Rex's 'Revival' Circuit for Lucas Rita AB11 & AB5

Rex's 'Rita Revival' is a quick and easy solution for failing electronics in existing Rita systems. It has been designed to be fully compatible with existing road use Rita systems and to match the Rita's original characteristics.

There are two versions of the Rita Revival repair circuit; AB5 or AB11, the electronics are identical it is only the wire colours and mounting detail that is different. The correct version for the metal Rita box must be selected.

It is extremely important that you read this guide carefully before starting work. Technical support for this product is available only via e-mail: tech@rexs-speedshop.com

Important Frequently Requested Information.

- *What ignition coil must I use?* **Refer to the HT coil section of this guide for for suitable HT coils and how to connect them.** The Rita is designed to work with points ignition coils where the primary resistance is not less than 3.6 ohms. Only use the specified HT coils to avoid damage to your ignition, note use of incorrect HT coils voids the warranty.

- *What plug caps should I use?* Suppressed type MUST be used with electronic ignitions, the recommended type are NGK 5 K ohm plug caps. Other branded plug caps with not more than 10 K ohms may prove satisfactory. We are unable to advise further on which type to use.

- *Can I use HT caps without suppressors?* This is not recommended, suppressors actually increase spark voltage and stability as well as reducing electrical noise.

- *Do the HT leads have to be earthed when testing?* Yes, the HT must be have a path to earth or the unit can be damaged. Ensure the spark gap never exceeds 5mm.

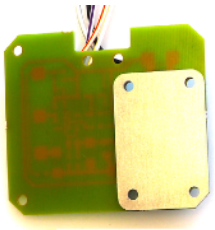
- *After fitting the new circuit do I have to check the ignition timing?* Yes this must be checked using a timing lamp and adjusted if required.

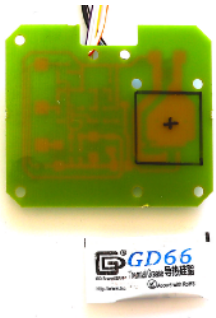
- *Does the case need to be earthed when using your Revival ignition?* No, early Rita boxes suffered electrical interference caused by non resistor plug caps and the alternator. Your Revival unit has a filter circuit to reduce such problems.

- *How do I wire my AB5, the wires are different colours?* Version 3 of the AB5 Revival now comes with matching wire colours, for older versions there is a simple to follow connection guide included. When fitting the Revival to AB5 cases please carefully follow the wiring advice given.

- *The HT coils become hot with the ignition on!* The coils becoming hot is normal and they will quickly reach 60 degrees C with the engine running (with an ambient temperature of 20 degrees C). Coils can become as hot as 70 - 80 degrees C, particularly if the ignition is accidentally left on without starting the engine. In the case of ignition being accidentally left on without starting the engine, switch off immediately and allow coils to cool completely.

