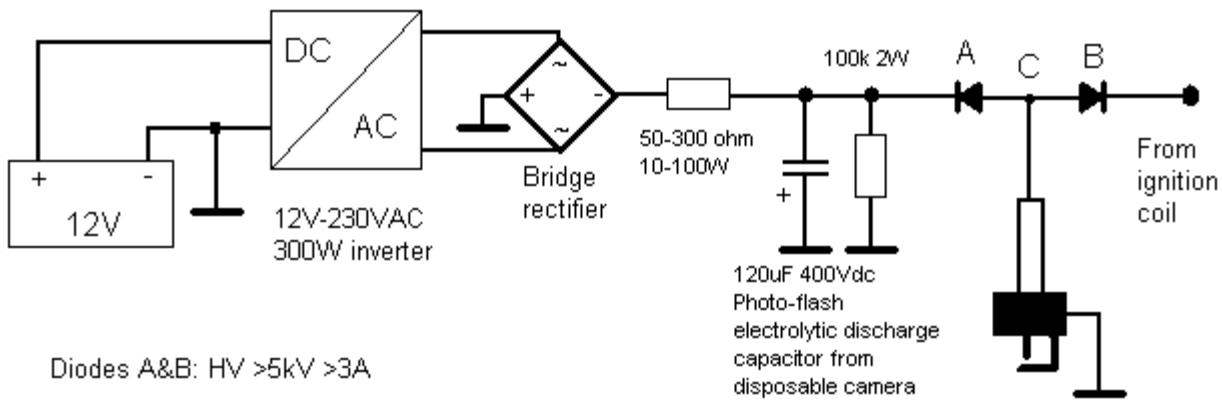


"S1r-Tero" plasma spark plug system for a single-cylinder engine using the original ignition coil



Diodes A&B: HV >5kV >3A

The inverter charges up the 120uF Photo-flash capacitor to about 300Vdc. The resistor (or lamp or an inductor) is used to limit the charging current to the capacitor. The polarities of the bridge rectifier, capacitor and two diodes are reversed, because it seems that the engine's ignition circuit gives a better spark in the negative direction.

The capacitor is discharged instantaneously through the spark plug when the ignition coil creates a spark in the plug. The discharge energy is about 5J, or about 100 times stronger than the spark created by the ignition coil itself. You can switch between original and plasma ignition by switching the inverter off and on. Bleeder resistor safely discharges any residual charge in the capacitor.

The engine's RPM rises when the plasma ignition is activated (at least with gasoline and propane). The gasoline consumption seems to be a little bit less than with stock ignition. The engine starts extremely well with the plasma ignition.

NOTE: Make sure that the spark plug is not resistor type (measure resistance from tip to center electrode, should be less than a few ohms), otherwise the capacitor does not discharge fast enough through the plug.

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