

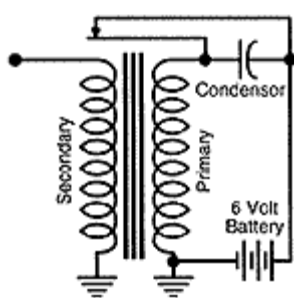
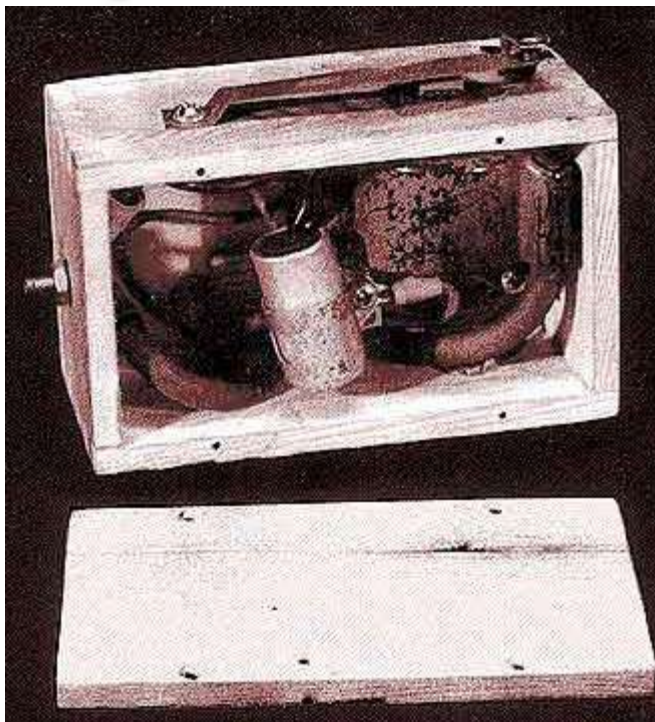
Lindsay's TECHNICAL ARCHIVE

Dave Gingery's Six-Volt "BUZZ BOX" Spark Coil

Here's another simple project from [Dave Gingery...](#)

The photo may look like a Model-T Ford ignition coil but it is actually a home-built version, using readily available modern materials. Just what you need for that antique gas engine you are restoring or the model hit 'n' miss engine you are building.

[Jim Lewis](#), of [Atkinson Engine fame](#), showed me how to make them using a discarded magneto coil from a small lawn mower engine. You may already know that such a coil works very nicely with six volt battery power if you are content with modern make/break-coil/condenser ignition. But had it occurred to you that the magnetic field of the iron core could be used to operate a simple vibrator to deliver a continuous spark? That's what Jim did, I've made some, too, and they work as well as those antiques that are so hard to find these days,



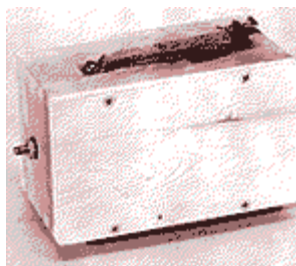
The first hurdle for me was the neatly "finger-jointed" wooden box. But Jim made that easy. Just use a 1/4" end mill in the vertical milling machine, You move the work 1/2" (.500") after each pass and the result is alternate fingers and slots of equal size. I used common pine that I resawed to 1/4" thickness. Assembled with white glue. The bottom was held with glue and small brads, and the top with #4 X 1/2" flat head wood screws so that it can be opened.

No dimensions are offered because there are so many shapes and sizes of magneto coils. The only consideration is that the box be large enough to contain the coil and condenser. And you must devise a way to extend the iron core through the box wall so that it can be used to operate the vibrator.

In most instances the iron care of the magneto coil can be reduced in size. Only the portion of the core that passes through the coil is vital so you can cut away or re-shape any excess for practical convenience. A portion of the core must protrude through the box wall 1/8" or more to operate the vibrator. In one instance I drilled and tapped the core and used a 1/4" bolt through the box to mount it. The bolt head serves to deliver the magnetic force to the vibrating arm. In another instance I epoxy-glued an iron plug into a hole in the box and mounted the coil with a bracket so that its core end rested against the plug.

Once the coil is mounted in the box with its core protruding you can fashion the stationary and vibrating points. I used a narrow strip of

30 gauge sheet metal cut from stove pipe for the moving arm. And I re-shaped a discarded point from a B&S engine for the stationary point. I salvaged the point from a discarded set of auto ignition points and riveted it into my vibrating arm. Then I assembled the elements over the protruding core and wired this simple vibrating switch in series with the battery and coil. The moment the coil is energized the magnetic core pulls the points open to interrupt the circuit. That stops current so the points close again. The rapidly vibrating switch provides the alternating current that enables the transformer to multiply the six volts to the many thousand volts of the continuous spark.



The condenser is the standard type used in autos and engines. Refer to the wiring diagram for the circuitry. It is wired "across" or in "Parallel" with the vibrating points. Either of the battery terminals can be grounded to the engine. And the spark is delivered to the spark plug through the H.T. (High Tension) terminal.

If it is desired to operate on 12 volts a resistor equal to the D.C. resistance of the coil primary can be wired in series with the coil and battery. Such resistors are sold by auto supply stores for converting six volt accessories to 12 volt use.

Don't write Dave expecting him to correspond with you. He won't. He's too busy having fun. Last I heard he had accidentally locked himself in a broom closet and was giggling like a mad man...

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