

Lucas RITA Ignitions.

The RITA system has not been available new for some time but they are still capable of giving good service.

Lucas Rita: To identify, first is it AB5 or AB11? Despite these two being interchangeable electrically * and performance wise please note the two major differences. The AB5 (earlier one) has a ribbed case with a power resistor mounted on the back of the case. This unit should also have a 5 pin plug. The AB5 units are not normally repairable as the failure is most likely in the power transistor which is not economically replaceable, along with the fact that they use double the current that the AB11 use (the AB11 current is almost the same as a traditional coil/points system [using same coils]) we recommend replacing the AB5 with the AB11 for same performance.

*The AB11 has a three pin plug (power) and a two pin plug (pickup). The connections into your bike having to be changed to accommodate these differences.

Here are some facts that should help you understand and/or get your system back into working order. If all else fails then of course A O Services can repair the amplifier.

Fault Finding: Basic operational facts will be in order to help understand when fault finding in the AB5 and AB11 systems (these amplifiers are identical in operation). The Magnetic pick-up consists of a small Coil mounted on a magnet, such that a small output is produced when a rotating Reluctor (steel) disturbs the magnetic field. This output is fed to the Amplifier triggering circuit where it is amplified and used to switch the ignition coil current off through a power transistor, this in turn produces HT from the coil.

The Pickup is just a coil of wire and can be measured with a Mutimeter.

200-450 ohms - C and Low C types (270 ohms average)

1500-2000 ohms for the 2PU type.

600-700 ohms for the 5PU type (Triumph factory fit)

Strict wiring colours/connections.

WHITE/YELLOW-Battery Positive.

BLACK-Battery Negative.

WHITE/BLACK-Coil(s) Negative terminal.

Coil(s) Positive terminal-Battery Positive.

Case-Earth.

If the pick-up leads are reversed by mistake, the ignition will still work and will not be damaged but the ignition point will be fully retarded (No advance) The engine will be appropriately poor in performance, maybe hard to start.

Pick-up gap: This is crucial for starting and is a common fault. The gap must be between 8-12thou (0.2-0.3mm) (5PU is non adjustable) any more and you won't start. As the gap is often set with steel feelers (and a magnet is present) it can be set wrong very easily, take care.

Basic System Checking: With a well charged battery on the bike check for battery volts at the amplifier. The WHITE/YELLOW will have 12V with respect to the BLACK. (W/Y will be at +12V on a NEGATIVE earth machine. BLACK will be at -12V on a POSITIVE earth machine.)

No Spark: With a spark plug lying on the cylinder head and plugged into the HT lead switch the ignition OFF, this should produce a spark. If it does the basic amplifier function and ignition coil(s) should be in good order. (Keeping an old spark plug with enlarged gap as a test plug for use in free air is a good idea)

Pick-up function: Passing a small screwdriver across the pick-up should also produce a spark, similarly touching the WHITE/PURPLE amplifier lead to NEGATIVE (earth if NEGATIVE earth) should produce a spark. If so then system should work.

Finding the Spark; If you have lost the spark and you have 12V and a good pick-up and gap, then next check the Ignition coil(s) by passing current through it (them) without the amplifier in circuit by un-plugging it. Connecting 12V (by turning the ignition ON,) to one end of the coil and having earth at the other end, does this. Breaking the power (ign. on-off) should cause a spark (albeit weak). Two or three coils if connected in series will test out (if in working order) exactly as a single coil. When testing an individual coil be aware of the voltage (a single 6V or 4V coil fed with 12V causes smoke!) 12V coils in parallel with diodes may be checked as above after removing the diode. Single output Coils have polarity. This polarity follows the battery polarity. Reversal does not 'kill' them but reduces their efficiency. Twin output coils do not have polarity on their input.

Diodes; If you have ignition coils in parallel i.e. with ignition diodes, you can test the coils individually bearing in mind the voltage and polarity as above, with the diode correctly connected in circuit AND then with the diode removed. The diodes may be tested separately using a Mutimeter in the normal way. A failed diode may be replaced by one from within a traditional bridge rectifier used on British motorcycles. (provided it is up to 400VPIV and replacing both diodes is good practice) Available from A O Services. For test or emergency reasons, you could leave the diodes out of circuit BUT connect the (12V) coils in series, this gives a poor inefficient spark but might get you home. [Draft item-to be confirmed]

Multisparking; This can be caused by low battery voltage, or high resistance in any connection, especially earth or ign. switch or an 'unused' kill switch.

Plug Caps; Resistive/suppressed caps can fail, so try some un-suppressed ones. Often they are marked with the resistance (5K) which can be measured. Then there is the leads! The carbon ones are well known for failing intermittently and with heat, try some copper.

Connectors; Basic electrical good practice should apply to ALL connectors. RED and BLUE D.I.Y. connectors are to be avoided, but used with a decent ratchet crimper might be adequate. Household terminal blocks are also to be avoided except for very short term testing!! The RITA multiplugs should also be examined if there is any problems, while the use of a finger nail emery board is often ideal for 'in-depth' cleaning, along with tightening of the 3mm socket within the RITA block connector.

Water!; Has no business in electrics! So no pressure washers! Please.

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