Testing & Lucas RITA "Revival" Service.

While we can still test and evaluate Lucas Rita systems, our Rita "Revival" service does away with old, failed Rita circuit boards. We no longer repair the internals as the parts inside will be of the same age, if one has failed it won't be long before another one goes the same way. Instead we use an entirely new, modern circuit that replaces everything in one easy step. We retain the same metal case, nothing else is changed meaning your ignition benefits from new reliable electronics without the need of replacing the whole thing. This keeps the bike looking as it did and saves making up new mounting brackets.

The new circuit can be fitted in to the original case by a competent person who has the skill to carefully handle the circuit boards, unscrewing the old and fitting the new circuit in its place. The original grommet is retained and the new lead colours match the original colours. The terminal connectors will need to be replaced. Alternately our Technicians carry out the board replacement for you. The new board is of modern design, better protected and comes with a full warranty.

Suitable for all Hestketh, Moto Guzzi, Ducati, Moto Morini, Aermacchi, Yamaha XS650 models and British motorcycles already fitted with Lucas AB11 units. The revival board is designed to preform exactly the same, its better protected and consumes slightly less power than AB11 units thanks to a modern drive transistor. The early AB5 version can also be replaced with a revival board although the metal case may need modification to accept it. The modern Revival units uses significantly less power than AB5 units. The AB5 has a ribbed case with an external power resistor and originally had a 5 pin plug. The Later AB11 unit has a smooth case and was fitted with a Molex type, non reversible three pin connector and a two pin rubber SAE connectors, both of these plugs are obsolete. We recommend modern alternatives are used instead.

Fault Finding The Rita For The Home Mechanic

Warning; The original Lucas Rita unit is very poorly protected against misuse and hence it is VERY easy to inadvertently damage it. When properly connected it is a reliable and robust unit, problems occur when people tinker with it.

- Never leave the ignition on and the engine not running for extended periods.
- Never allow more than a 5 mm spark gap to exist - if you do the unit will fail almost immediately.
- Always ensure the case is earthed and never disconnect wiring with the unit running.
- This advice applies to "Revival" units as well.

e-mail: tech@rexs-speedshop.com

Wires are connected as follows:

White/yellow Ve+ (positive), also connects to HT coil "+' terminal.
Black Ve — (negative).
White/black HT coil '—' connection (control wire).
Case must be earthed at all times.

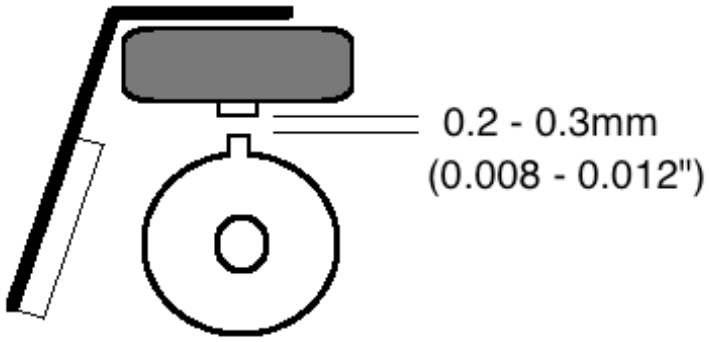
What to check when there are no sparks

With a spark plug earthed to the engine and connected to the HT coil, switch the ignition off, this should produce a spark, alternately a screw driver or feeler gauge moved passed the reluctor should also make the unit spark. These tests are a good indication the unit and ignition coil are OK.

If there are no sparks, check that the white/yellow wire has power. Measure between the black and the white/yellow wire and you should see the battery voltage with the ignition on. Depending on the vehicle's earth polarity the value will be either a positive or negative value on your meter. If there is power check the reluctor next.

Setting & testing the reluctor.

Correct adjustment is vital. The gap must be between 0.008 - 0.012" (0.2-0.3mm) For ease use plastic or brass feeler gauges, normal steel ones can be used but will stick to the magnet making it difficult to set.



The pickup (or reluctor) is the inductive type and can be tested with a multimeter measuring its resistance between the two wires coming from it. If you connect the pick-up in reverse the engine will run, but the timing will remain fully retarded and it maybe hard to start. Set your meter to the correct range (consult the meter's instruction manual to find which setting to use if you are not sure) & look for the following readings:

200-450 ohms - C and Low C types (typically 270R)
1500-2000 ohms for the 2PU type
600-700 ohms for the 5PU type

Further testing

Still no spark but the reluctor resistance is OK and there is power to the Rita box? Next you should test the HT coils by reading their resistances. Primary resistances should be approximately; 12 volt coils 4-5 ohms, 6 volt 2 ohms, 3/4 volt 0.3 to 1 ohm.

Secondary resistances are in kilo ohms (K) and are measured between the Ve- and the HT connector. Modern green box Lucas coils measure 9,000 ohms (9K) approximately.

HT lead coils have a primary winding polarity which follows the battery polarity. Mis-connection causes a loss of efficiency but won't harm the coil. Twin HT lead coils do not have polarity on their primary or secondary and can be connected either way round.

e-mail: tech@rexs-speedshop.com

Diodes

If you have 12 volt HT coils in parallel with ignition diodes fitted, you can test the coils individually once the diodes are removed. Diodes should be tested with a multimeter with a diode test function as this will give a clear reading of zero one way and 0.5-0.6 with the test leads reversed.

We are able to supply an upgraded diode that also has a snubber capacitor to improve spark. We are able to advise on suitability. This part can be used with Boyer or Lucas systems. P/N PM6A6Twin/Triple.

If the HT coils give sensible readings (have two that read the same is a good indicator they are OK) and all the other tests are OK, its fair to assume a problem with the ignition box itself. We can help here and offer a simple drop in replacement board which gives you an all new, modern. This saves having to send away and have an old unit repaired. If you prefer, we can do this for you at a small charge.

Other Faults; Multi sparking

This can be caused by low battery voltage, high resistance in any connection (check earthing) or faulty wiring.

Notes on Plug Caps

Suppressed caps must be used, these reduce electrical interference and increase spark intensity. To test plug caps use your multimeter, typically NGK caps should measure 5,000 ohms (5K) and Champion 10,000 Ohms (10K). Use only copper cored HT lead for the best results. Do not be tempted to use non suppressor plug caps as they reduce spark efficiency and may upset the timing curve due to the electrical interference they allow. The RITA is capable of delivering a high power spark that requires resistor caps to be fitted. Its only 1930's magnetos that cannot cope with resistor plug caps.

Connectors

As with all things electrical good connections are essential. It is no good using car type connectors intended to sit under a dash board, nice and dry away from the elements. On a motorcycle connectors get soaking wet every time it rains, so use connectors that can cope.

As we've mentioned these units are very sensitive to poor connections. The trigger signals are tiny so don't twist wires together as this will add extra resistance. We are able to recommend connector types and help you choose from the bewildering selection of connectors we stock.

Rex's - New Ignition Units - Testing - Expert Advice

e-mail: tech@rexs-speedshop.com