Tri-Spark Classic Twin Installation Instructions

Product Code: TRI-0006

V10 Aug 2026

Thank you for choosing the Tri-Spark Classic Twin Ignition system. For your safety and to ensure a successful setup, we highly recommend having a qualified technician install this system in a properly equipped workshop.

Before You Start

Read this page before beginning installation

Prevent Permanent Damage: Never connect the Black/White wire to battery positive (+). The Black/White wire must connect only to the ignition coil negative (-) terminal. Connecting this wire to a positive supply will instantly destroy the ignition module.

Read all installation instructions prior to beginning the installation.

Check Your Electrical System:

This ignition is supplied **pre-wired for Positive Earth motorcycles**. If your motorcycle has been converted to **Negative Earth**, you **MUST**:

- Swap the Red and Black/Yellow terminals as shown in the wiring section.
- Follow the Negative Earth wiring diagram.

Do not apply power until these changes have been completed.

Check Your Motorcycle before installing the ignition:

- Battery fully charged.
- Charging system operating correctly.
- Wiring harness inspected for corrosion, loose connections or damaged wiring (especially inside the headlight shell and rear mudguard).
- Correct ignition coils fitted (see Coil Requirements Table 1).

Electronic ignitions require a reliable electrical system for correct operation.

Engine Rotation Compatibility:

The TRI-0006 is compatible with clockwise (CW) and anticlockwise (AC) rotation of the trigger rotor. The rotation is shown in Fig. 4.3 & Fig. 4.4 on page 3. Follow the specific instruction path for your engine (RED or GREEN):

- Clockwise (CW): Triumph Bonneville T140, T140E, T140V, T120, T100, Tiger TR7RV, TR6, Norton Atlas, Enfield Interceptor series 2.

- Anticlockwise (AC): Norton Commando 750 and 850, BSA A50, A65, B50, B44, B25, Triumph Tiger cub, Enfield interceptor series 1.

Spark Plugs and Caps:

Suppressor Requirements: If electrical interference is a concern, use either 5k ohm suppressor caps or resistor-type spark plugs but not both together.

Coil Requirements (Table 1)

Engine	Coil	Primary Resistance
Twin (2 coils)	Two Tri-Spark 6V coils (IGC-1006)	1.8 - 2.2 Ohms each
Twin (single coil)	One Tri-Spark twin-output coil (IGC-2012)	3.6 - 4.4 Ohms
Single	One Tri-Spark 12V coil (IGC-1012)	3.6 - 5.0 Ohms

Using incorrect ignition coils may permanently damage the ignition module.

1. Preparation

1.1 **Dismantle:** Disconnect the battery and remove the fuse, seat, side cover, points cover, spark plugs, strobe timing port cover, and rocker covers.

1.2 **Remove Old Components:** Remove the old condensers and ballast resistors. They are not used with electronic ignition.

1.3 **Inspect Wiring:** Again, we highly recommend inspecting and cleaning up the electrical wiring (especially inside the headlight shell and rear mudguard) and testing your charging system before proceeding.

2. Remove Points & Auto-Advance

2.1 Unbolt the two pillar bolts holding the original points base plate and disconnect the wires.

2.2 Remove the auto-advance unit. Thread a correctly sized bolt into the unit and tap it gently, or use a steel rod to tap around it until it breaks free from its taper. (Note: It may be a tight fit).

3. Align Engine to Timing Position

3.1 Put the bike in gear and use the rear wheel to rotate the engine forward.

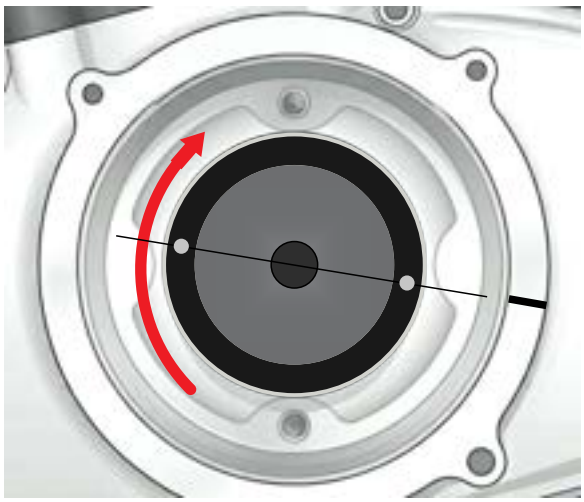
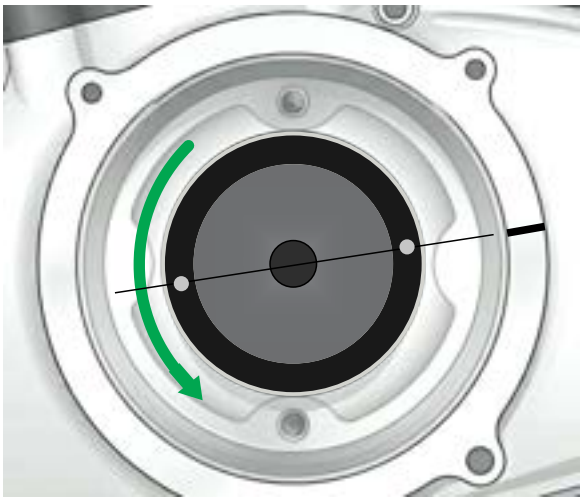
3.2 Align the fully advanced strobe timing marks on your engine (for example, 29° BTDC for Norton or 38° BTDC for Triumph).

Note other engines may vary

4. Install Trigger Rotor & Stator Unit

Loosely install the stator unit so that the pillar bolts sit directly in the center of their slotted adjustment holes.

