

Inverter Petrol Generators

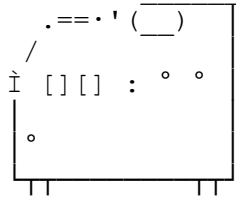
By G8MNY

(Updated Jan 14)

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

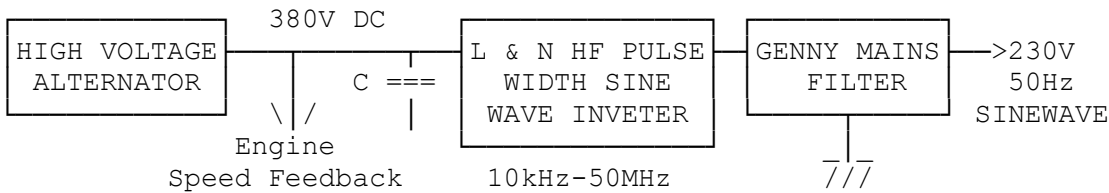
N.B. THESE ARE NOT SUITABLE FOR SENSITIVE MF/HF HAM WORK!

At a recent summer camp we tested out a new 2.2kW generator...



Modern electronic inverter type generators (Honda/Clark) produce excellent stable power output, with good sine wave under heavy changing rectified mains loads. (e.g. 400W SSB Tx)

Unlike conventional generators that run at a constant 3000 RPM, the inverter type can tick over quietly at low revs & save energy (fuel) under light loads, & rev up to well over 3000 RPM (e.g. 500-5000 RPM). The higher revs means a lighter smaller CC engine is used. But it is still quite noisy at full load!



The engine throttle feedback is used to maintain the high voltage DC. A large C ensures there is enough DC stored to meet the sudden demands until the engine revs up.

HF NOISE

You don't get something for nothing. The genny mains filter used to clean up the output is quite good for domestic/industrial use, but not LF/HF work! The inverter produces LOTS of broadband noise with a slight buzzy hum content.

EXTRA MAINS FILTERING

The interference mode to the Rx was found to be "common mode" via the mains to PSU & PA etc, & not radiated to the nearby balanced aeralis. (to the limit of band noise floor).

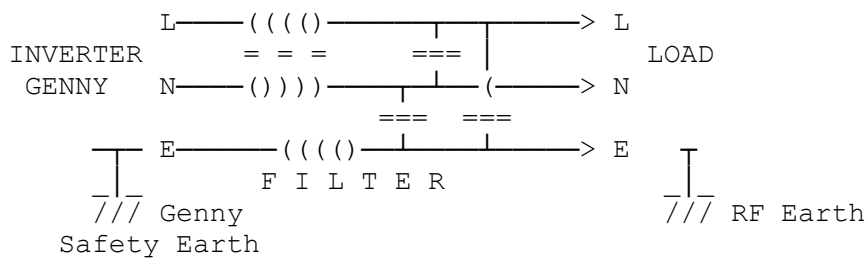
Tests were done at a quiet /P site with HF Rx Preamp ON, with various mains filters showed on the S meter something like this..

Genny	None On	Normal 4 stroke Genny	Inverter Type				Genny with Both Filters	Earth Only	Filter with Earth Choke
			No Filter	Plug Top	Plug Top x2	Large Filter			
Band	Batt	S1	S7	S4	S3	S3	S2	S6	S2
20m	S1	S1	S7	S4	S3	S3	S2	S6	S2
40m	S2	S2	S9	S5	S4	S5	S4	S8	S3
80m	S3	S3	S9+	S5	S4	S6	S4	S9	S4

GOLD STANDARD

The "Normal 4 Stroke Genny" had fully suppressed ignition. The "Plug Top" filter was old BT type, & the "Large Filter" was a huge "brick" sized standard motor type. As they performed slightly differently, they were also tested together "Both" for a slight improvement over either one.

The tests with "just the earth wire" connected, proved there was quite a bit of conducted RFI on it & a mains filter with an earth choke would help. One was found, wired up & tested.



CONCLUSION

The choke in earth filter, did work the best of all the filters tested, but the QRM is still well above the GOLD STANDARD of no added noise! An end fed wire for 160m was also alot worse!

See also buls on "Cheaper Generators", "Regulating 12V Generator Output" & "Madusa SIP 2300 Generator Repair"

Why Don't U send an interesting bul?

73 de John G8MNY @ GB7CIP