

**Figure 4:** Breaker point contact resistance test

### Breaker point test

The breaker points on a magneto ignition are often located under the flywheel. Remove any parts that might interfere with the flywheel removal. Hold the flywheel in a stationary position with a strap wrench and remove the large nut that holds the flywheel to the crankshaft.

Use a puller to loosen the flywheel and lift it off the crankshaft. Locate the breaker points and examine the contact surfaces. (Caution here: when rotating the crankshaft, turn it in the forward direction only to prevent damage to the water pump impeller).

For proper operation the breaker point contact surfaces should be clean and shining. Make an electrical resistance test with your digital multimeter before attempting to clean the contact surfaces. This will allow a before and after indication. Refer to the diagram in Figure 4. Note that the points are in parallel with the primary coil. When the points are open the resistance across the coil and points in parallel will be about 1.0Ω (the coil's wire resistance). When the points (with clean contacts) are closed the resistance will fall to a value of 0.1 to 0.2Ω. Any oil or corrosion on the point contact surfaces will raise the resistance and reduce the primary coil current, which subsequently weakens or kills the spark.

Measure the contact resistance as follows: place the multimeter in the Ω function and hold the probe tips tightly together to obtain a reference reading with the tips shorted. The reading should show between 0.0 and 0.3 ohms, note the value. This is the reference reading.

Now place the probe tips on opposite sides of the point contacts when the points are in the closed position. The meter should now read no more the 0.1Ω greater than the reference reading. Higher readings indicate contamination on the contact surfaces. If the contact surfaces are pitted, the best choice would be to replace the points. If you can't install new ones, then carefully clean the ones you've got. The object here is to remove all contamination without damaging the underlying metal.

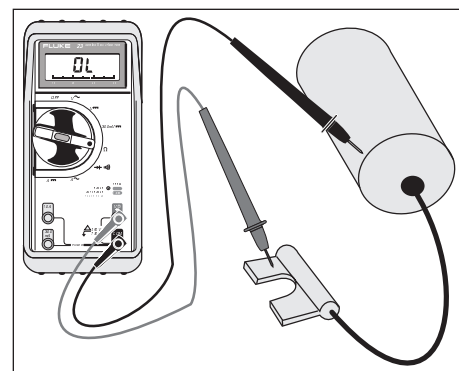
The preferred cleaning method is to scrape the contact surfaces with a sharp carpet-layer's knife, followed by a wiping with solvent on a clean cloth. Filing will sometimes work but there is a risk of damaging the underlying metal which will shorten the life of the contacts. In any event do not use sandpaper. The grit will imbed itself in the contact metal, rendering the points useless.

If you want a quick fix to get the engine running, try the "old-timers point cleaning trick" as follows: With the crank shaft positioned so that the points are closed, pry the breaker arm open and insert a clean business card between the contact surfaces. Release the breaker arm so that the points grip the end of the card and then drag the card through its width, wiping the contacts in the process. The card has two properties which make it work. It is absorbent enough to remove oil and gently abrasive enough to remove surface contamination.

When you think the cleaning is complete, verify the results by repeating the electrical resistance test. Before leaving the points, make a visual inspection of the gap in the open position. A typical specification would be 0.020 inches.

### Condenser test

Next check the condenser as follows: Disconnect the condenser lead, then place the multimeter in the capacitance function and hold one test lead to the capacitor case and the other to the terminal. (See Figure 5).



**Figure 5: Checking condenser leakage**

Check for leaking condensers with the Ohms function. As the condenser charges up, the resistance should increase to infinity. Any other reading indicates that you should replace the condenser.