Follow the specific instruction path matching your engine's rotation:

● Clockwise (CW) Engines	● Anticlockwise (AC) Engines
Fig. 4.1	*Fig. 4.2*
4.1 Mark the engine casing right next to the "CW" mark on the outer edge of the stator plate. (Fig. 4.1) 4.2 Temporarily remove the stator unit. 4.3 Slide the Tri-Spark rotor onto the shaft so its two magnets align perfectly with your mark. (Fig. 4.3) Continue to 4.7	4.4 Mark the engine casing right next to the "AC" mark on the outer edge of the stator plate. (Fig. 4.2) 4.5 Temporarily remove the stator unit. 4.6 Slide the Tri-Spark rotor onto the shaft so its two magnets align perfectly with your mark. (Fig. 4.4)
 *Fig. 4.3*	 *Fig. 4.4*

4 (Continued): Rotor Fitment & Clearances

4.7 Secure the rotor using the correct socket head screw provided (1/4 UNF or 1/4 BSF depending on your engine). Torque to 12 ft/lbs and ensure the taper seats fully into the cam.

Caution: If the bolt bottoms out in the threads before clamping the rotor, it must be shortened.

Fig. 4.5

4.8 Check the Air Gap: Lay a straight edge across the housing ledge. The face of the rotor must sit 2.0 mm (±0.6 mm) back from the stator mounting ledge. Check for the camshaft end-float to ensure the cam cannot slide forward and close this gap. (Fig. 4.5)

4.9 Reinstall the stator unit using the original pillar bolts and washers. Leave them loose enough for adjustment. (If the pillar bolts bottom out, add extra washers).

5. Prepare the Points Wiring

5.1 Trim the factory points wires to equal lengths. If needed, peel back about 60 mm of the outer black sheath to expose the Black/White and Black/Yellow wires. Pull 80 mm of wire down into the points cavity.

Fig. 5.1

5.2 Crimp the provided bullet connectors to the wires. (Fig. 5.1)

6. Wiring the System

Remember to disconnect the original points/condenser wires completely from the coils. They are no longer used.

Note: The wiring diagrams on the next pages show how to connect the system in a variety of ways. Refer to the following diagrams for:

- Module connections (6.1)
- Choosing the earth polarity (6.3),
- Choosing the coil configuration (6.4)
- Complete wiring examples (6.5 to 6.8)

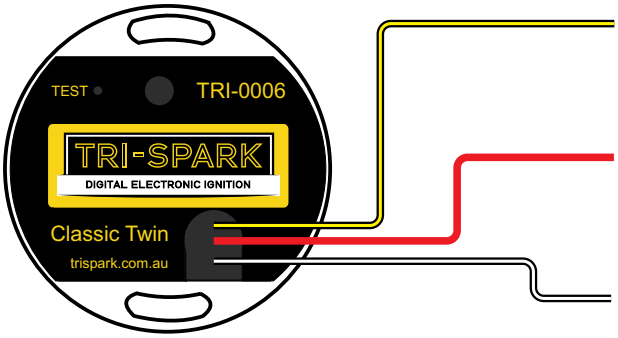
6. WIRING DIAGRAMS

The Classic Twin ignition can be used on 12V motorcycles with negative (-) or positive (+) earth (ground). It can be fitted with a single coil, two separate coils or a twin-output coil. Choose the diagrams that match your motorcycle configuration.

Wire Colours

	Red	Module +V
	Black / Yellow	Module 0V
	Black / White	Coil (trigger)

6.1 MODULE CONNECTIONS (common to all diagrams)

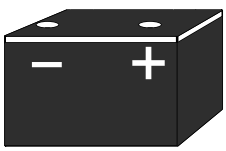


Black / Yellow: Switched Negative feed (Positive Earth) OR Frame Earth (Negative Earth)

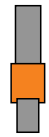
Red - Frame Earth (Positive Earth) OR Switched Positive feed (Negative Earth)