AB11 version

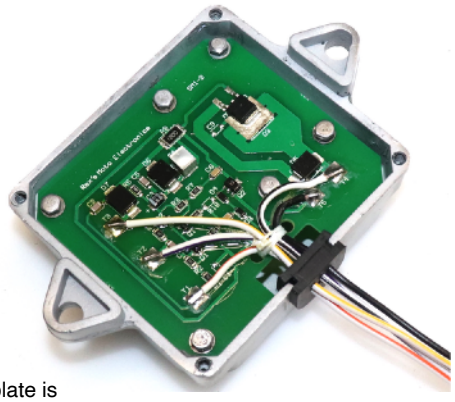




AB5 version

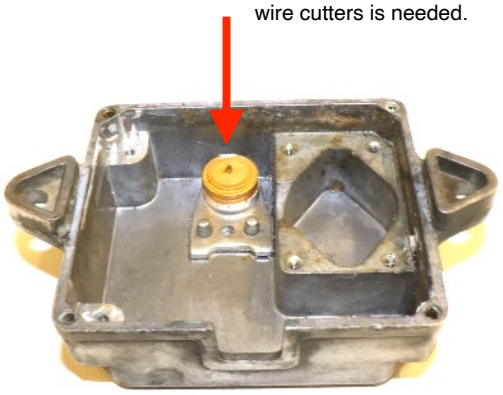
AB11 Units

1. Remove the back of your Rita unit. This is secured by 4 screws. Retain the gasket.
2. Unscrew the old electronic circuit board, it is secured by 6 screws, these could be a different size to the cover, do not mix them.
3. If the circuit board is connected to the case by wire simply cut the wire flush with the gold component as shown below. The remaining part can be left where it is providing the tag isn't stopping the new board fitting in to the case.
4. Remove the grommet and keep it. This is re-used.
5. Fit the new board and ensure the metal back plate fully against the case.
6. Secure using the 6 screws. Thread the wires through the grommet.
7. Refit the back cover ensuring the lid is properly sealed.
8. Go to the wiring, set up and adjustment section.



Ensure the metal back plate is located against case. The board can be damaged if the metal spacer is missing.

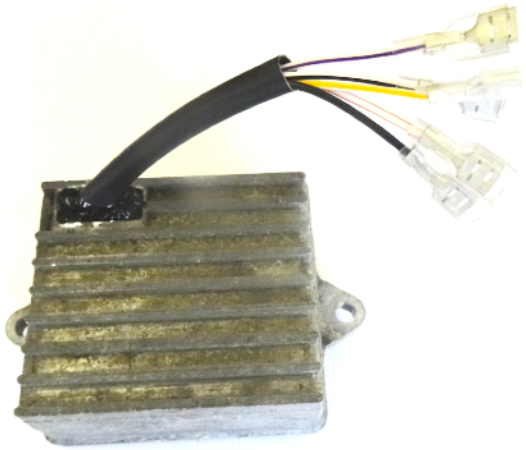
Cut the wire flush if you have this version. A stout pair of wire cutters is needed.



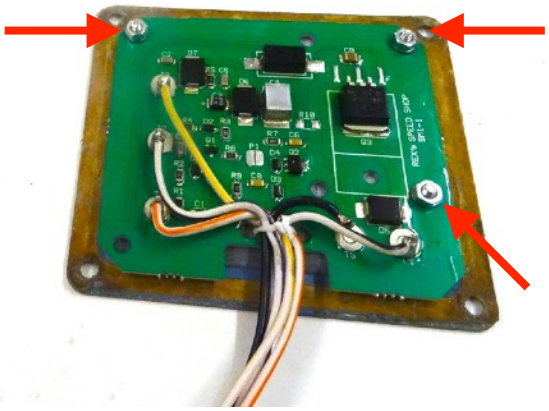
AB5 Units

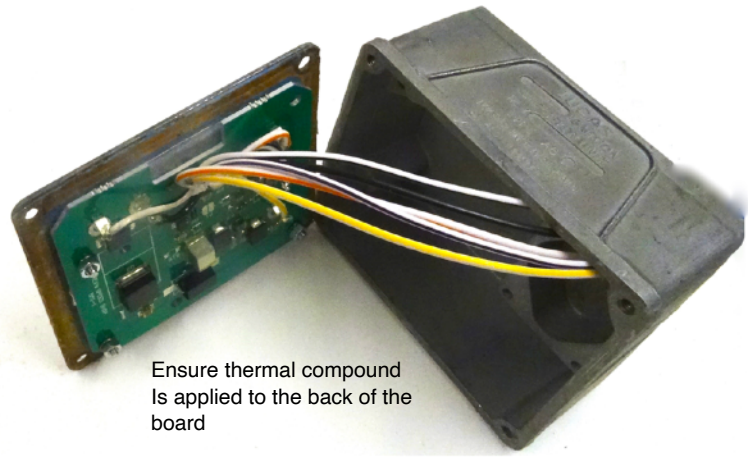
Rex's "Revival" circuit uses significantly less power than the old AB5 unit. The new circuit board is mounted to the metal lid of the AB5 case and the huge power consuming resistor is removed. Fitting requires the lid to be drilled and great care is needed to avoid metal particles from the drilling from coming in to contact with the replacement electronics.

1. Open the unit by removing the metal back. Unscrew and discard the old circuit board. The external resistor fitted to the lid and its wiring is also removed. Be careful to save the gasket & grommet.



