

Tri-Spark - Classic Twin Installation Instructions for Norton and BSA Engines

Step 1 - Preparation

You need a good set of tools, knowledge of how to dismantle and reassemble the various components and most importantly, be able to make sound electrical connections. Twisting wires together and putting tape on them will probably leave you at the side of the road making phone calls! It's worth getting expert assistance with wiring.

If in doubt please refer to your mechanic or bike electrician for help.

Review installation instructions; **remove fuse and disconnect the battery**, seat, side cover, points cover, spark plugs, strobe timing port cover and rocker covers.

It is essential that you check the black/yellow black/white wire (points wiring) from end to end checking for any nicks or bare sections and replace if required. A general inspection and tidy up of all wiring including inside the headlight shell and rear mud guard is highly recommended.

Caution: Do not reconnect the battery until the installation is complete, all wiring has been double checked and all unused wires have been disconnected or removed.

Step 2 - Remove the original points base plate and auto advance unit.

The points plate is retained by the two pillar bolts. The wiring to the points plate should be disconnected from the points. The auto advance unit is removed by the Triumph/BSA service tool 61- 0782 or by threading in a correct sized bolt and giving this bolt a tap or by inserting a steel rod and gentle tapping it around until the auto advance unit drops off it's taper. It may be a tight fit requiring the service tool for removal.

Step 3 - Rotate the engine to correct timing position

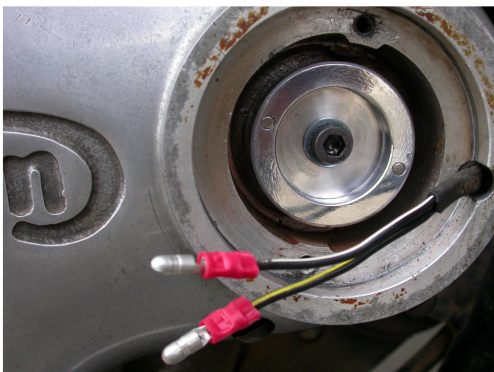
With the engine in gear rotate the engine forward using the rear wheel until the correct strobe timing mark lines up with the pointer, one of the cylinders should be on its compression stroke. This should be the fully advanced timing position for your engine. For example 28 Degrees BTDC.

Step 4 - Terminate the two black wires

Trim the points wires to the same length, cut back the black over cover if necessary to expose about 60mm of the black/white and black/yellow wires.

Adjust the wire route up near the coil area if necessary in order to pull through 80mm of wire into the points area.

Terminate the black/white and black/yellow wires with the bullet connectors as shown below..



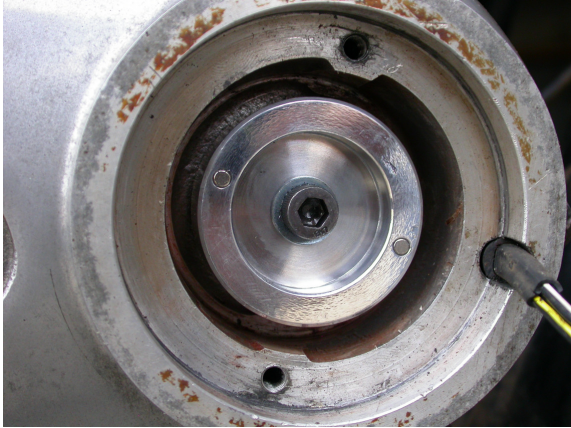
Step 5 - Installing the Tri-Spark Rotor and Stator

Loosely install the stator unit so that the holes for the pillar bolts is in the centre of the adjustment slots.

Now mark the engine casing adjacent the CCW mark on the outer rim of the stator unit, then remove stator unit.

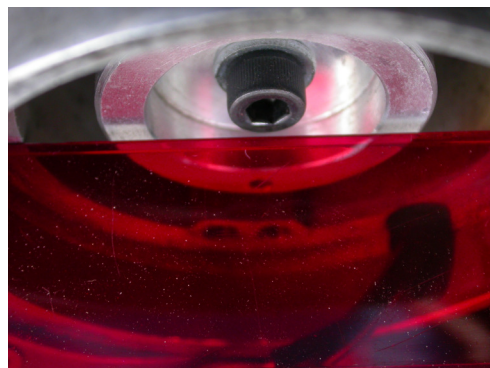
Install the Tri-Spark rotor with its two magnets inline with the black mark as shown in the following photograph.