Black / White coil (trigger) - Connect to ignition coil negative

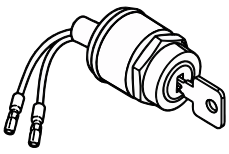
6.2 COMPONENT REFERENCE



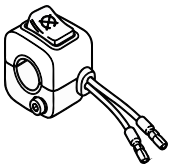
BATTERY 12 VOLT



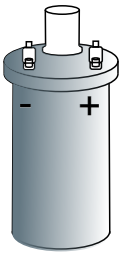
FUSE



IGNITION SWITCH



KILL SWITCH

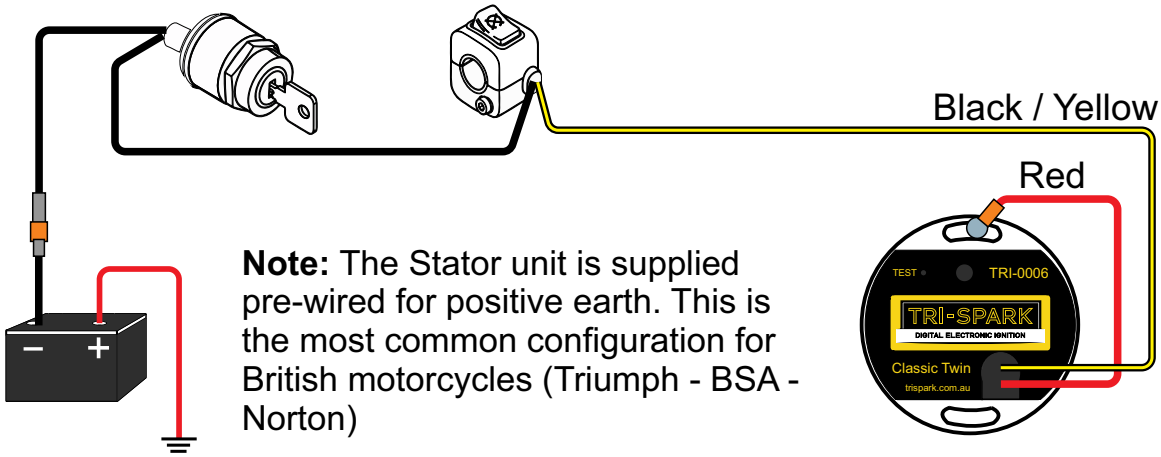


SINGLE COIL

TWIN-OUTPUT COIL

6.3 CHOOSE THE EARTH POLARITY THAT SUITS YOUR MACHINE

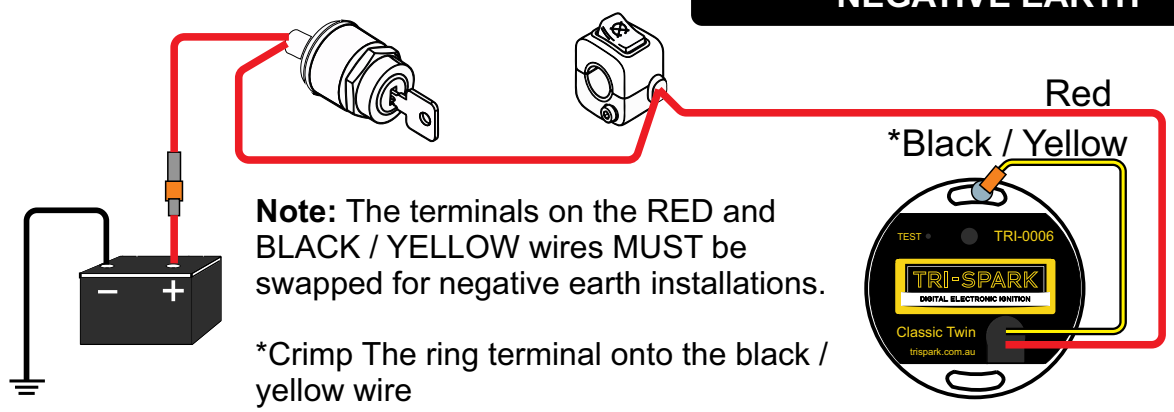
POSITIVE EARTH



Note: The Stator unit is supplied pre-wired for positive earth. This is the most common configuration for British motorcycles (Triumph - BSA - Norton)

6.3 CHOOSE THE EARTH POLARITY - Continued

NEGATIVE EARTH

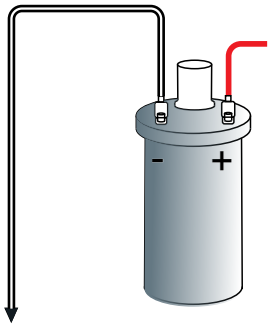


Note: The terminals on the RED and BLACK / YELLOW wires MUST be swapped for negative earth installations.

*Crimp The ring terminal onto the black / yellow wire

6.4 CHOOSE COIL CONFIGURATION

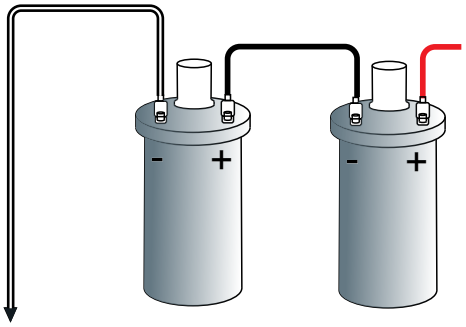
SINGLE COIL



TO MODULE BLACK / WHITE WIRE

Use this diagram for single coil systems (must be 12v coil)

TWO SEPARATE COILS



TO MODULE BLACK / WHITE WIRE

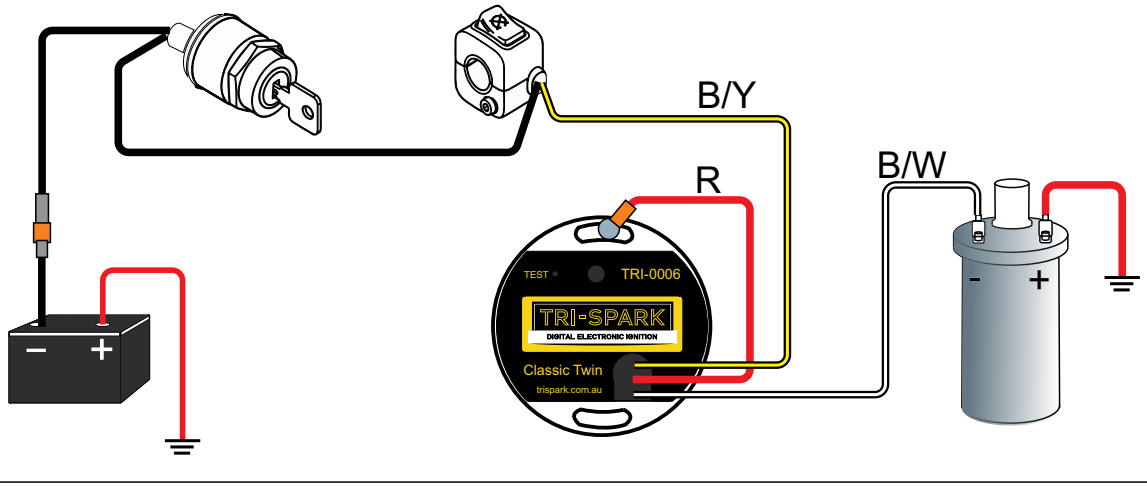
Use this diagram for two separate coils (must be 6V coils)

