

MEDUSA SIP2300 Generator info

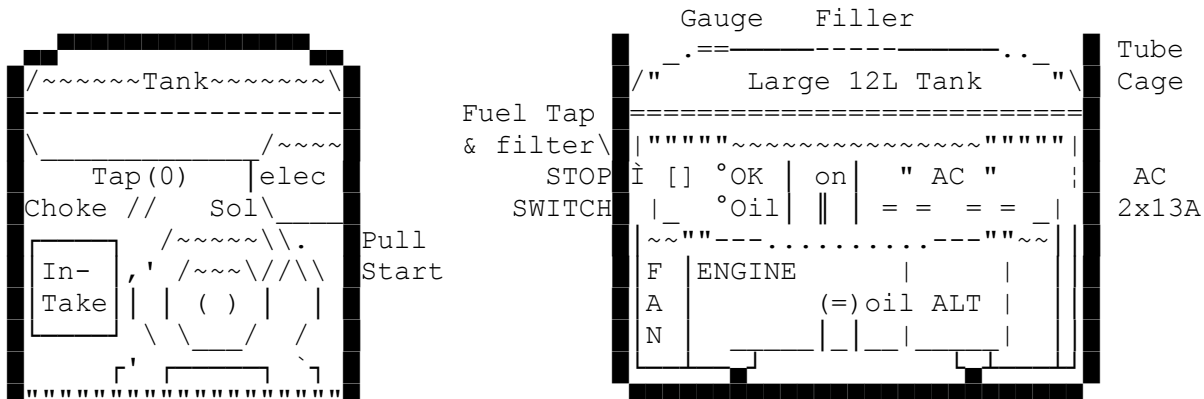
By G8MNY

(Updated Jul 13)

(8 Bit ASCII graphics use code page 437 or 850, Terminal Font)

Years ago I bought a MEDUSA SIP2300 4 stroke petrol generators as the were so cheap (just in case we have power cuts!). It's the seems same as WOLF2.3kW.

It is fairly quiet @ 73dBA @ 4m. The large 12 l tank gives approx. 10 hours run time. It is not too heavy @ 83kg full, 41kg dry. So to move it by oneself (only on & off a low level trolley & lift into van etc!)



I have modified it for /P contesting, to power several 400W valve PAs for as per my bul on "Petrol Gennys for /P SSB". With my rev up modification (add a solenoid for FEED FORWARD load compensation) the measured performance is now...

Generator Load kW	Unmodified		Modified		
	Volts	Hz	Volts	Hz	Uplift %
0	255	55	255	55	0
0.1	235	54	238	54	0.3
1.0	225	53	234	54	4
2.0 Rated	215	51	235	54	6.4
2.3 Old Peak	200	49	233	54	16.5
2.5	190	47	235	54	23.7
3.0 New peak	180	45	220	54	22.2 @ FULL THROTTLE!

I do not intend continuous loads over 2kW, just speech peaks etc. to go to 3kW peak load. Before the modification it was not possible to activate the 10A thermal output trip on good power factor loads, after this modification it is now possible!