2. Carefully offer up the board to the steel lid and mark **three of the mounting holes** as shown in the picture.
3. Drill holes with a 1/8th or 3.2 mm drill. Great care is needed as the holes will fall exactly in the pressed corners of the lid.
4. Once you are happy the holes are in alignment, apply the thermal compound from the sachet to the cross marked on the back of the circuit board. Use the M3 nuts and bolts to secure the board to the lid. Ensure the board seats firmly to the lid.



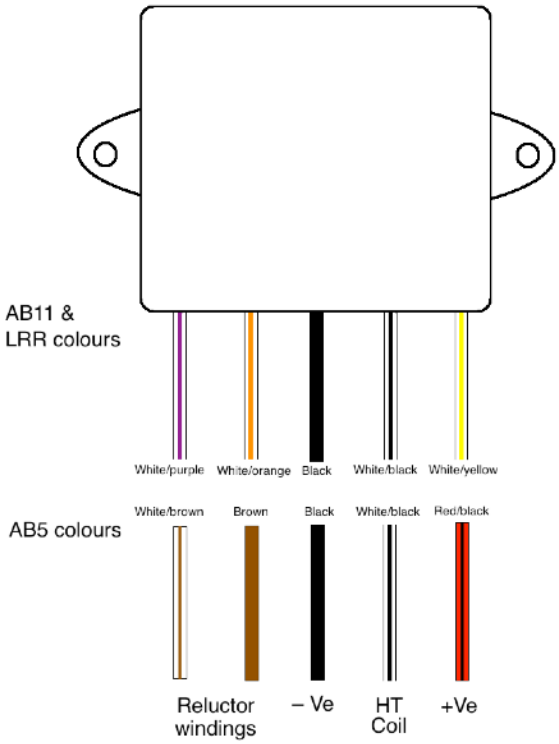


4. Feed the cables through the grommet and refit the lid to the case.
5. Go to the wiring, set up and adjustment section.

AB11 Wiring
The revival circuit comes pre wired with matching wire colours, match the new wire to the same colour on the existing system. Note the old “560” style connectors are no longer available so we provide modern crimp terminals to use instead.

AB5 Wiring
Later revival versions have matching wire colours, simply match wire colours up. New connectors are included. If you have an older version with AB11 colours follow the guide below. The electronics on both versions are identical, only the wires colours are different.

AB5 Wire colours	New wire colours
White/Brown	White/Purple
Brown	White/Orange
Black	Black
White/Black	White/Black
Red/Black	White/yellow

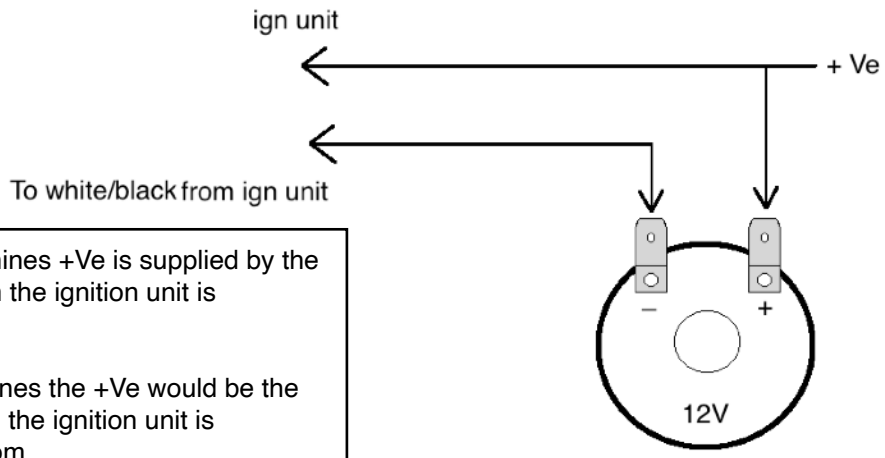


HT Coils
The recommended HT coil for Rex's Rita Revival are given below, these are guaranteed to be correct. If you are in any doubt use coils from the list below.

