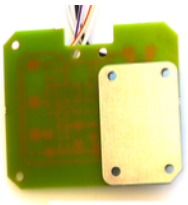
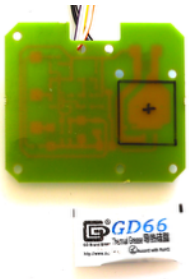
At Rex's Speed Shop, we take pride in being your trusted resource for Lucas RITA parts and service. You can find the information needed to help you get the best from your RITA ignition system on our on-line technical support web page. This gives you wiring diagrams, troubleshooting guides, installation tips and performance advice. We put you in control with parts and information so you can keep this iconic 1970s system running smoothly, adding a touch of vintage authenticity to your ride.

Rex's 'Rita Revival' is designed for existing Lucas Rita systems that have failed, giving a quick and reliable solution that renews all the electronics in one stroke. By necessity all the original characteristics are retained to ensure full compatibility with historic systems. The Rita Revival repair circuit is available in two versions: AB5 and AB11. The electronics are identical but differences lie in the mounting configuration and wire colours, so it is important to select the appropriate version based on your metal Rita box.

Important Note: Carefully read this guide before starting. Technical support is available exclusively via email: **tech@rexs-speedshop.com**, or from publications on our technical help web page.

AB11 version





AB5 version

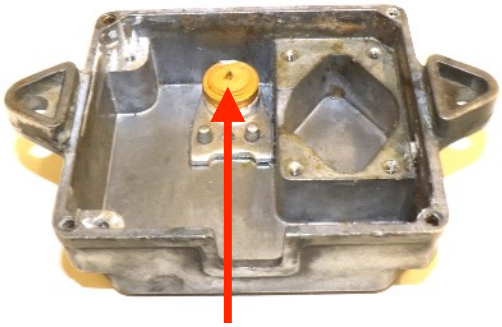
Frequently Asked Questions

- ***Which ignition coil should I use?*** Use only the HT coils specified in this guide. The Rita system is compatible with points ignition coils with a primary resistance of not less than 3.6 Ohms. Using non-recommended coils may damage the ignition and void the warranty.
- ***What type of plug caps should I use?*** Use suppressed plug caps, such as NGK 5 KΩ. Most electronic ignitions require suppression to avoid interference from the HT.
- ***Can I use unsuppressed HT caps?*** This is not recommended. Most electronic ignition can be upset by electrical noise from the HT ignition spark.
- ***Do the HT leads need to be grounded during testing?*** Yes, HT leads must have a path to ground to avoid damaging the unit. Ensure the spark gap is no larger than 5 mm.
- ***Do I need to check the ignition timing after installation?*** Yes, use a timing lamp to verify and adjust the ignition timing as needed.
- ***Does the case need grounding with the Revival ignition?*** Original Lucas units specify the case is connected to the vehicle ground, the 'Revival' does not require this.
- ***How do I wire the AB5 version?*** AB5 versions manufactured after 2023 have wire colours matching the originals for ease of installation. More details are shown below.
- ***Is it normal for HT coils to heat up?*** Yes. Coils can reach 60°C while running and up to 70–80°C if the ignition is accidentally left on without starting the engine. If this occurs, turn off the ignition and allow the coils to cool.

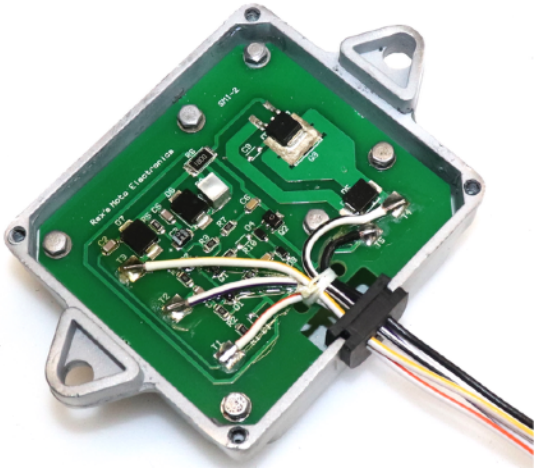
Installation Guide - AB11 Units

- Remove the back cover of the Rita unit (4 screws). Retain the gasket.
- Unscrew the old circuit board (6 screws). Keep the screws separate as they may differ in size.
- Cut any connecting wire flush with the gold component. Ensure no obstruction remains.
- Remove and retain the grommet.
- Install the new board, ensuring the circuit board sits level in the case.
- Secure the board using the 6 screws. Thread the wires through the grommet.
- Refit the back cover, ensuring it is properly sealed.
- Proceed to the wiring, setup, and adjustment section.