TWIN-OUTPUT COIL

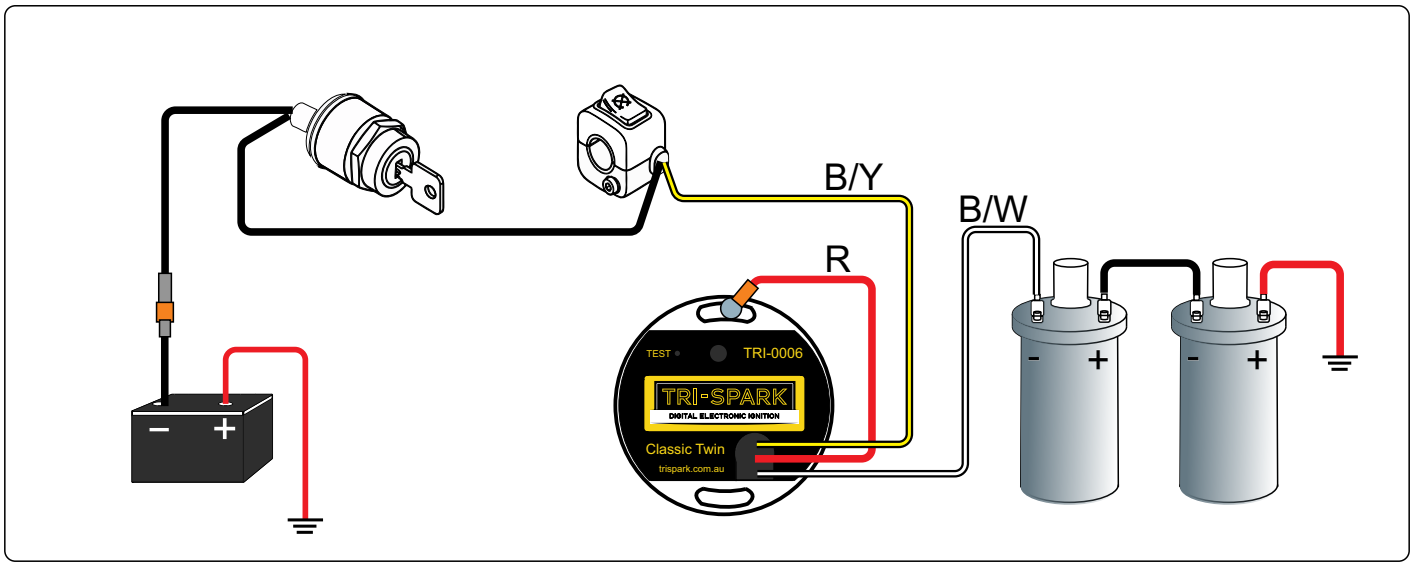
TO MODULE BLACK / WHITE WIRE

Use this diagram for twin-output coils (must be 12V coil)