Lucas 6V (a pair connected in series) - HTC 20
Lucas 12V Part number - HTC21
Single HT lead, Japanese style, 12V - HTC32
Dual HT lead, Japanese style, 12V - HTC3

If you are in any doubt you must use a coil from the specified list. We regret we are not able to discuss other coil options as the recommend types are stated here. Owners can at their own risk choose different coils where the primary resistance is greater than 3.6 ohms and the coil is intended for DC contact breaker ignition. Where coils are connected in series the resistance of each coil is added to find the total. Note that using coils with a lower resistance voids your warranty and can cause the unit to fail. Primary resistance is measured between the low tension connections using a suitable multimeter set to read Ohms. Please consult a qualified motorcycle electrician if you need further advice regarding HT coils.

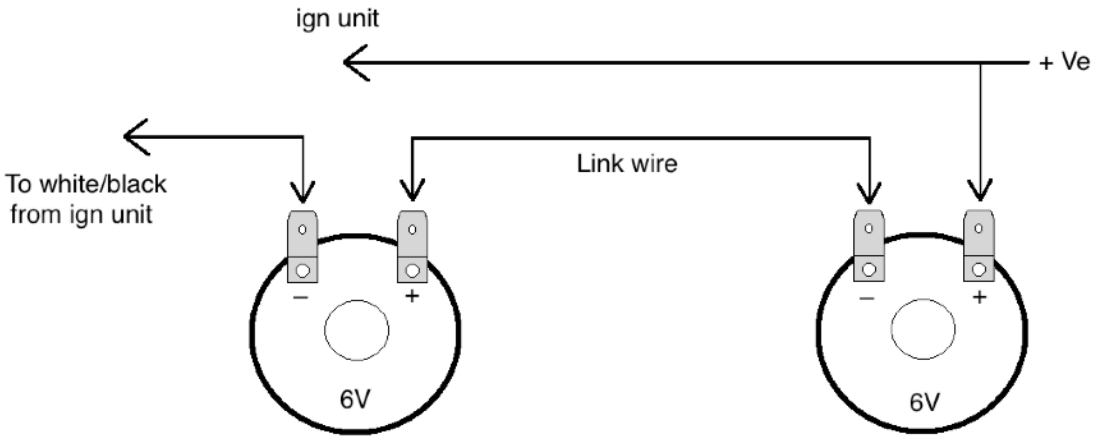
Standard configurations
Single HT coils with either with a single or dual lead HT coil. Note with dual HT lead coils it does not matter which way the Ve+ or Ve- is connected to the primary.



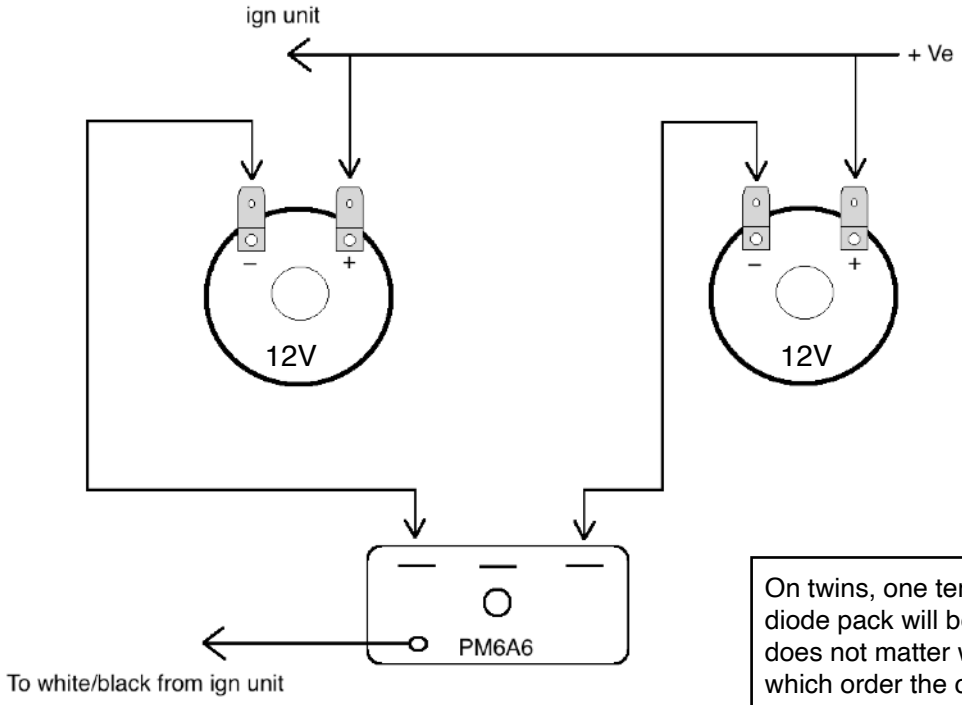
On NEGATIVE earth machines +Ve is supplied by the wiring. The black wire from the ignition unit is connected to -Ve wire.