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



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



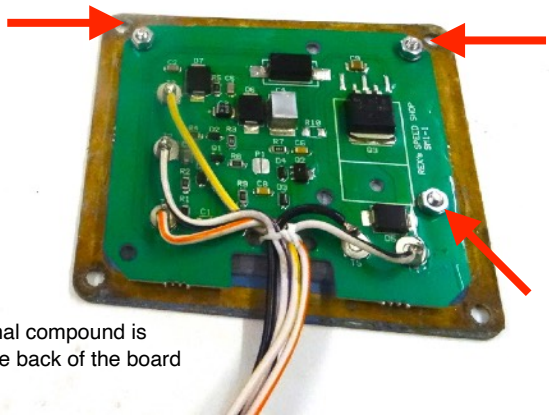
Installation Guide - AB5 Units

Fitting requires careful drilling:

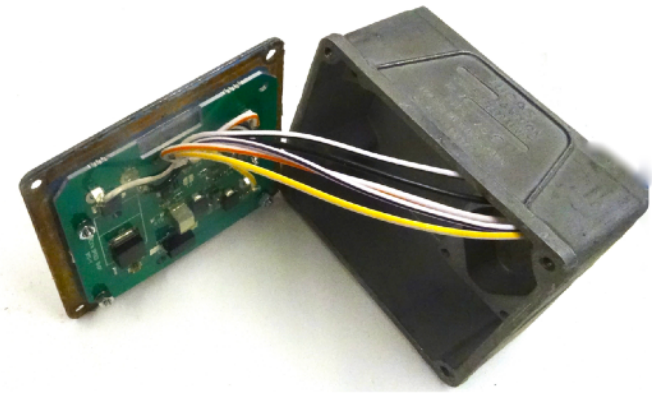
- Remove the metal back. Discard the old circuit board, external resistor, and associated wiring. Retain the gasket and grommet (some grommets are bonded to the wires).
- Position the new board on the lid and mark three mounting holes.
- Drill holes using a 3.2 mm (1/8") drill bit. **<u>At all costs avoid metal particles contacting the electronics.</u>**
- Apply the thermal compound to the back of the board at the point marked. Secure it to the lid using M3 nuts and bolts.
- Feed the cables through the grommet and refit the lid.
- Proceed to the wiring, setup, and adjustment section.

The external ballast resistor is left disconnected. It can be removed if you seal the holes that are left.

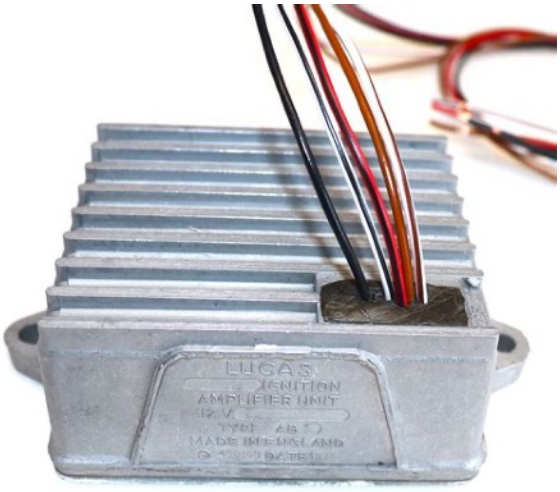
Note Location of fixing screws



Important: Ensure thermal compound is applied to the mark on the back of the board



Thread the wires through the grommet and fix the back on to the case.