For Norton installation the two magnets should be inline with the cable entry in the timing cover as shown in the following photograph.



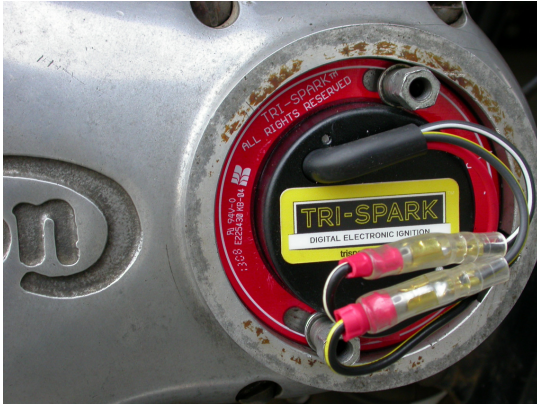
Install the Tri-Spark rotor using the correct socket head bolt for your engine. Two bolts are provided for use with the earlier and later engine models. When tightening the bolt ensure that the bolt is sufficiently tight to pull the rotor completely onto the taper inside the cam. When fully tightened the stepped surface on the back of the rotor should be touching the face of the cam.

Once the rotor has been fitted check that the face of the rotor is back from the ledge that the stator unit sits on by two millimetres using a straight edge as shown in the following photographs. Check for end float in the cam and ensure that the rotor cannot move forward to close this gap.



Install the stator unit using the original pillar bolts and washers. Additional washers are provided in case the pillar bolts bottom out before they tighten on to the stator. Do not tighten the pillar bolts as this time.

The ring terminal on the red wire coming from the stator unit is held in place by the bottom pillar bolt as shown in the following photographs except in negative earth installations. Please refer to the wiring diagram for negative earth connections.



Connect the black/white black/yellow wire as shown above.

Note: The exact timing is set at the end of the installation therefore stator fitting can be done approximately in this step.

Step 6 - Connecting the coil wiring on positive earth machines—Norton Installation 1971 onwards

Note: The ballast resistor and condenser pack are located in front of the ignition coils.

Disconnect Ballast resistor (ceramic block) wires – white/violet and white/blue. Tape up the white/violet wire.

Disconnect and tape up condenser pack (black block) wires – black/white and black/yellow.

On the timing side coil –Swap the wires so that the black/white is on the negative side and the white/violet is on the positive side of the coil.

On the primary side coil –Disconnect the black/yellow from the positive terminal but leave the white/violet on the negative terminal.

Connect a link wire from the positive terminal to frame earth
Connect the black/yellow removed from the primary coil to the white/blue removed from the ballast resistor.

Tape up the wires and cable tie wires to the frame as required.

Step 6 - General instructions for connecting the coil wiring on positive earth machines

The black/white and black/yellow wires that used to connect to the coils and condensers must be disconnected completely from the condensers and the coils as they now serve a new purpose. Also disconnect the white/yellow wires from the coils.

The black/white wire should be connected to the negative terminal of the closest coil or the most convenient coil. A link wire must be installed from the positive terminal of this coil to the negative terminal of the other coil. This should leave one coil with its positive terminal unconnected. This terminal should now be connected to positive frame earth

The black/yellow wire should now be linked to the white/yellow wire that was previously disconnected from the coils.

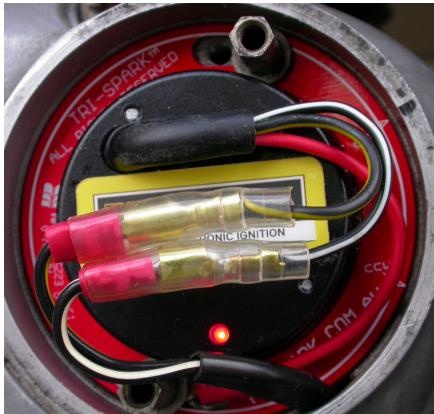
Step 7 - Setting the timing statically

Once the wiring from Step 6 has been double checked reinstall the battery and fuse and switch on the ignition.

