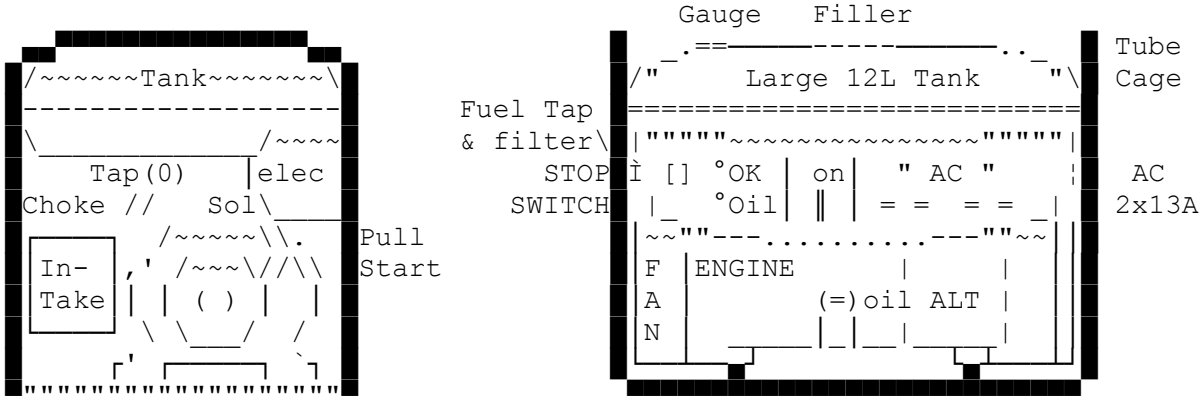
MEDUSA SIP2300 Generator Repairs

By G8MNY (Updated Jul 16
(8 Bit ASCII graphics use code page 437 or 850, Terminal Font)

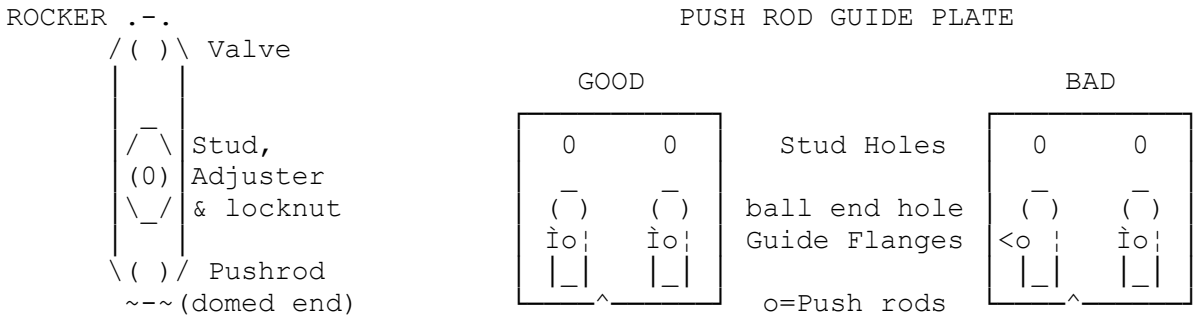
My MEDUSA SIP2300 4 stroke petrol generator, had done many years service, but recently packed up while /P.

It has a Honda style engine & is the same as the WOLF 2.3kW generator. But my one has been modified to properly open the throttle without dropping revs to give a full peak power of about 3kW.



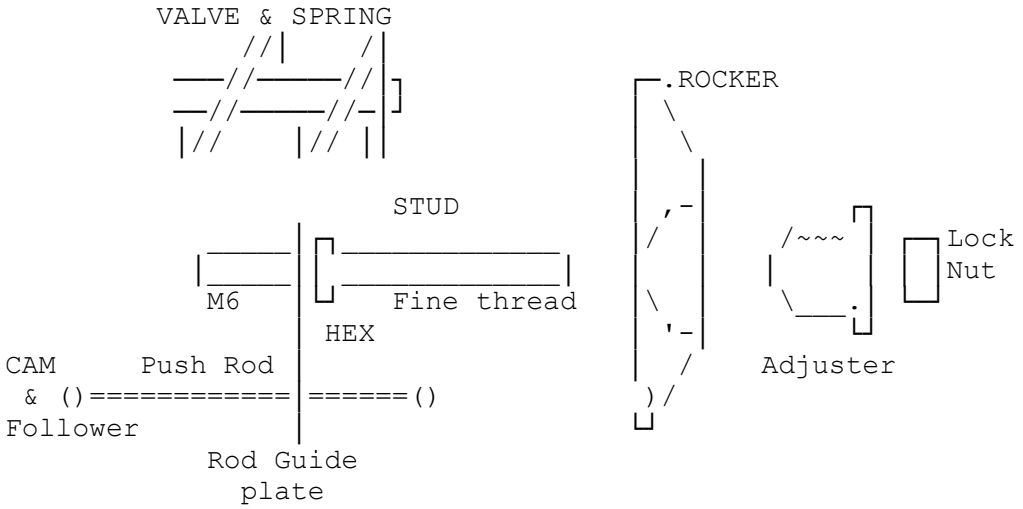
THE FAULT
Symptoms were slightly louder noise from the intake & not much power. Manually opening the throttle there was no real increase in revs, & lots of smoke, from loads of oil up the engine breather!