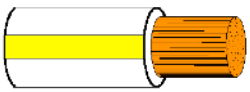
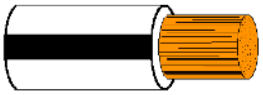
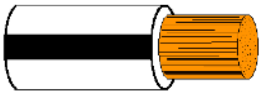
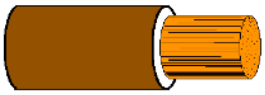
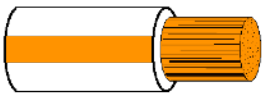
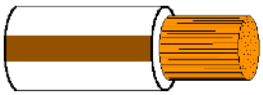
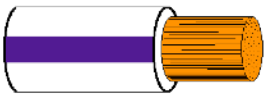
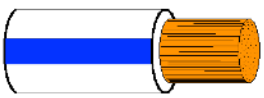


Grommet Issues

Many AB5 units have a grommet that is bonded to the wires. If this is the case one solution available is to tape the wires in line and apply RTV sealant in to the wire exit aperture. Once set, the tape can be removed. The picture, above right, shows this type of fix.

Wiring

The 'Revival' circuit comes pre-wired with matching wire colours for AB5 and AB11units, making it simple to match up with the existing system. All connections must be to professional standards. We supply specific motorcycle bullet terminals with the kit, these will make high quality, water resistance connections. The chart below identifies each wire colour & function for both versions.

FUNCTION	AB5	AB11
+12V Positive Connection		
12V Negative Connection		
HT Coil to RITA (Sparker wire)		
Pick-up to RITA (+)		
Pick-up to RITA (-)		
Ballast Resistor to RITA		**Not Applicable**

Warning - Working With Electrical Systems: Motorcycle ignition systems carry extremely high voltages. If you have a heart condition or any concerns about working with electrical systems, do not work on these systems. Seek assistance from a qualified professional.

A note on Positive Earth
In all DC circuits, power should always be connected positive to positive and negative to negative. The term 'earth' often causes confusion, so it's best to avoid using it. When making connections, clearly identify the positive and negative terminals or wires on the vehicle, and connect the RITA wires accordingly. If in doubt, have an experienced person help you with the wiring.

Allowable Coil Configurations & Wiring Diagrams for Rita Revival
We firmly believe the RITA performs at its best as a twin or single cylinder ignition. Use only HT coils that are intended for DC contact breaker ignition. **NEVER** use 'Electronic ignition' or 'Digital' types. The minimum resistance that can be connected to a Revival Circuit is 3.6 ohms. The following HT coils give great performance, are reliable, tested and guaranteed correct.

Single or Pairs of Coils
Lucas 17M12 (our P/N - HTC21)*
A pair of Lucas 17M6 wired in series (our P/N - HTC20)*

Single HT lead Japanese style, 12V - HTC32
Dual HT lead, Japanese style, 12V - HTC3

**PVL or Tri-Spark alternatives may also be used*

We regret we are not able to discuss other coil options, the recommend types are stated here.

6V Series Connected HT Coils
A tried and tested configuration that is used on thousands of machines. Slightly bulkier than other options as two coils are required, and it can initially cause confusion with owners when they find 6V coils installed on a 12V bike!

Where coils are connected in series the primary resistance of each coil is added to find the total. Primary resistance is measured between the low tension connections using a suitable multimeter set to read less than 200 Ohms. Please consult an auto electrician if you need further advice.

Japanese Twin Lead HT Coils
Perhaps the neatest solution (and our preferred choice) is a twin lead HT commonly found on Japanese machines. These give a very strong spark. Twin lead type coils have no preference for positive or negative connection, so the primary can be connected either way round.

Important: When testing this type, BOTH HT leads must have a path to earth. Any gap must not exceed the normal plug gap. The coil will be damaged in under a second if one HT lead has no means to discharge.

Diode Pack Connected 12V HT Coils
This allows two or more HT coils of the same voltage to be connected to the RITA. It was used when a pair of 12V coils were standard equipment on a bike, to avoid owners having to buy additional HT coils of a different voltage when fitting a new RITA system.

4V coils
We recommend owners avoid what is now understood to be one of the lowest possible performing ignition coil combinations ever devised. When three 4V coils are connected in series, starting and high RPM performance is significantly compromised.