On POSITIVE earth machines the +Ve would be the frame. The black wire from the ignition unit is connected to the wiring loom.

6 Volt Coils.
It is common to use two 6 volt coils with a link wire, connected in series. This combination may seem a little confusing at first but it gives the equivalent of a single 12V coil with two HT leads. The Rita revival circuit can use a pair of 6 volt coils connected in series provided the total resistance is greater than 3.6 ohms.



Connection using a diode pack
A diode pack is used on the Rita with two individual HT coils of the same voltage as the vehicle's system.

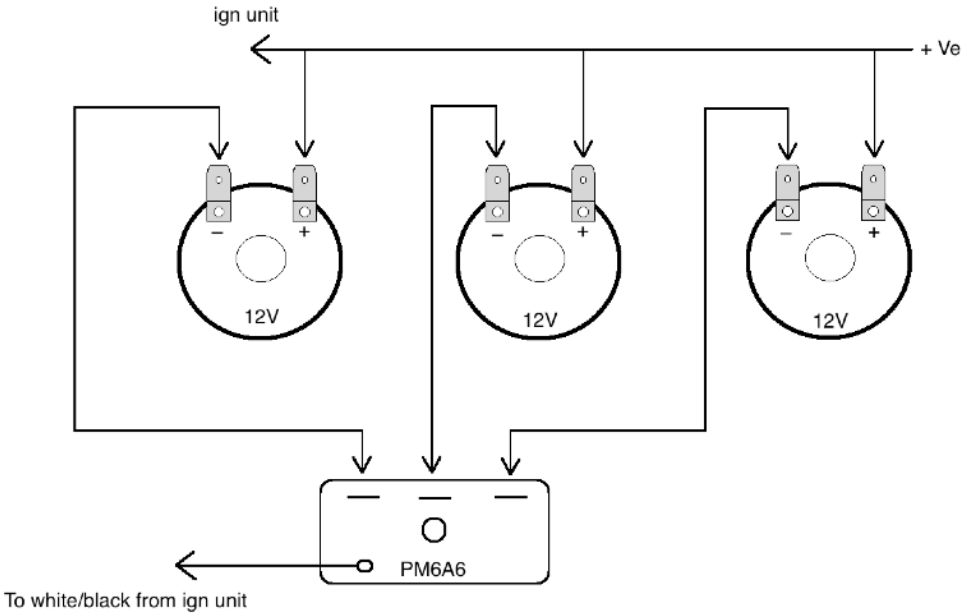


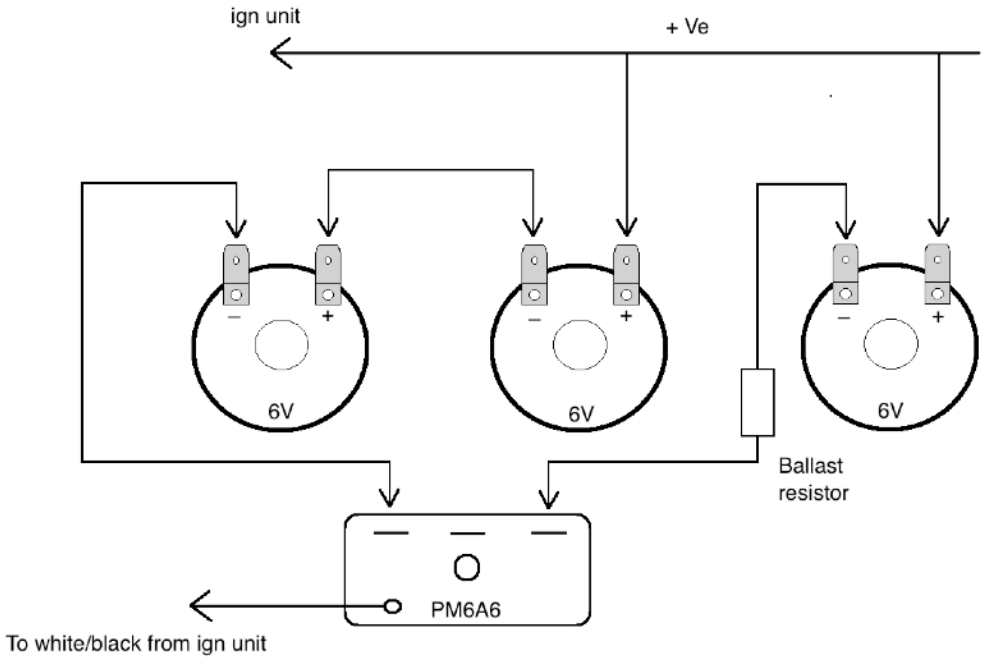
On twins, one terminal of the diode pack will be left unused. It does not matter which one nor which order the coils are connected to the diode pack.

3 Cylinder Machines
We do not recommend that the Revival circuit is used on British Triples. We only offer a 6 month warranty, from date of purchase, if our Revival circuit is used on three cylinder machines.

For British Triples using the Rita Revival only two coil combinations are allowed; three 12 volt coils connected via a diode pack. A second option is using three 6V coils and a ballast resistor and diode pack. Any other coil configuration than the two shown must not be used and will void the warranty. Total coil resistance must not be lower than 3.6 ohms.

The recommended ignition system for British Triples is the Tri-Spark.





Set up and adjustment

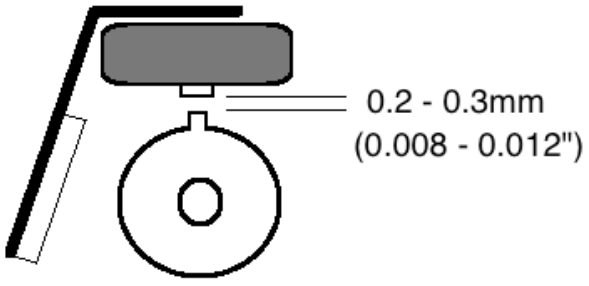