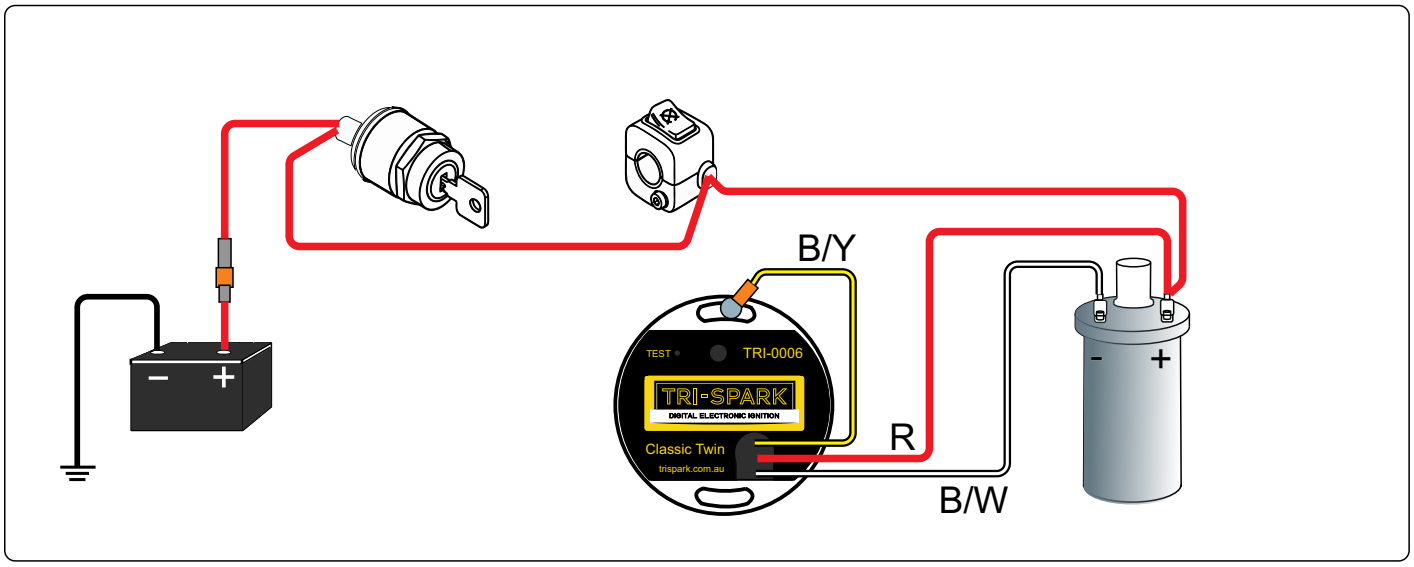
6.5 COMPLETE WIRING EXAMPLES - POSITIVE EARTH ONE COIL



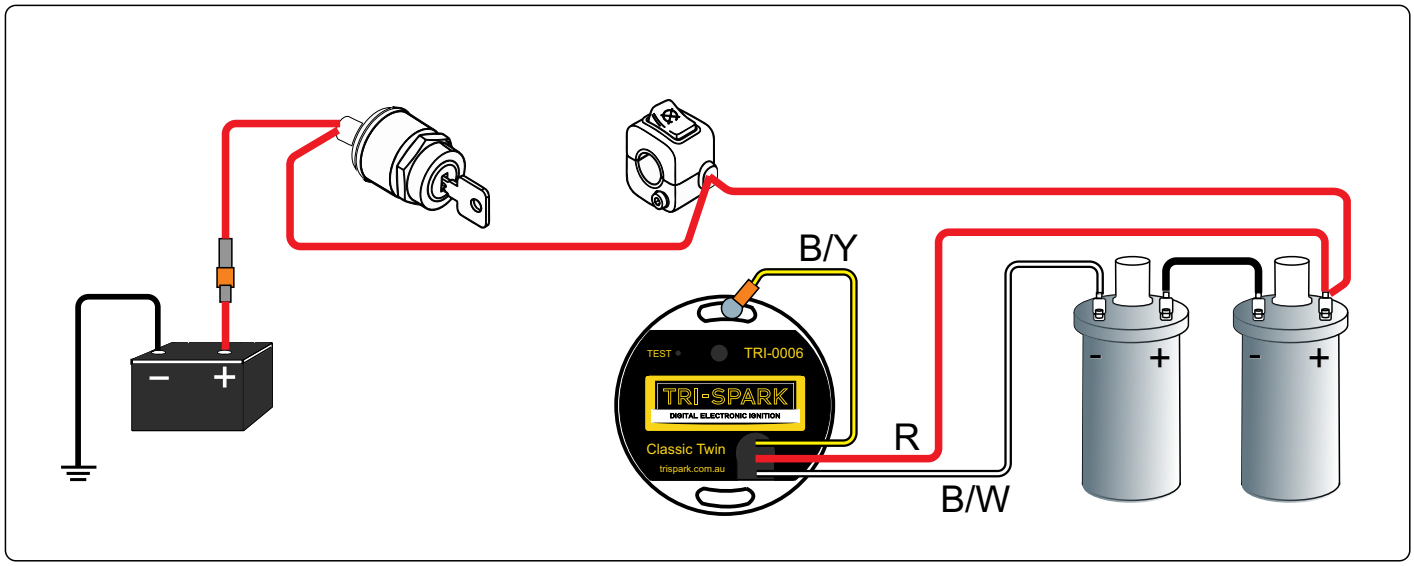
6.6 COMPLETE WIRING EXAMPLES - POSITIVE EARTH TWO COILS



6.7 COMPLETE WIRING EXAMPLES - NEGATIVE EARTH ONE COIL



6.8 COMPLETE WIRING EXAMPLES - NEGATIVE EARTH TWO COILS



7. Static Timing Using the LED

Note: The engine must remain in its **FULLY ADVANCED** timing position throughout this process.

7.1 Reinstall the fuse, reconnect the battery, and turn the ignition switch **ON**.

Follow the specific instruction path matching your engine's rotation:

● Clockwise (CW) Engines	● Anticlockwise (AC) Engines
7.2 Rotate the stator plate fully clockwise within its adjustment slots; at this point the built-in LED should turn on (ON). 7.3 Slowly rotate the stator anticlockwise until the LED just turns OFF. From that exact threshold point, continue rotating it anticlockwise 2mm further.Note: 2mm is marked on the edge of the stator unit 7.4 Tighten down the pillar bolts at this position to lock in the static timing (do not over-tighten), then switch off the ignition.	7.5 Rotate the stator plate fully anticlockwise within its adjustment slots; at this point the built-in LED should turn on (ON) 7.6 Slowly rotate the stator clockwise until the LED just turns OFF. From that exact threshold point, continue rotating it clockwise 2mm further. Note: 2mm is marked on the edge of the stator unit 7.7 Tighten down the pillar bolts at this position to lock in the static timing (do not over-tighten), then switch off the ignition.
Proceed to Section 8	

Troubleshooting Note: If the LED does not behave as described above, your rotor magnets were likely misaligned during Step 4.

8. Dynamic Strobe Timing (Crucial)

Static timing allows the engine to start safely, but you should always verify the settings with a timing light before extensive riding.

Note: Refer to your workshop manual for detailed instructions regarding strobe timing. These are general notes only.

8.1 Start and warm up the engine.

8.2 Aim your strobe light at the timing marks.

8.3 As you increase engine revs, you should see the timing marks advance. At **3500 RPM** and above, the advance curve reaches its limit and the image will appear to stop moving.

8.4 If the fully advanced timing marks do not align perfectly at 3,500 RPM and above:

- Stop the engine.
- Loosen the pillar bolts and slightly rotate the stator plate.
- Tighten and retest until the alignment is correct.

Note: If your engine lacks factory strobe timing marks, you must rely entirely on precise static timing or use a degree wheel.

Technical Specifications

Parameter	Specification
Operating Voltage	12 V DC Nominal (8V Minimum / 16 V Maximum)
Power Consumption	3A Max, 2A typical, < 1A at idle
Allowed Coil Resistance	3.0 to 5.0 Ohms. When running two 6V coils in series, total combined primary resistance must equal 3.6 to 4.4 Ohms. See Table 1.
Dwell Time	8 mS nominal
Advance Range	12.5 Degrees cam (25 Degrees at the crankshaft)
Fully Advance Point	3,500 RPM
Starting Range up to	500 RPM (with additional timing retard)
Idle Stabilisation Range	500 to 1,200 RPM
Advancing Timing Range	1,200 to 3,500 RPM
Operating Temperature	-20 to 100 Degrees C
Absolute Maximum	24 V DC for 1 minute
Air Gap Tolerance	2.0mm (+/- 0.6mm) Rotor to Stator Clearance
RPM Range	150 to 8,000 RPM

Technical details may be updated without prior announcement.

