direction from centre,1 ohm per wire,core is 30mm x 70mm (copper coated cigweld awser70s-4 welding rods)all i had at the time(bit hard),trigger wire is twisted with the 2 wires on one coil only and is 0.5mm wire same lenght as power wires and is about 4.7ohms,8 x MJL21194 motorola transistors one on each wire with 100 ohm 1/2w resistor on each base and a uf4003 from emitter to base,from the positive trigger wire i run 2 x 5watt ceramic (33 ohms total once wound together)resistors wound parralell together to a 3 watt wire wound 500 ohm pot then branched to the 100 ohm resistors on each transistor,when the pot is off the input is 3.2 amps (max input) and the two ceramics get quite warm but the 100 ohms resistors and pot stay cool ,when the pot is adjusted the input will go as low as 0.7 amps ,about 2 amps is the best setting ,from 0.7 to 2 amps everything runs around room temp,at a 2 - 3.2 amp setting the pulses will go through the 2 resonating shifts with no problems but to go under 2 amps input it has to be started

with a minimum of 2 amps then the pot can be further adjusted from there, when a certain load is applied to the shaft at the 3.2 amp setting it will run the same as the 2 amp setting, the magnets im using at the moment are little button sized neos double stacked, single didn't have enough to trigger right, (larger ferrite magnets of the same strength should be better but i dont have any to test with yet) 8 double stacked neos on a 140mm dia rotor (average speed is around 5000rpm), the rotor should be spun vertically to suit radial bearings (i haven't got that far yet so my bearings will wear quicker), input and output wires are 1/2 inch water pipe busses plus some 11mm battery wire (like jumper lead thickness), if output wires/busses aren't big enough some transistors will run hot, emitter to negative buss is wire that's the same as power wire, all busses use bolts with clean surfaces for connections, transistor connections are soldered except the trigger wire from pot to 100ohm resistors i use heavy duty clip leads just for now for easy testing (the two 100 ohm res from each coil on the pot side are joined), Diodes ive used are in5408, 6a4, multiple uf4007 in parallel and many more but the sf37 works the best allround so far ive found and is durable, the most best transferer of energy ive found is the in5822 which is a schottky but are not durable since they are low voltage, the in5819 works well

on small motors ,ive tested diodes by connecting the anode end to the charging battery positive while running an then test the voltage between the kathode and the negative on the charge battery with a meter some have higher voltages than others,i use 90v neo lights on all transistors across the emitter/collector but are useless most of the time (if the charge battery is disconnected the orange neos glow white and usally a transistor will melt if not output diodes), im playing with a circuit that is acivated by the output to turn the input off if the charge battery is disconnected,on my 10mhz scope i can see a 40-50 volt spike going to the charge battery,i can charge from 7ah to 50ah batteries no problems and larger but everything works harder and longer (20-50 ah batteries work best

),primary and charging batteries are allways matched in size and voltage ,primary is charged from normal charger off the wall and solar aswell while the SSG is running(not always) at a slightly higher rate than the input of the SSG so the primary is always charged and the benifit is the second battery with a reserve primary(im using the primary battery as a capacitor)(thinking of running a start battery as primary and secondary deep cycle for use),(just an idea),i dont have any large brand new batteries for real testing yet but some older batteries are starting to get better and better

with every discharge ,some older batteries have come back to life but ONLY if the plates were in good condition and were only sulfated(which a normal charger wouldn't charge),i always use a c/20 discharge rate on all batteries,most batteries take more than 20hrs to charge with this SSG using the c/20 rate on the primary battery with same batteries ,some old batteries easily show better discharge rates than factory charts,so when you think about it from a solar panel(limited by daylight though) its nealy possible to me to get close to but not a 1 to 1 charge,ifim using 12v 50 ah batteries the input is set to 2.5 amps - 20 ah is set to 1 amps etc ,i use analog amp meters for very short times to test input and output ,the total resistance through this SSG is about 0.6 ohms (so more coils the better) This energizer is very efficient for what it is so far,more test info soon.