3 cylinder machines

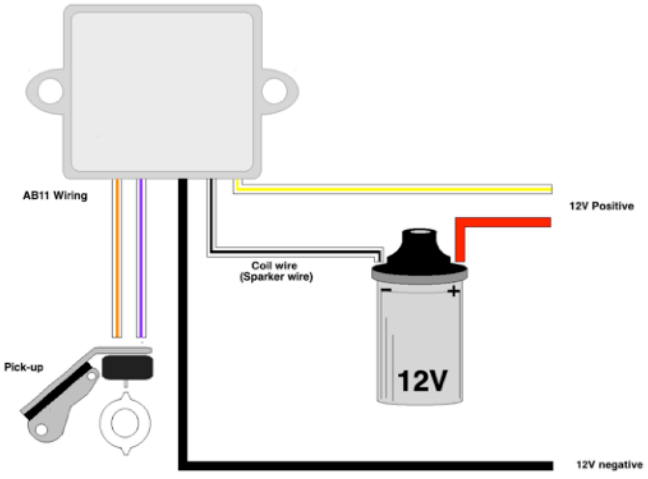
We strongly recommend owners consider the Tri-Spark ignition kit, which in our opinion, represents the best currently available ignition system for BSA and Triumph Triples.

Standard Generic Wiring Digrams

These wiring diagrams illustrate the best possible combinations for the Lucas RITA. The AB11 is shown, if you have the AB5, please refer to the table above for equivalent wire colours. You will also find original RITA wiring diagrams, along with the timing information for specific models compiled in to one document, free to download from our technical support page of our website.

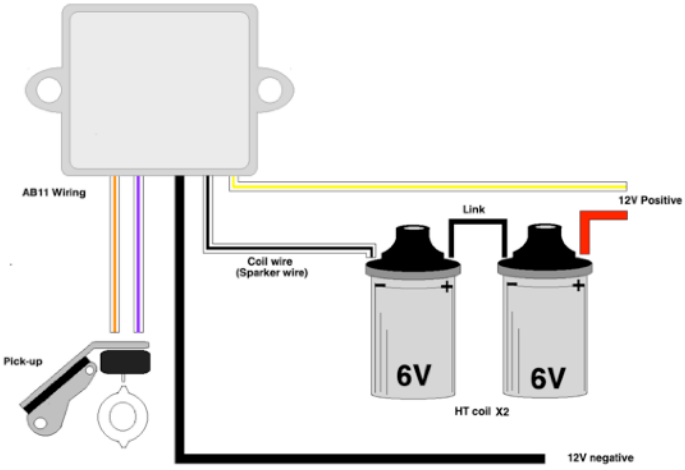
Single Cylinder Application

Either a Japanese HT coil, or the one shown can be used. Single lead HT coils are polarity sensitive.



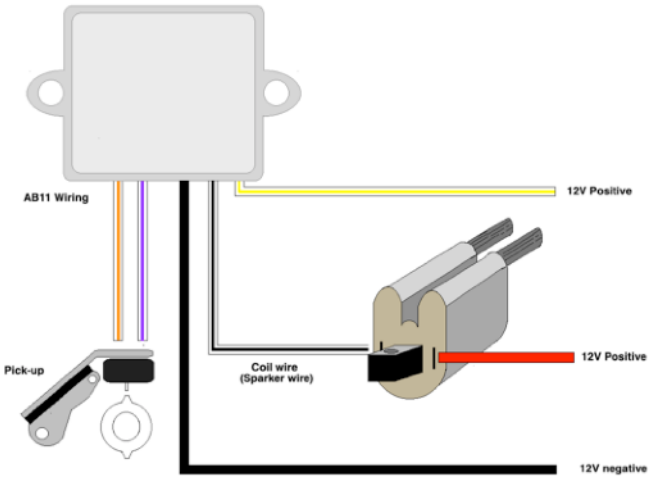
Linked 6V HT Coils

Carefully note the polarity and the position of the link wire.