Section 9. System Self-Test & Troubleshooting

Notes and Cautions

- **No Live Probing:** Never probe around the wiring with the power on. Disconnect the main fuse before making adjustments.
- **Keep Spark Plugs Connected:** Running the engine with a disconnected spark plug wire can destroy the coils or the Tri-Spark module.
- **Suppressor Requirements:** Non-resistor spark plug caps in most cases are compatible with the Classic Twin ignition. If electrical interference is a concern use either 5k ohm suppressor caps **OR** resistor-type spark plugs (with an 'R' in the part number). Do not use both together.
- **Wasted Spark System:** This system fires both cylinders simultaneously. If a fault occurs on one cylinder only, the issue lies in that cylinder's plug, HT lead, or coil -not the central Tri-Spark module.

Phase 1: Basic Checks

1. **Coils:** Check primary resistance across the tabs.

   Twin cylinder engines use two 6V coils. They should measure 1.8–2.2 ohm. 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.

   Twin Cylinder engines alternatively, use a 12-Volt twin lead coil. It should measure between 3.0 - 5.0 ohms.

   Single cylinder engines use one 12V coil. It should measure 3.6–4.2 ohm.

   Note Never use original Lucas 12V coils on a twin setup.

2. **Air Gap:** between the trigger rotor and the stator unit. Ensure it is exactly 2.0 mm (±0.6 mm).
3. **Power Input:** Measure the voltage at the stator unit with the ignition and headlight turned on. It must remain above 12V. Check ground continuity from the stator's red wire to the battery terminal. Refer to Fig. 9.1 & Fig. 9.2 for voltmeter connection details.

Fig. 9.1 Positive Earth / Ground Testing

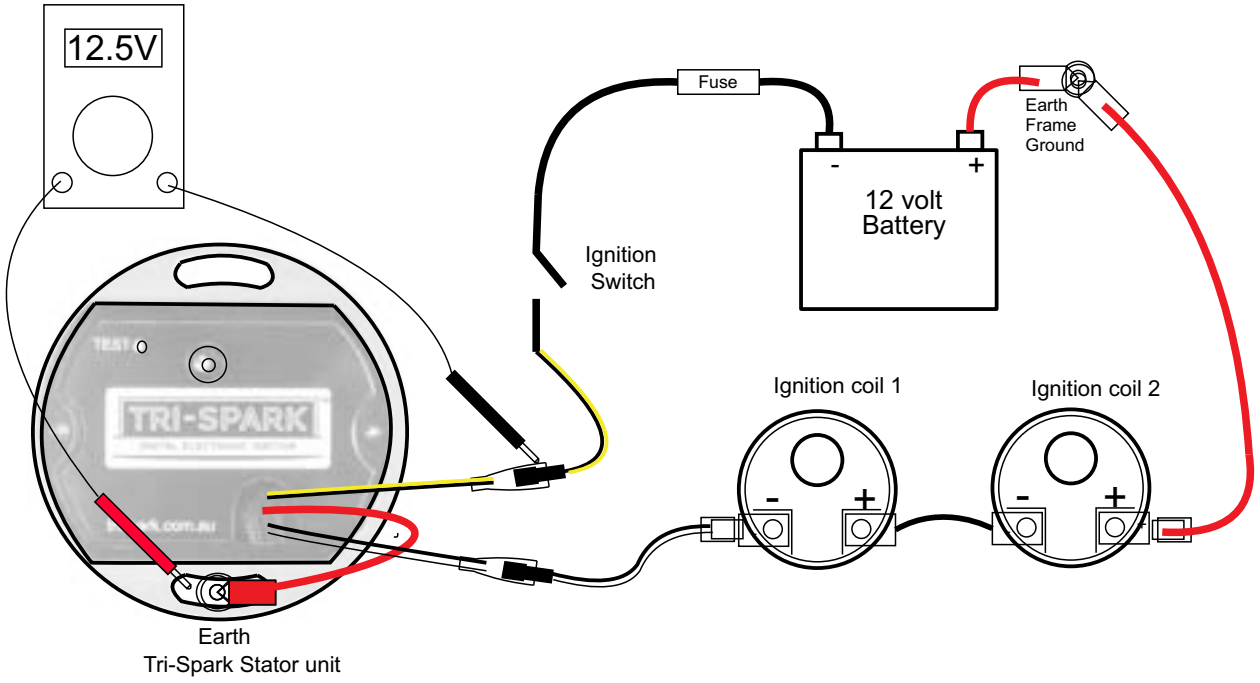
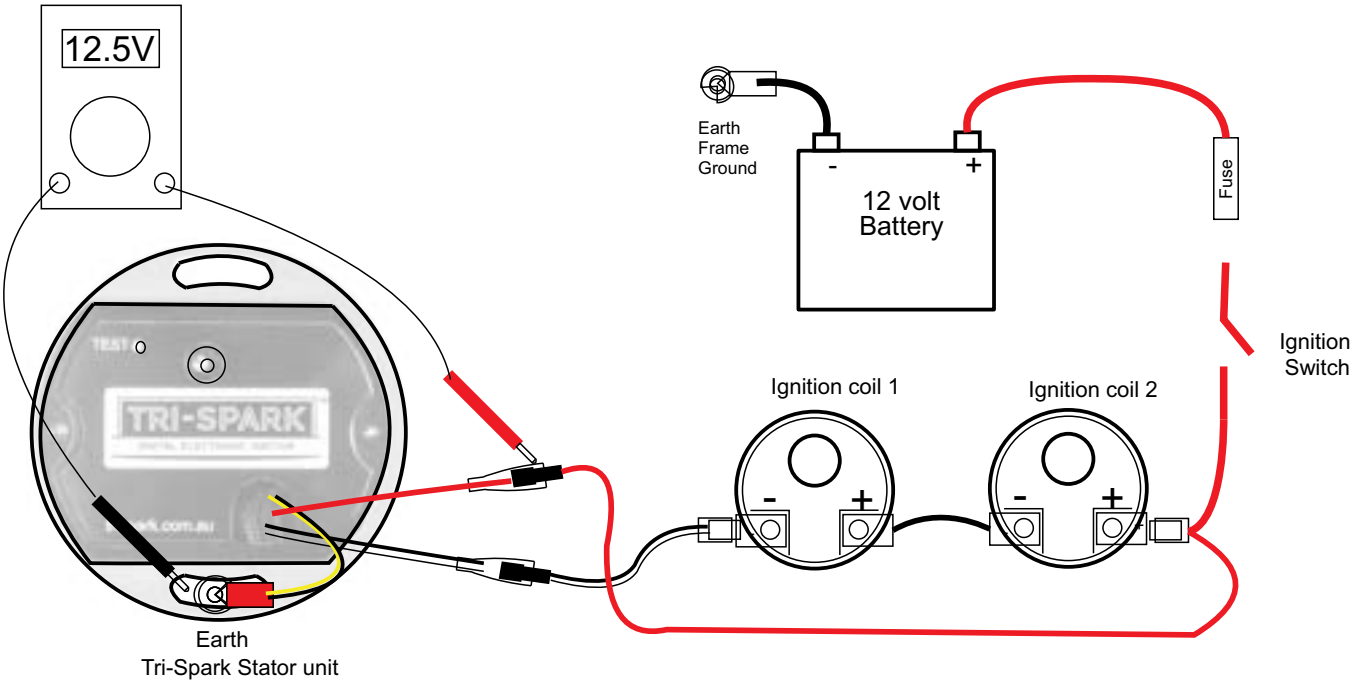


