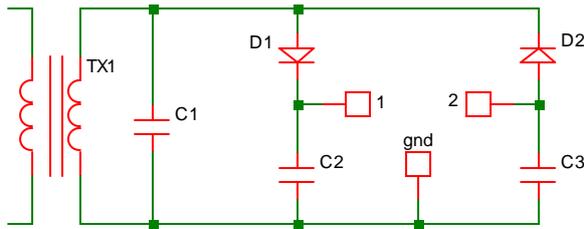


HV Resonance Collection (neon triggered) – HV-RC

Those are ideas how to collect the resonance power from high voltage resonance (range above 60 to 400V) using simple circuits and SCRs (thyristors).

A classical diode-plug circuit



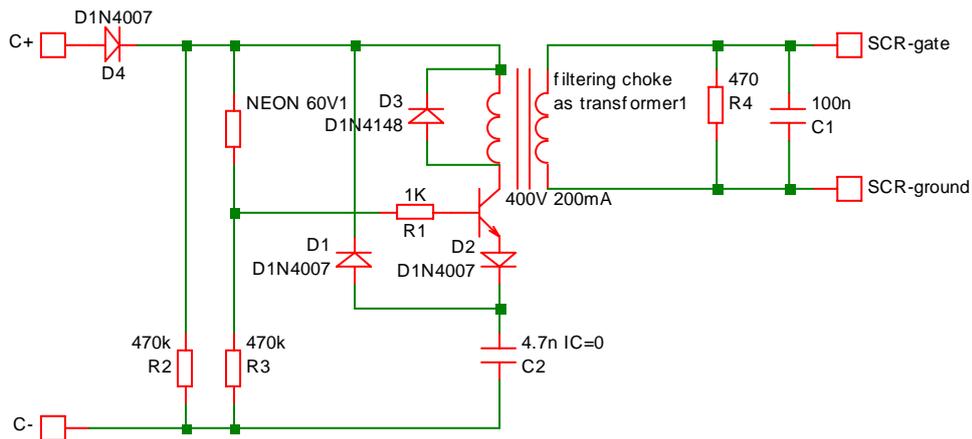
This is the circuit used to extract the power from the resonance. C1 in this circuit is optional. If C1 is used then $C2 = C3$, $C1 > C2$, then we extract only a portion of the power. When C2 is charging a load is put between 2 and gnd to discharge C3. When C3 is charging a load is put between 1 and gnd. This is done with a SCR (thyristor) and it requires a sensory circuit to be triggered at the right moment.

It is advised to use the sensory circuit on AC side, however, you can use it on a capacitor directly as well.



The sensory circuit

This is a neon trigger circuit. It senses the voltage level from the input (capacitor) and triggers the SCR over the inductive coupling in an output. When input (capacitor) is lets say over 65V, neon conducts, 4.7n capacitor gets filled and the trigger signal is generated to SCR. Neon will remain on until the voltage has dropped below 60V, so there will be no repeating false signals. The discharge cycle where the 4.7n capacitor discharges into R2 is chosen where RC time T (halftime) is quite short. A high voltage transistor is required and the capacitor 4n7 must be 500V rated or higher. 10n may used as well instead of 4.7n. A small transformer was used that is used in most power supplies as an input filter. Circuit is designed for 50-100hz. The real values and parameters must be worked out in a ,lab'.



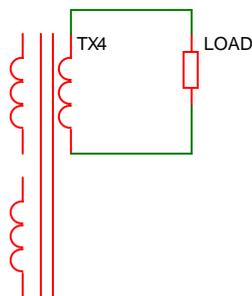
Note! This design is tested and works!

Inductive trigger's advantages over the opto-trigger are: no false triggers due to lower sensitivity, lower power consumption and simplicity.

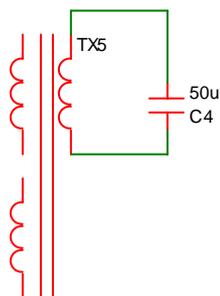
Collecting/extracting the power from the resonance

While one capacitor is sensed and triggered the other is discharged. Normal LC resonance is preserved and other capacitor behind diodes are smaller than the main capacitor, this way we will tap only certain proportion of the resonance. A partial power extraction is required where we need some charge to be left in a main capacitor that will preserve the magnetization of the alternator (RV alternator).

The output has many options. You can use directly the load behind the tapped resonant power.

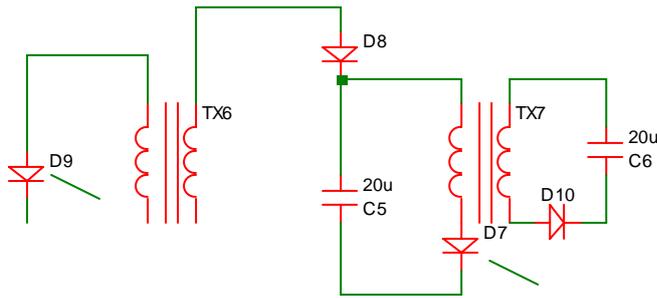


Or you can continue resonating another LC. This may continue to the next stage of an array.



EASER array

Or you can create an impulse where the collapsing EMF or CEMF or BEMF is caught into the capacitor (and then switched to load).



The circuit ends with the capacitor. It can have the next stage in the array where similar SCR trigger mechanism is used to discharge other polarity capacitor to the next stage and so on until the load stage. You may call it a Resonance Collection Array using Diode Plug (RCA Plug).

Notes

As per 'book' we know the array uses EASER principle for power amplification where each stage has its own required parameters. To create the required condition, Hector has recommended the optimum transformer ratio to be 1:5 and the capacitor ratio 2:1. Another note is that the voltage must be quite high to have better efficiency and the primary to have minimum number of turns and big wire that creates shorter impulse.

A simple SCR diode plug extractor implementing HV-RC to test the SCR switching efficiency from the normal grid should be implemented first! The next step is to use this circuit to tap the resonant power of the ferroresonant transformer.

Alternatively, when switching power through the transformer, the Xenon trigger can be used for R&D purposes instead of SCR's to create very sharp dischargings that cause many interesting effects.

The advantages of this array are:

- it will amplify AC and output AC
- simplicity, 'a spartan' design
- it keeps the freq in sync to the output
- array as the name tells – it is cascable
- high voltage design and practical use for RotoVerter alternator or transverter resonant power extraction
- you can run a RV primemover with those impulses or resonate a 3PH transformer (ideas for the future)