Note: The engine must still be in its full advance timing rotation during this step.

Begin by rotating the stator unit fully anti clockwise then rotate clockwise to the position where

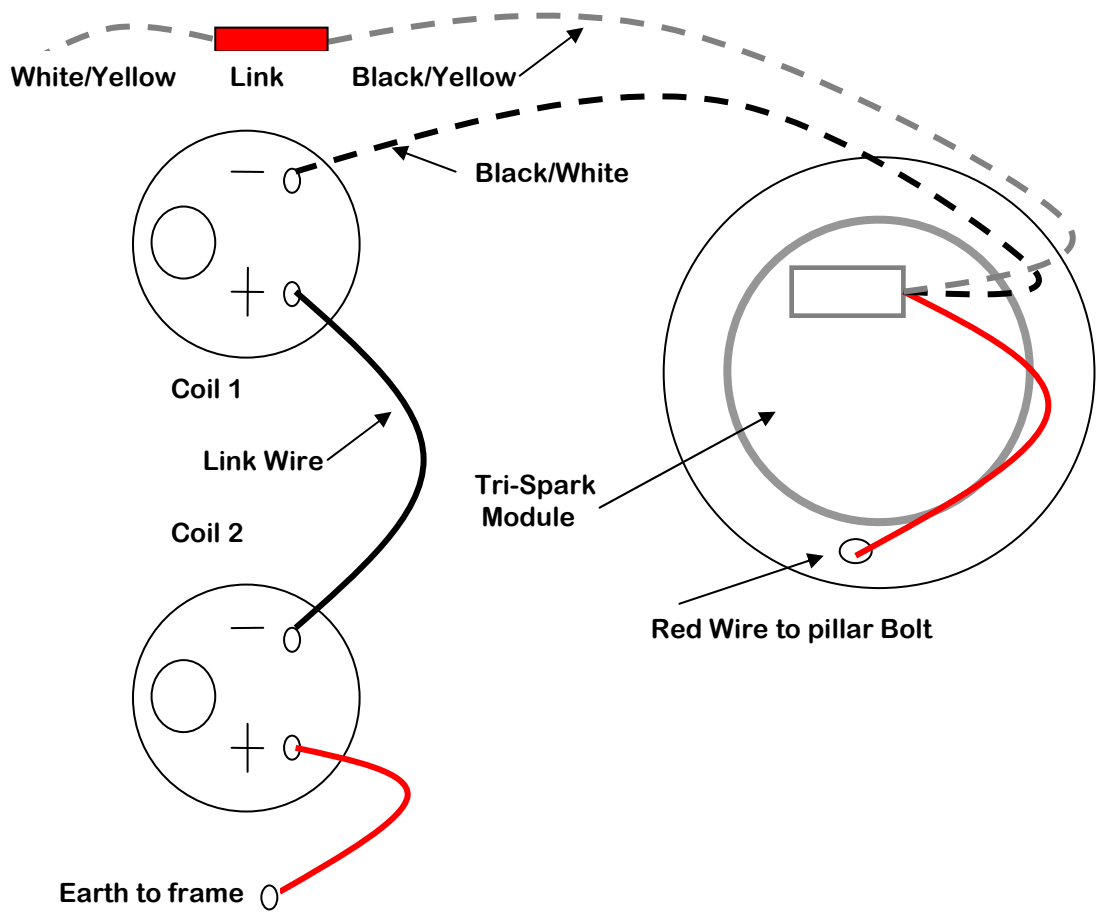
the red light just comes on as shown in the photograph below. Tighten up the pillar bolts at this position and switch off the ignition. This procedure sets the timing to within just a couple of degrees of the final setting. The timing should be confirmed with a strobe light as soon as possible.



When reinstalling the points cover a small piece of foam should be positioned over the wires to stop them vibrating as shown in the following photograph



**Wiring Diagram – Tri-Spark Classic Twin
Positive Earth and Two 6 Volt Ignition Coils**



**Wiring Diagram – Tri-Spark Classic Twin
Negative Earth - Two 6 Volt Ignition Coils**