Fig. 9.2 Negative Earth / Ground Testing



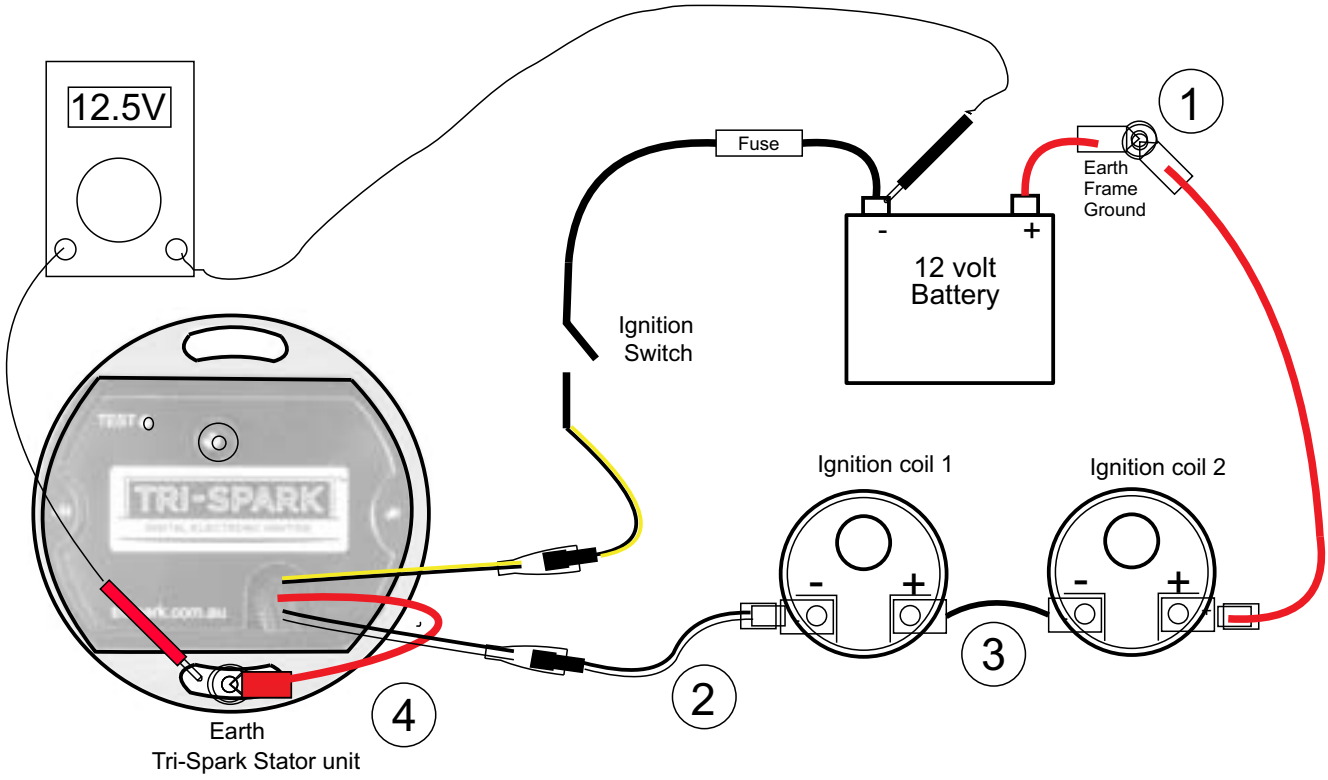
Should the battery power fail to reach the ignition module, inspect for compromised electrical parts like fuses or switches. Use the diagnostic steps below to pinpoint any malfunctioning components.

If voltage is confirmed at the source per the provided schematic, but is absent at the stator unit, the issue resides within the switching, fuses, or the negative feed to the unit.