Discussing these symptoms with other engine experts, I got all sorts of bad diagnoses. Myself I thought it could be a broken ring or valve spring. So I started at the cylinder head & took the rocker cover off, the fault was obvious! The exhaust valve rocker was at an angle & only pressing on the spring, not the valve! The cause turned out to be a badly worn through push rod guide plate (thin soft sheet steel).



As there was no wear seen on the push rod, the repair was just to remove the adjusters & rockers, & then 2 studs to extract the plate. Then silver solder in a bass guide bush, drilled out to the push rod size & then filled to make a "U" channel, that should last much longer than a new tin can plate. The push rods are also very rough (like needle files) & needed smoothing to a shine with fine emery cloth.

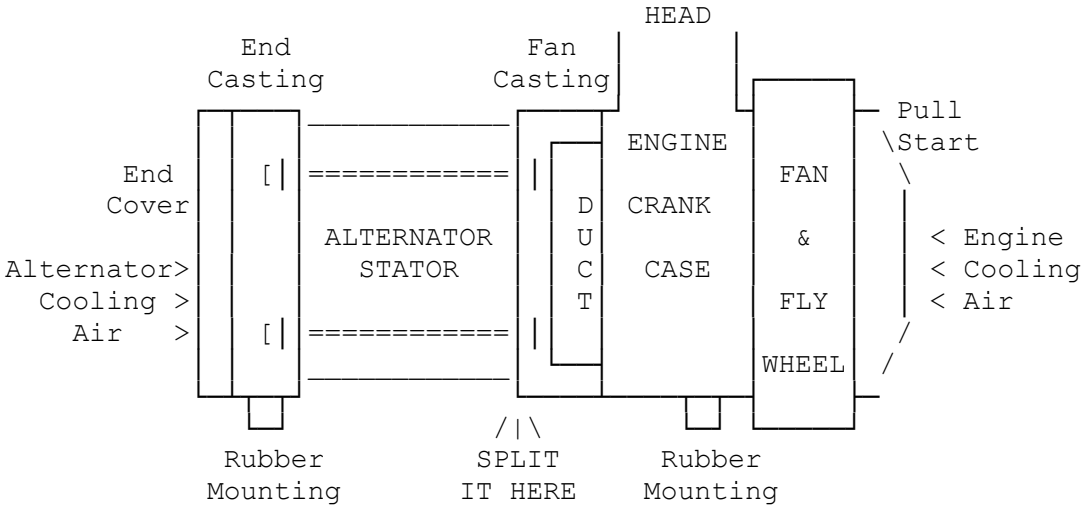
However things are never that simple, & putting back the 6m stud, I managed to strip the thread in the soft aluminium cylinder head casting! :-(This was not all my fault, as the stud hole was much shallower on the exhaust port than the intake, despite the studs being the same length!



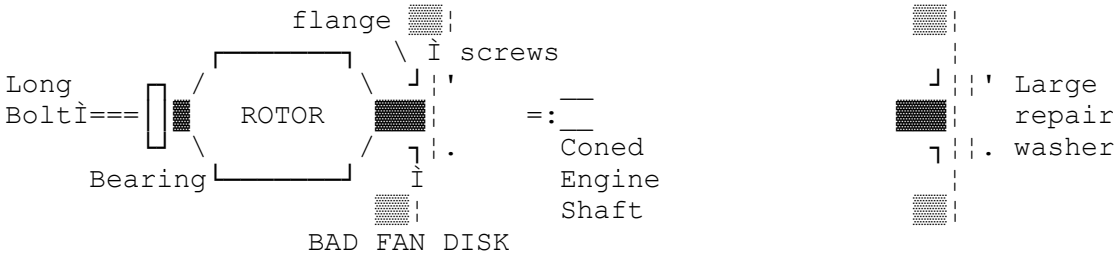
I think not cleaning the hole out with a bottoming 6M tap, meant the shallower stud hole filled up with old stud glue (lock tight) stopping the stud from going home, & caused me to strip the casting. After many attempts to the get the stud to grip well enough, I gave up, & drilled & tapped it out to M8, & made an M6-M8 adapter sleeve from some steel roding. This worked fine.

