

A CHEAP AND SIMPLE MAGNETO COIL TESTER YOU CAN BUILD

This is not my design. The plans came to me as a "handout" in the outboard motor technology program at my local community college. After you collect all the necessary parts and materials it should take about one long evening to assemble your tester and the cost should be around \$40 depending on where you purchase your parts and materials. Any fully charged 12V battery can be used as a power source. I regularly use a 7AH maintenance free lead calcium battery Stock # HCAPO\$00 sold by Hobbico through many hobby shops. It is rechargeable and I believe I've had it more than 10 years. The tester will test coils of magnetos having secondary lead(s) going to the spark plug(s), ignition points set(s), and coil(s) with the coils either mounted on or removed from the motor. Leakage tests of the coil and secondary (high tension) leads are performed using an insulated test lead having a probe on one end and an alligator clip on the other. This tester is not to be used to test **electronic** ignition systems!

WARNING: Do not apply 12V power to the tester unless each of the coil's high tension leads are connected to the tester's spark plugs or jumpered (grounded) to the magneto's stator plate. Otherwise, the tester or coil being tested, or both may be seriously damaged.

OPERATION: First, disconnect and separate all primary coil leads from the magneto at the points and condensers and attach the tester's leads, one to the coil's primary lead, the other to ground (see assembly diagram). Polarity is unimportant here. **Now, observing polarity,** connect the tester to the 12 V source and observe the spark at the spark plug gap(s). The spark should be steady, bright bluish, and sound "crisp". Attach the probe lead alligator clip to the NEG(-) terminal of the tester and test for high tension leakage by moving the probe around the spark plug connector, along the spark plug lead(s), and across the entire surface of the coil. The spark at the spark plug gaps should not change. Changes in the spark, arcing to the probe, or absent or intermittent spark at the plug indicate insulation failure. **MOMENTARILY** touch the tester's primary leads together. Note the change in the sound the relay makes. This is how the tester will sound if the coil is **shorted**. **CAUTION:** The tester's relay will be damaged if the test leads are shorted together or a shorted coil is tested for more than a few seconds. Try to perform all tests as quickly as possible to preserve the life of your tester!

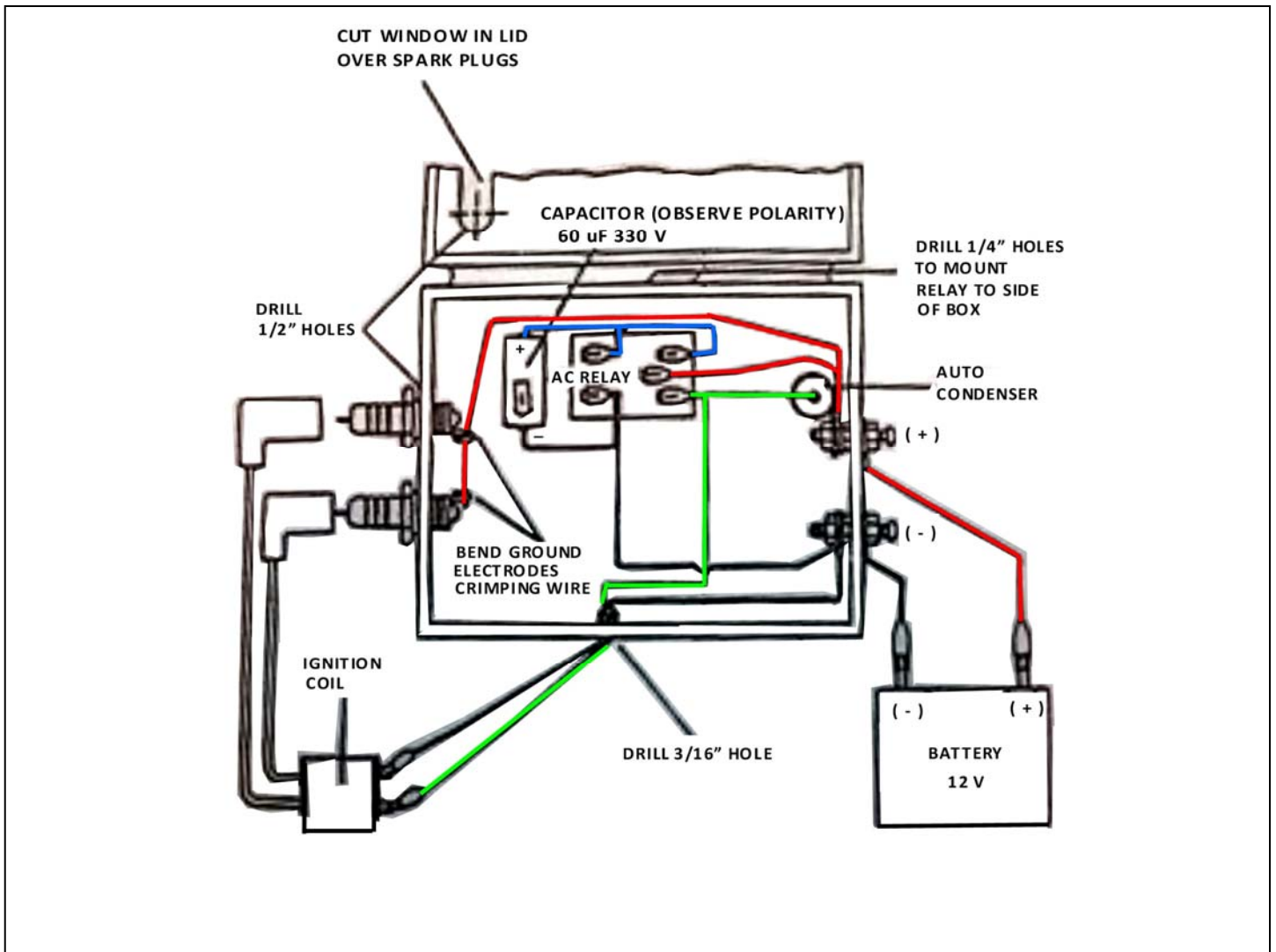
PARTS LIST:

<u>Qty</u>	<u>Item</u>	<u>Suggested Sources</u>
1	Plastic or wood file box	Wal-Mart, Office Depot, Container Store
2	Spark Plugs (Champ N11YC)	Auto Parts, NAPA
1 pr	Batt. Clips, small	Auto Parts, Napa
3	Alligator Clips (for pri. leads & probe lead)	Radio Shack
1	Relay, Napa –Echlin AR113 or Eq.	Radio Shack, Local Auto Parts
10'	#16 or #18 Pri. wire, or Test Lead	Radio Shack, NAPA
2	#10 x 1-1/2 machine screws w/ 6 nuts and washers (brass)	Local hardware
2	1/4 x 1/2 screws and nuts or pop rivets for attaching relay	Local hardware
5	1/8" fem. Crimp push-on conn. For relay	Radio Shack, NAPA
1	.21 microfarad auto/marine condenser (NAPA p/n 18-5199) Johnson/Evinrude 580321	NAPA/Sierra
3	68 microfarad (+or-) @100V Electrolytic Capacitor	Electronics suppliers See Notes below
1	Meter lead, get probe lead & alligator clip, make up	Radio Shack, etc.

Notes:

1. Use a plastic or wood box having a lid and large enough to store all leads and connectors.
2. Consider using short, solid, not spring or helicoil type, spark plug inserts to retain spark plugs: especially in thinner plastic boxes. Available from J.C. Whitney, 1-800-529-4486, p/n 14-4236, pkg of 2, about \$2 plus S&H. Don't bother to look for 14X1.25 spark plug thread nuts, you won't find them.
3. I recommend against soldering wires directly to the relay.
4. Do solder wires to the spark plug inserts, if used. Grind off a small bare spot for solder to adhere to.
5. The listed plug is easy to find, cheap, has screw-on connections for antique style leads, extended core and threads make it easy to see spark, etc. However, almost any non-resistor plug and any marine or automotive condenser will probably work fine.
6. I have had reports that some of the parts listed were difficult to find; so I have revised the parts list to try to make it a little easier. In the past several months Radio Shack has discontinued a lot of stuff I use in preassembled testers, especially circuit board mounted relays and the electrolytic capacitors which I used to special order from Radio Shack Unlimited (RSU). That is the one item that you may have a real problem locating: the 68 microfarad electrolytic capacitor. They are hard to find unless you buy hundreds of them (fair price? Less than \$1 ea.). Simply put, nobody wants to fool with them. I have found a supplier who can obtain smaller quantities for me from the factory, so, I usually have some on hand. As a last resort, I will try to get one out to you for a reasonable price! I am not, and I don't want to be in the parts business, but contact me if you have a problem ... korbsintx@prodigy.net or 972-709-5435.

Assembly Diagram:



"Remember, amateurs built Noah's arc, professional built the Titanic"