Further Wiring Validation (refer to Fig. 9.3)

1. Ground Continuity: Verify the path from the coil earth point to the battery positive terminal.
2. Signal Line: Test continuity of the black/white wire between the stator unit and the ignition coils.
3. Coil Bridging: Inspect the jumper wire connecting the coils for full continuity.
4. System Earth: Ensure the red wire from the stator maintains solid continuity to battery positive.

Fig. 9.3 Positive Earth / Ground Testing



Note: Corrosion frequently causes faulty connections to the motorcycle frame or engine components.

After confirming stable power reaches the system, advance to Phase 2 to conduct the diagnostic self-test routines.

Phase 2: Running the Built-In Self-Test

This mode tests your stator, rotor, coils, HT leads, and plugs.

For your safety and to ensure a successful outcome, we strongly recommend having a qualified technician perform these diagnostic tests.

Warning: The system will fire live sparks during this test.

Fig 9.4

1. Remove both spark plugs and ground them firmly against the cylinder head.
2. Locate the small **TEST** button (Fig. 9.4) on the stator unit face.
3. Press and **HOLD DOWN** the test button using a pen, then turn the bike's ignition switch **ON**.
4. **Release the button** once power is on.

- **Test 1 (Spark Test):** The plugs should instantly begin firing at an increasing rate for 10 seconds while the LED glows, then stop. Press the TEST button again to repeat. **Do not turn off the ignition yet.**
- **Test 2 (Sensor Test):** Without turning off the power, rotate the engine manually. The red LED should light up exactly when the rotor magnet passes between the "CW" and "AC" marks on the rim of the stator unit.
- **Exit Test Mode:** Turn the main ignition switch **OFF** to reset the unit before trying to start the engine.

Phase 3: Interpreting Test Results

- **No spark & no LED in Test 1:** Double-check incoming power. If 12V is present at the module, the unit requires factory testing.
- **LED lights up but no spark in Test 1:** The module works. Your problem lies in the wiring harness, connections, or the coils.
- **Good spark in Test 1, but no LED in Test 2:** Check your 2 mm air gap. If the gap is correct, the internal position sensors may be faulty.
- **Passed both tests successfully:** The Tri-Spark ignition is operating correctly. Any remaining fault lies elsewhere on the motorcycle (timing, carburation, compression, valve timing, etc.).

General Troubleshooting Tips

- **Engine won't start:** Timing position is likely incorrect. Redo the Step 7 static timing procedure.
- **Lack of power:** Timing is retarded. Recheck timing
- **Engine pinging (detonation):** Timing is over-advanced. Retard the stator plate slightly.
- **Misfire under load:** Check for fouled spark plugs, failing HT leads, or wrong coil resistance. Always try brand-new spark plugs first.
- **Unstable idle:** Frequently caused by carburetor wear or incorrect engine tuning.
- **Faulty Wiring Harness:** Substandard connections (frequently hidden beneath tape) must be fixed; however, we strongly advise replacing the entire loom for optimal reliability.
- **Misfire only between 3,000–4,000 RPM:** Often caused by electrical interference or voltage regulator issues from the charging system. Test with the alternator temporarily disconnected. Use a different type of Voltage Regulator.

Further Technical Support: For additional technical information and diagnostic tips, please visit the 'Help, Guides and Troubleshooting' page at trispark.com.au

Scan with your phone for troubleshooting videos & digital guides

Tri-Spark Classic Twin Warranty Policy

The Manufacturer Tri-Spark extends a Warranty to the original purchaser of this kit covering the Stator Unit and Rotor components of the system (not sundry items) under normal use for a period of **three years from the date of purchase**. Only those parts which are deemed by Us to be defective due to faulty materials or workmanship in manufacturing shall be repaired or replaced under this Warranty. Conditions apply.

Limitation of liability

It is the sole responsibility of the purchaser to determine the suitability of the product for a particular installation or purpose. Under no circumstances shall the Manufacturer Tri-Spark be liable for any consequential, special, incidental, direct or indirect damages arising from the use or lack of ability to use this product. The Manufacturer's liability under this Warranty is limited to the replacement of the product or its parts and no other obligations, expressed or implied are assumed by the manufacturer Tri-Spark. A refund option is not offered as part of this Warranty.

Conditions

This Warranty will be void if the product or parts have been in any way misused, abused, altered or installed incorrectly as determined by Us including but not limited to:

1) operation with incorrect coil circuit resistance (under 3 ohms)
2) the rotor contacting the stator unit as evidenced by circular scratches
3) bending, cutting or any other physical damage to the parts
4) the ingress of oil, water or other liquid into the parts
5) exposure of the parts to solvents or chemicals
6) damaged or broken wires connecting to the parts
7) any modification to the parts not authorised by the Manufacturer
8) any electrical damage to the parts caused by voltage spiking from the battery, charging system, jump starting or any other devices connected to the electrical system.

The manufacturer reserves the right to charge a testing fee of $50 AUD and a return freight fee of $30AUD in cases where parts returned to Us are found to be functional.

The purchaser is responsible for the cost of freight, customs duties, taxes and tariffs to and from the point of purchase where the part or parts shall be assessed for possible replacement. Recorded delivery is recommended to protect against loss.

To make a claim under this Warranty the purchaser is requested to contact the point of purchase for instructions. The purchaser may be asked to perform certain tests to determine the nature of the problem. The suspected faulty part(s) must be returned with proof of purchase and a detailed account of the problem experienced to the point of purchase or the Manufacturer for testing and possible replacement. Returned parts must be sent with freight prepaid. Recorded delivery is recommended.

Your **statutory rights** are unaffected. Additionally, if any statement herein is deemed to be invalid for any reason then only that statement shall be deemed invalid. The Laws of South Australia shall apply to purchases made directly from the Manufacturer.