ALTERNATOR FAN INSPECTION

On taking the silencer off for repainting, through the air duct I noticed the black plastic alternator fan was well out of true, & was just at the point of rubbing the casing. I had seen a failed generator where plastic bits were coming out of an air vent & the rotor had all shorted out (over heated no fan?) As my fan is right in the middle of the generator, I needed to split most of the alternator from the engine, something I had not done before on this one, & I had some trouble doing it to get at the fan.



The end cover lets you remove the electrical connections. Then extract the 4 outer long bolts clamping the stator. Remove the end casting (soft hammer may be needed to free up the end bearing). Then remove the stator. This reveals the diode pulsed excited rotor & fan, which is held to the engine crankshaft by a long bolt down the middle of the rotor shaft. Pulling force is needed to dislodge the close conical fit to the engine shaft. The fan casting I left on the engine.



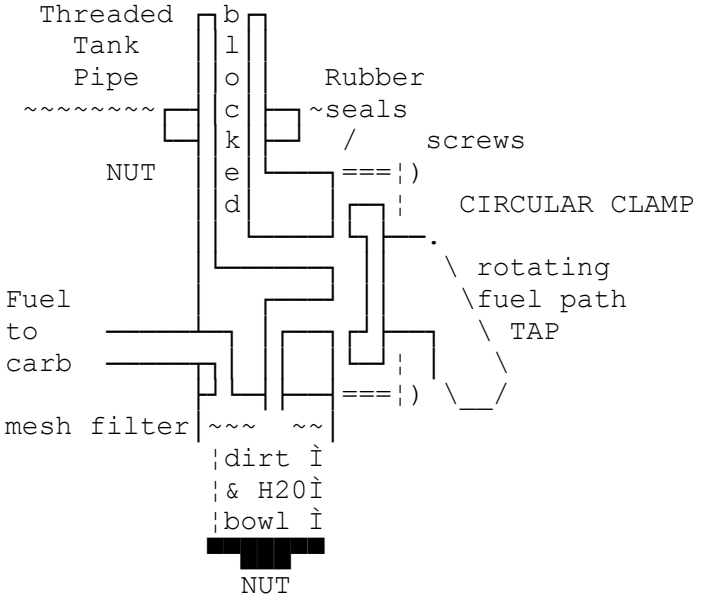
The fan disk is held on to the flange with 2 screws. I found there was no tube spacer/Colette fitted on one of them & the plastic fan had been crushed & slightly split due to this higher pressure. To solve this I made a large washer from 3mm thick aluminium, so the weak plastic fan disk is better supported & kept straighter.

On reassembly light oil (WD40) was sprayed all over the rotor & stator steel laminations to halt bare steel rusting & maintain good electrical insulation (water repellent) of the windings.

PREVIOUS PROBLEMS

1/ Rusted petrol tank (from water in the /P fuel), which eventually holed the tank. I used a phosphoric anti rust paint after 1st doing a test on the petrol cap, that proved petrol had no effect on it. Then after a good clean out & drying, I painted as much of the inside as I could. The pin hole had raised the plastic dipped outer coating. So I scrapped that away & put a plug of really thick Hammerite paint in the hole, & left it a few days to dry & harden. I then redid the anti rust coat inside, & all is now well.

2/ Blocked fuel tap, This another consequence of water in the fuel, as the rust particles build up, NOT in the fuel filter trap under the tap, but in the cast pipe feeding the tap! Here I found hand held drills are the best used to clean the pipe.



To remove the tap, you must have less than half a tank of fuel!

Then remove the 2 tank bolts, turn the tap to off & remove the rubber carb pipe.

Now remove & tilt the tank so the tap is clear of the starter case.

Losen the locking nut & unscrew the tap, keeping the tank tilted & fuel at the far end of the tank.

3/ Ignition Coil protection, this is also a bare steel construction & mounted under the engine fan cover. To give another layer of damp protection I gave this a coat of paint.

SIMULAR 23008 Genny Fault
Mike G4FVG reports an "Open Circuit" excitation capacitor (large AC cap), after trying to run a fridge. (This might have been a Power factor problem, or Pump stalled in compression stroke, <on mains a 5 min current timeout trip occurs>)

Any feedback on the working with it would be appreciated.

See my tech buls "MEDUSA SIP2300 Generator Info" & "Petrol Generators for /P SSB"

Y Don't U send an interesting bul?

73 de John G8MNY @ GB7CIP