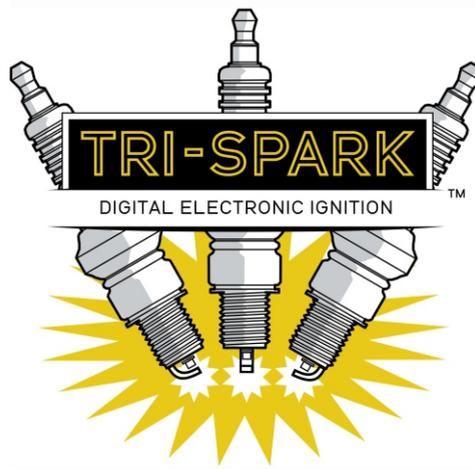


# Tri-Spark - Classic Twin Troubleshooting Guide



TRI-0005 A and B



## Six steps to checking the Classic Twin stator unit

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# Step 1 - Check Engine Compatibility

Ensure that you have the correct kit for your machine. The two systems are not interchangeable and will not function properly in the engine if the wrong type is used. The stator units are marked as shown here.



TRI-0005A Clockwise system for Triumph Bonneville T140, T140E, T140V, T120, T100, Tiger TR7RV, TR6, Norton Atlas, Enfield Interceptor series 2. 12 volt only. Compatible with electric start

TRI-0005B Counter clockwise system for Norton Commando 750 and 850, BSA A50, A65, B50, B44, B25, Triumph Tiger cub, Enfield interceptor series 1. 12 volt only. Compatible with electric start.

## Step 2 Check Coil Compatibility

Ensure that you have the correct coils for your installation. Wrong coils can damage the electronics!

### **Twin Cylinder engines:**

Installing the TRI-0005 generally requires two 6 volt Lucas style ignition coils (aluminium canisters). Tri-Spark p/n IGC-1006.

These coils should measure 1.8 to 2.0 Ohm primary resistance across the two metal tab terminals on the top of the coil. The secondary resistance is not critical but it will often measure between 5 to 10k ohms from the high voltage terminal to either of the primary terminals.

Alternatively a dual lead ignition coil may be used for twin cylinder installations. In this case the primary resistance should measure between 3.0 to 5.0 Ohms. Tri-Spark p/n IGC-2012.

Many of the British twins were originally fitted with 12 volt Lucas coils. These must NOT be used with the TRI-0005 as poor performance and misfiring will result.

### **Single Cylinder engines**

For single cylinder installations a 12 volt Lucas style ignition coil should be used. Tri-Spark p/n IGC-1012. These typically measure 3.6 to 4 Ohms primary resistance.

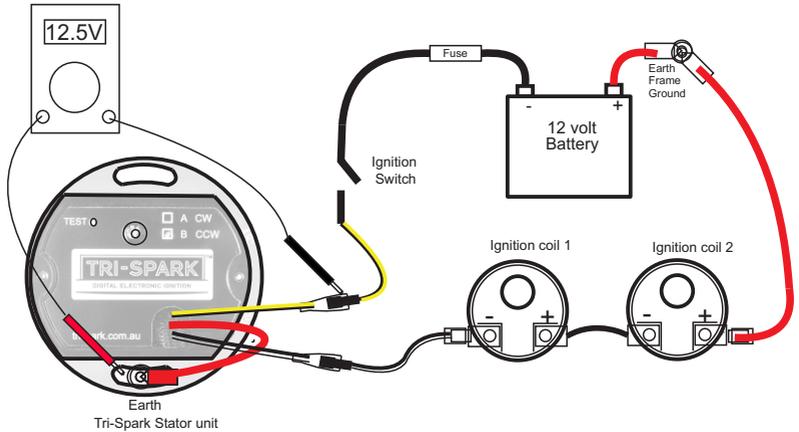
# Step 3 - Check the Air Gap

Ensure that you have the correct air gap between the trigger rotor and the stator unit. the gap should be 2mm +/- 0.5mm

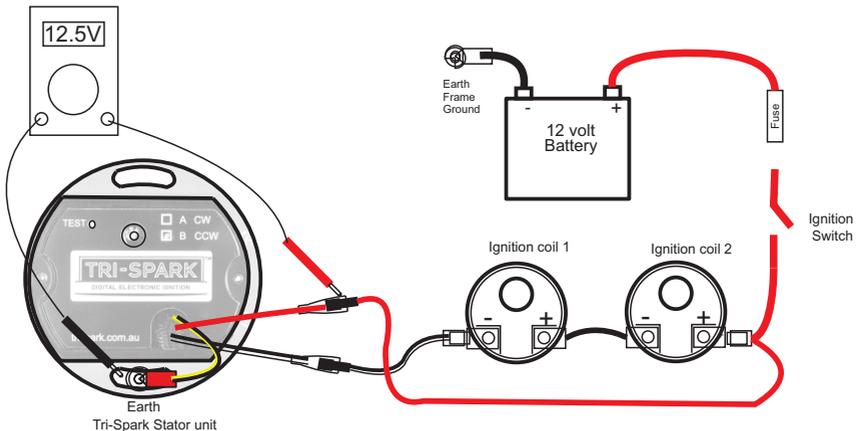
# Step 4 - Check Power to the Unit

Check that the battery voltage is reaching the stator unit. Switch on the power and check for voltage at the stator unit with a voltmeter as shown below. The voltage should stay up over 12 volts with the headlight switched on - replace battery if faulty.