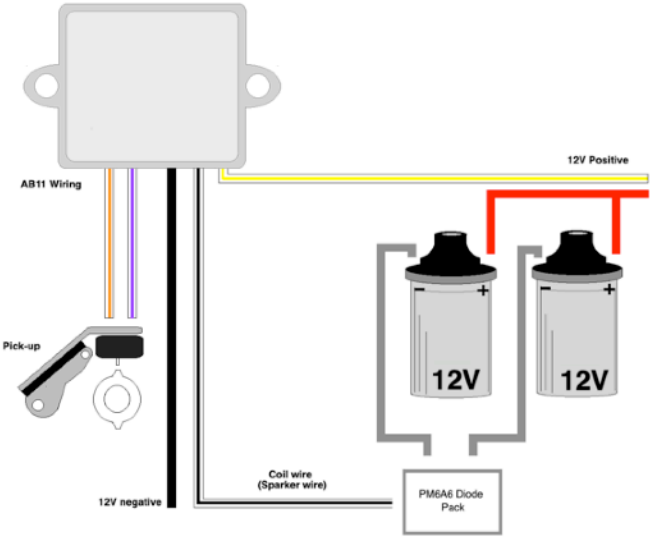
Japanese Type Twin Lead HT Coil

Twin HT lead coils have no positive or negative preference, so the primary can be connected either way round.



Two 12V Coils With Diode Pack

Note that the HT coils are both 12V in this case. Carefully follow the connections to ensure correct polarity.

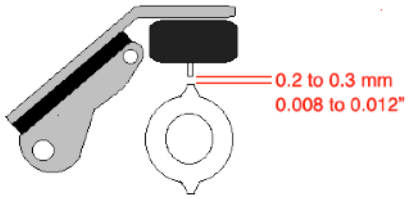


It does not matter which which order the coils are connected to the diode pack.

Adjustment - Timing
The ignition timing must be set to the full advance figure stated in the bike's workshop manual. Use a strobe lamp to check timing after replacing the RITA circuit board. We have compiled a list of historical wiring diagrams which includes the timing information for some models.

Where no timing information is given owners should consult their shop manual or club expert to determine at what RPM the ignition should reach maximum advance. Then, using a strobe lamp, set the ignition so full advance is reached at this RPM. This was the method used for the original RITA kits.

Adjustment - Air gap between the pickup and reluctor.
The gap should be between 0.008" and 0.012" (0.2–0.3mm). A gap that is too large may prevent the engine from starting. Since the pickup is magnetic, it is recommended to use plastic or brass feeler gauges. Although steel feeler gauges can be used, they may become magnetised, making it more difficult to set the correct clearance.

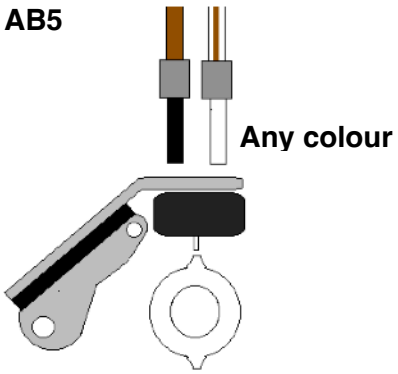


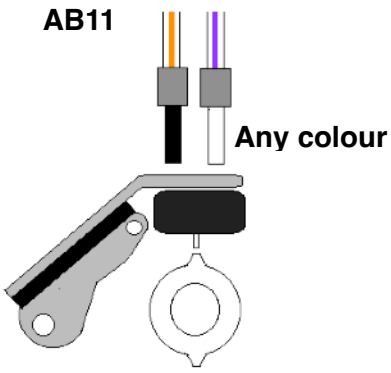
5PU pick-ups are not adjustable for clearance.

A 5PU pick-up and reluctor can be replaced with the C type, if you have the parts available. Our 'Overview Of the Lucas Rita For Motorcycles' publication, on our technical support page explains in more detail the different types of pick-ups and reluctors

Failure to Advance
The 5PU was made by Lucas and should have matching wire colours. The 'C' type however, was made by various manufacturers, and while a black wire seems to be used in all cases, the other wire varies in colour.

Connect the pick-up to the RITA as shown below. If you have a problem with the ignition remaining retarded and the engine being hard to start or not wanting to rev, swap the pick-up wires over.





Subscribe to our News Letter for technical tips and advance notice of special deals and offers. We also encourage owners to send pictures showing your RITA installation and give us your feed back.

More helpful information for owners can be found in our Lucas RITA publications:

'An Overview Of the Lucas Rita For Motorcycles'
'Rex's Lucas RITA AB5 & AB11 Troubleshooting Tips & Testing' A modern up-dated version
'Historical Wiring Diagrams For Original Lucas Rita Installations'

Technical support is exclusively via email: tech@rexs-speedshop.com