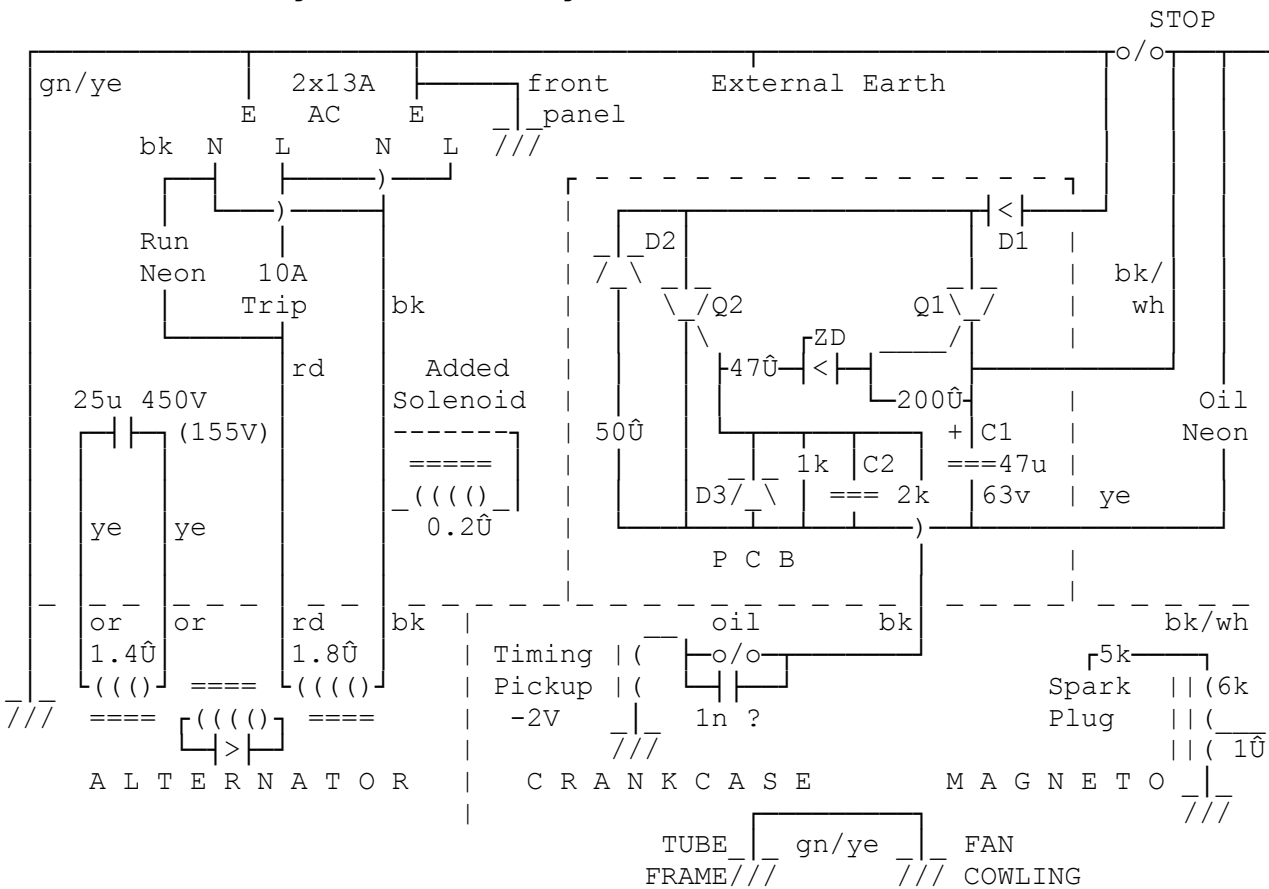
At 50Hz you only get 220V output, but it is more economical to use lower RPM if the peak power is not needed! There is no 2 speed option for this generator, but a long screwdriver will adjust the voltage/RPM setting spring OK. Note the off load voltage is quite a bit higher than even with a base load of 100W lamp.

Other Mods I did were..

- 1/ Added earth bonding from engine, to frame, & to electric panel plate.
- 2/ Added earth lead & earth clip for external earth stake.
- 3/ Added engine ignition lead screening, & made a screen tube for the plug cap.
- 4/ Painted Alternator casing black to improve heat dissipation.

CIRCUIT

I have reverse engineered the diagram...



EXCITATION

This is a brushless excitation with the rotor magnetically charged up each half cycle from circulating 90° out of phase currents from the exciting capacitor. In the rotor is 4x 3A 200V diodes in series parallel (a small back EMF R) across the winding to maintain the current half a cycle after the kick. This system is more reliable than brushes, but does produce a kink in the output winding waveform.

ELECTRONIC IGNITION

The electronic ignition works in a strange way, as top dead centre approaches a voltage of -80V or so is made by the magneto primary, this is shorted out when the timing pulse triggers the SCR, shorting this voltage & producing an ignition voltage in the magneto secondary.

Only one wire from the crankcase may be just the oil status. The -ve EMF of magneto appears on Q1 SCR cathode gate & positive going on the gate via D3 47R & ZD, to fire SCR Q1 & short out the coil producing a voltage pulse on the secondary that makes the plug spark. If there is no oil Q2 is not fired & C1 charges up to light the low oil neon & eventually defeat the ignition after 30 seconds. But I have found in practice that at the point of low oil occurring when running, there is intermittent ignition (hunting on & off) rate than a shut off!

(this understanding follows feedback from internet reader Richard Groves)

See my TECH buls "MEDUSA SIP2300 Generator Repairs" & "Petrol Generators for /P SSB".

Y Don't U send an interesting bul?

73 de John G8MNY @ GB7CIP