## POSITIVE EARTH / GROUND TESTING



## NEGATIVE EARTH / GROUND TESTING

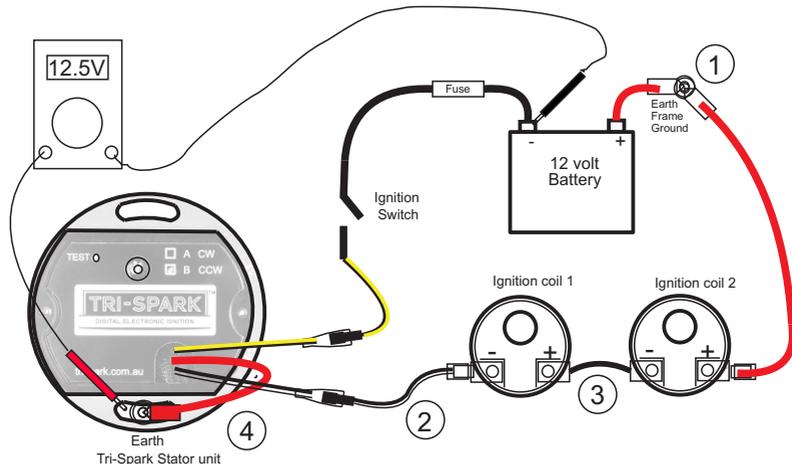


## Step 4 - Continued

If the battery voltage is not reaching the unit check for faulty electrical components such as switches and fuses. The following tests will help to isolate the faulty components.

If you can measure battery voltage as shown in the following diagram but not when probed at the stator unit then the fault is with the switches or fuses or somewhere in the negative supply to the unit.

### POSITIVE EARTH / GROUND TESTING



### Additional wiring checks

1. Check continuity from the coil earth to the battery Positive
2. Check continuity from the Black /white at the stator unit to the coils
3. Check continuity of the coil link wire
4. Check continuity from the stator unit red wire to battery positive

Note: Connections to the frame, engine and other metal parts are often faulty due to corrosion.

Once you have established power to the unit proceed to step 5 and run the self test checks on the stator unit.

# Step 5 - Run The Self Test

The built-in test mode makes it possible to check the operation of the stator unit, triggering rotor, coils, HT leads and spark plugs. Read the following carefully.

**Warning:** the system is capable of sparking the coils in this mode - extreme care must be taken.

**We recomend engaging a technician to perform these tests in the safety of a fully equipped motorcycle workshop.**

**TEST 1:** Start by removing the spark plugs from the engine and laying them on the cylinder head.

The test button is located beside the word 'TEST' on the unit as shown. It is activated by pressing gently with a pen as shown here.



To begin the self test:

1. Press and HOLD DOWN the TEST button.
2. Switch on the power to the ignition (ignition key switch).

The TEST button MUST be HELD DOWN WHILE the power is switched on to begin the testing.

Once the test starts release the TEST button. The unit will stay in the test mode until the power is switched off.

The spark plugs should begin sparking immediately at a rising rate for 10 seconds and then stop. The LED should light during the 10 seconds while the system is sparking. This test can be repeated by pressing the TEST button again.

## **DO NOT SWITCH OFF THE POWER - GO STRAIGHT TO TEST 2**

**TEST 2: WITHOUT SWITCHING OFF THE IGNITION** rotate the engine slowly until the red LED on the stator unit is seen to light. The LED should light when the triggering magnet is between the "A" and "B" marks on the rim of the stator unit.

This is the ONLY test of the magnets in the rotor triggering BOTH position sensors in the stator unit. LED operation in normal operating mode is not the same. Checking the triggering must be done within the test mode.

**EXIT TEST MODE** - The ignition switch must be switched off to power down the stator unit in order to exit the test mode before attempting to start the engine.

## Step 6 - Interpret the test results

If the LED does not light during Test 1 and there is no sparking at the coils - repeat checks for power reaching the unit. If you are absolutely certain there is power reaching the unit - arrange to return the unit for factory testing.

If the LED lights for 10 seconds at the start of test 1 but there is no sparking at the coils - have the wiring and the coils checked by an automotive electrician. If the coils and wiring check out OK then arrange to return the unit for factory testing.

If the LED lights and the coils spark during test 1 but the LED does not light during test 2 when the magnet in the trigger rotor is aligned with the sensors check the air gap. If the Air gap is 2mm then arrange to return the unit for factory testing.

If the Coils spark in test 1 and the LED lights during test 2 then the unit is fully functional and should work on the engine. We would expect that when the engine is cranked over it should be sparking. No need to return for testing. There may be some other issues with the installation that can be remedied by a mechanic. The following checklist may assist your mechanic.

1. A suspect battery should be load tested by your mechanic.
2. an engine not starting may not be timed correctly - repeat static timing procedure.
3. Lack of power may relate to incorrect static timing - too retarded.
4. Pinging may also relate to static timing - too far advanced.
5. Misfiring under load can relate to fouled spark plugs, faulty HT leads, faulty or incorrect ignition coils.
6. Poor idling is often related to tuning issues or worn out carburetors.
7. Poor connections (often concealed by layers of tape) should be repaired by a specialist or the loom replaced (recommended)
8. Misfiring at 3000 to 4000 RPM but not at idle can sometimes be caused by problems with the charging system. Run the engine with the alternator disconnected briefly to see if the problem clears. If this fixes the problem try a different brand of voltage regulator.