The Rita was adapted for motorcycle use by Mistral engineering, it was intended by Lucas for fitment to cars. Mistral Engineering bought AB5 and then later AB11 units from Lucas and packaged them for motorcycle application, there is very little information available from Lucas regarding the Rita unit for this reason. What is available are manually typed documents, much of the data is historical with no means of referencing it nor confirming its revision status which makes it very difficult to determine if the document was superseded or not. We are assembling what is available in to a searchable data base with up-dated drawings. This will be published on our website once complete.

Timing

In general the timing is set at full advance as per the specification given in the bike's manual. With British machines this is the normal way to set the timing, European and Japanese machines are often set at idle, for which there is no information whatsoever in the Rita documentation currently available. We recommend that timing is set at full advance/rpm quoted by the bike's manufacturer using a strobe light. You will need to find this information from the bike's shop manual.

Reluctor setting

The air gap between the magnetic pick-up and metal reluctor must be set as shown for correct timing and to avoid staring issues. Loosen the fixing screws and set the air gap to the specification in the diagram.



No such adjustment is possible on the Lucas PU5 reluctor. This can be replaced with the C type reluctor. Early Rita units used the PU5 but soon switched to the C type, interestingly Lucas supplied the PU5 for the 1979 Triumphs, it is not clear why they used such an old design on the later models.

Technical support is via e-mail only: tech@rexs-speedshop.com