

RT17 MWO Power Supply Controversy

VRIL commented:

European MWOs have 50Hz variacs and 50Hz HV transformers that are larger and less efficient due to the frequency being slower than 60Hz. 50Hz has been a mistake since the inception of AC grid power. Those quotes also don't account for that lower efficiency of using 50Hz. My friend brought his RT17 MWO over from Seattle for us to repair it - it's a beautiful machine built by my friend in Croatia but it's HV transformer is higher in voltage and current yet our outperformed it. Why? Because these Europeans use these universal 50Hz variacs thinking they can just wire it for 110vac, which you can, but they're not designed for 60Hz so the performance is very poor.

For us, we will never use anything like that and will only sell an inverter so those in 50Hz countries can just run it off a deep cycle battery and the 120vac, 60Hz true sine wave inverter will give them exactly what they need for the variac and hv transformer we use. 9000 volts 30ma is the rated HV transformer inside so at max is 270 watts - that is what is more important but you can only measure that inside the unit while running, which is dangerous.

RT17 commented:

Regarding power output, all of the replicas we produced for North America have an internal additional high-power autotransformer which increases the input voltage from 120 V / 60 Hz to 230 V / 60 Hz because all internal parts are made to operate at 230 V / 50 and 60 Hz. So, when used in North America, our MWO replicas normally work at 60 Hz electrical network at full power. The decision to use a large and somewhat heavy autotransformer to increase the voltage from 120 V to 230 V instead of a modern switch-mode power supply is due to the fact that the electronics are more prone to damage by transients and have a limited life span due to the aging of its components (primarily due to drying of electrolytic capacitors).

Regarding the assertion that our MWO replicas have lower output, we are unsure what such a statement proposes because it is ambiguous. We can only speculate about its meaning.

One reason for such a conclusion might be due to the fact that in classical spark gap switched resonant systems (in the case of MWO, it is an Oudin resonator which is mainly similar to the Tesla coil/transformer), the number of primary tank circuit capacitor discharges per second (BPS – Beats Per Second, i.e. impulses) varies over the period of the sine wave due to the increase and decrease of the capacitors charging voltage amplitude and consequently capacitors charging current. In case when the input HV transformer has a fixed output voltage, their conclusion would be correct. However, our MWO replicas also use input variable autotransformer (VARIAC), so the capacitor charging voltage/current is adjustable, i.e. BPS is adjustable and can be increased and decreased at will (power regulation), so there is absolutely no difference in the behavior of the MWO replica while operating on the 50 or 60 Hz.

The second reason we can think of why they would reach such a conclusion is that our MWO replicas use safety spark gaps and RF chokes to protect the secondary winding of the input HV transformer from transient over voltage that may appear in the primary tank circuit. The same protection method was used in the historical MWO of Dr Georges Lakhovsky to prevent damage to the input HV transformer's secondary winding, which could get damaged over time if those overvoltage transients are not snubbed. To increase the lifetime of the components and MWO replica, we purposefully adjust the safety spark gap to limit the maximum output voltage of the resonator coil to the level just before the appearance of the electrical corona on the transmitter antenna. The problem with the formation of the electrical corona is that it is a high-frequency plasma that gradually erodes insulation at the high-voltage end of the resonator over time. While brief periods of electrical corona formation on the antenna of the transmitter resonator won't damage it, we decided to prevent its appearance in order to make the MWO replica more human error-proof if users by mistake choose to use it in such a mode for more extended periods. Historical devices produced by Dr Georges Lakhovsky allowed such a mode of operation for brief times to produce additional ozone in case of pulmonary infections. However, historically the users were primarily physicians who were advised of the time limit when using MWO for ozone therapy, and nowadays, it is much simpler to employ small electronic devices for ozone therapy without risking damage to the MWO replica.