Hints on Servicing the Villiers Magneto

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Jobs Which Can be Performed without Elaborate Equipment

The Villiers magneto is surely one of the most universal electrical devices in the world. It is widely used for a great variety of machines, from the light motor cycle to the smallest motor mower. In fact, this simple machine is encountered everywhere — sometimes in the most odd places.

Repairing the Villiers is a simple enough task, and only the most elementary equipment is needed. The magneto must first be removed from the machine. With small work such as this it is difficult to do much with the unit *in situ*. A thorough clean in petrol will help matters, too, so that the various small components may be easily identified.

The Contact-breaker Assembly

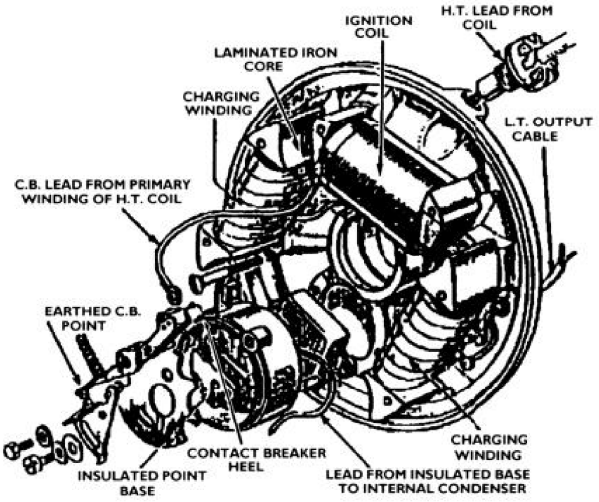
What many people fail to understand is that the insulated contact-breaker point and brass plate or base must be in fact *insulated from earth*. The two screws which retain this base are screwed into the main housing of the contact-breaker assembly. Consequently the screws themselves are earthed. To insulate these retaining screws from the brass base, small hollow insulating bushes are used, shaped in the form of an inverted top hat. An additional fibre washer beneath each screw head completes the insulation. The brass plate or base is insulated from the under-side surface by a strip of fibre.

To test the insulation of the contact-breaker point and base, insert a small piece of dry paper between the points and remove the low-tension lead from the terminal at the ignition coil. Now connects, by means of a length of cable, one terminal of a 6-volt battery to the casing of the magneto. Bring another cable from the other side of the battery and flash it momentarily across the disconnected L.T. lead. No spark should be evident at all. If there is a spark, then check the insulation under the brass base retaining screws, also the point where the L.T. wire from the ignition coil connects to the plate or base. Very often it is found that the L.T. wire is wound around the screw without a fibre washer interposed between the head of the screw and the lead. In other cases it may be that a stray 'whisker' of wire is touching the screw, or the insulating bushes are worn away.

As the insulating terminal of the internal condenser is also connected to the brass base, the same rule will apply to this condenser connection which is located beneath the other base retaining screw. Insulation is effected in the same manner and the same precautions must be observed. Isolating the actual short to earth is often a matter of dismantling and visual inspection. The important thing to remember here is what is insulated and what is not.

Testing the Condenser

Most common of ignition faults on the Villiers is a defective condenser. To test the condenser, disconnect the insulated condenser wire, which emerges from a hole in the contact-breaker housing floor and is connected the brass point base. Now connect the two leads from a 'Megger' across this condenser wire and the frame of the unit. A reading of approximately 3 megohms should be obtained. If one of the 'Megger' leads is removed while the handle is still being rotated, the condenser will retain a charge, and when shorted out with a



General view of the Villiers flywheel magneto, showing the contact-breaker assembly and the winding system

screwdriver a healthy spark should be observed. A rougher test can be made of a condenser by flashing a mains voltage D.C. supply across it. When the condenser is shorted out a similar spark should occur.

To change a condenser, the contact-breaker points housing may be removed by unscrewing two nuts on the rear of the main back-plate. The housing will then come away from the back-plate, exposing the small square condenser, which is easily removed by unscrewing the studs which normally project from the housing through the back-plate.

Testing the Unit

While it is an advantage to have a 'turntable' rig (where the unit can be spun and actual performance noted) the main object is to check the spark obtained from a low voltage — and this can be done by using a 6-volt battery.

Make sure all is assembled correctly and that the insulation is sound. Now open the points (a piece of paper inserted between the points is perhaps the best way) and connect one side of 6 volts to the backplate of the unit. The other side can be flashed smartly across the insulated point or base. When this is done a spark should occur between the H.T. lead and earth and earth (or back-plate) through an air gap of not less than 3/16in — a simple yet effective test.

Charging Windings

Testing for continuity, an ohmmeter should register from the charging output wire to earth a very low reading — in the nature of one ohm or less. No reading at all indicates an ' open-circuit ' or break in the windings. This however is a rare fault. In this case it is worth inspecting the earthed end of the winding for evidence of a dirty or loose connection. Otherwise there may be an internal break. The only remedy for this is to obtain and fit a new coil or coils.

Remagnetising

The fly-wheel part of the Villiers if fitted with permanent magnets. Where these seem to be weak it is possible to have them remagnetised. (Most auto-electrical agencies have a remagnetising plant.)

Providing the precautions listed here are kept in mind, the Villiers magneto should not a troublesome job to tackle — and will not require elaborate test equipment.

W.T.

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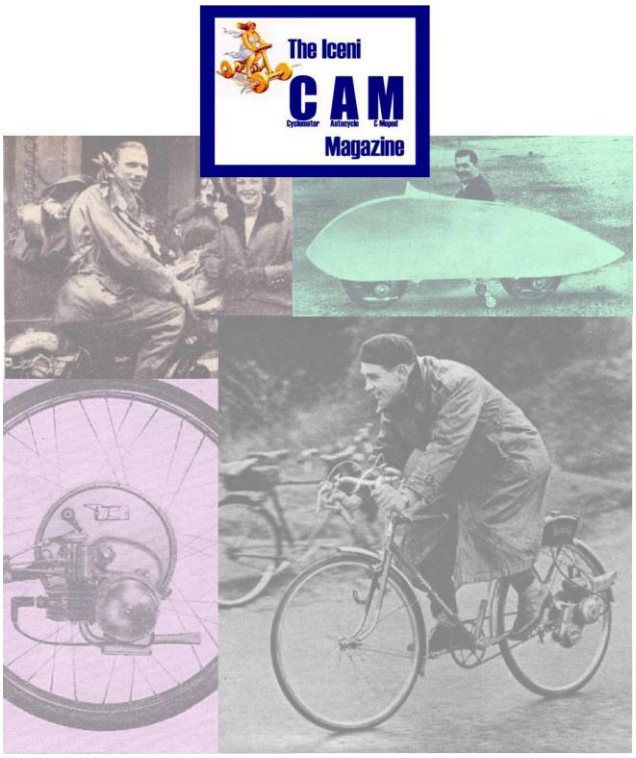

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