

# STK-010 BSA: B25, B40, B44, B50, C15, Royal Enfield Bullet



## CONTENTS

- Stator ST-010 HT-CDI Kill switch
- Rotor IR10 Fitting Kit Collet

## PRODUCT FEATURES

- Self generating CDI Ignition with electronic advance, developed for BSA singles, for easy starting and maximum performance.
- Easy installation, only 2 cables to connect directly to the combined HT coil & CDI unit.
- Fully compatible for operation within the engine oil.
- Replaces the original Lucas alternator - points and distributor are not required.
- Keyless taper locking rotor system.



## Fitting Instructions

- Step 1 Remove the original stator & rotor from left hand cover.
- Step 2 **Fitting the rotor:** The rotor is tightly held on the crankshaft by the tapered collet system. First fit the the primary drive pinion, then locate the rotor, spacer and locking unit.  
See fig 3. Don't fully tighten the rotor yet, allowing it to rotate freely on the crankshaft.
- Step 3 Place the 3 spacers provided on the studs, leaving in position the original spacers and chain tensioner.
- Step 4 Fit the new stator as shown (see fig 2) with stainless steel retaining plate outermost.
- Step 5 Feed cables through crank case. Locate HT-CDI and connect the terminals from the stator. Black cable connects to the small terminal. Blue cable with Black/white connects to the large terminal. Note: Black/white cable is for connecting to a kill switch. When connected to earth the engine will stop.
- Step 6 **Setting the timing:** Example for B50/44 engines. Set piston to 34° BTDC, using a timing disc, and align the FA mark on the stator with the red mark on the rotor. Do this by rotating the rotor. When positioned lock the rotor by tightening the nut.
- Step 7 Tighten retaining nut to 30 ft lbs torque (less than original setting) for the stator ensuring that there is an even air gap with the rotor.
- Step 8 Re-check timing is correct, move stator to adjust.

**NOTE:** The above engine timing settings are intended as a guide only, engines with different states of tune or running on methanol may require a different set-up.

Setting the timing :	Model	C15/B40	B25	B44/B50
Full advance	degrees	35.5°	37°	34°
before TDC	mm	6.5mm	7.0mm	7.7mm

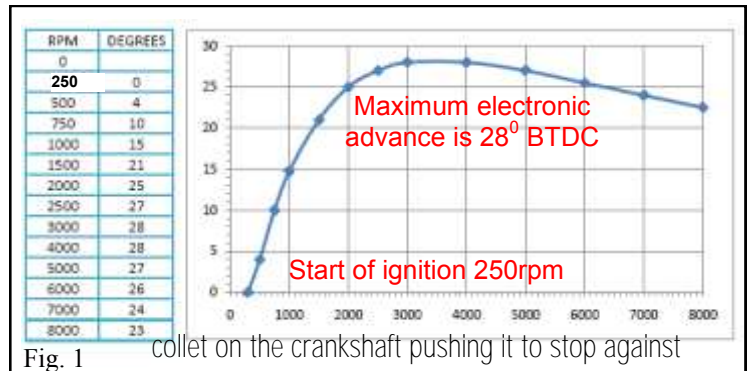


Fig. 1

collet on the crankshaft pushing it to stop against

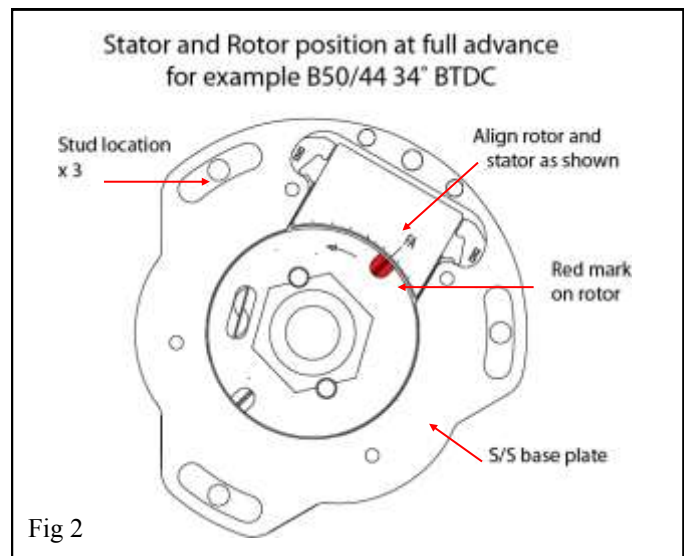


Fig 2

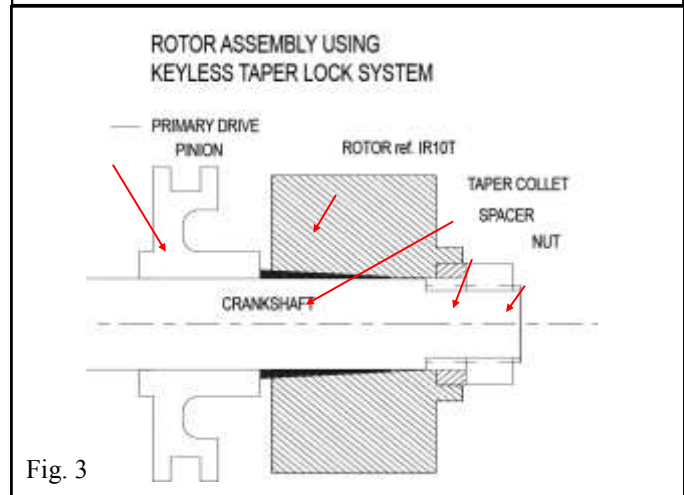


Fig. 3



# Ignition Alternator Kit

STK-100 - BSA Single 4 Stroke C15, B25, B40, B44, B50

## CONTENTS

- |                                  |                          |
|----------------------------------|--------------------------|
| Stator (BP100)                   | Rotor (R0100)            |
| Regulator/rectifier RR215        | 2 Ring Tags M6           |
| HT-CDI + cap                     | Fitting kit - 3x spacers |
| Collet                           | M5 x 12 screws x2        |
| 1 Male & 1 Female bullet + cover |                          |

## PRODUCT FEATURES

- Replacement for Lucas or Wipac alternator. Complete system and self generating ignition + alternator for lighting and battery charging
- No battery, contact breaker assembly or distributor required for the ignition.
- New simple timing set-up align marks on the rotor and stator at TDC. Rotor is supplied with a taper locking collet, enabling the rotor to be fitted on the 3/4" crankshaft without the need for a woodruff key, this allows system to be fitted even if keyway is damaged, or the shaft worn or undersize. The rotor can be fixed in any position making timing easier to set up.
- Single phase alternator 50w output with combined regulator and regulator/rectifier. This gives a controlled 12v AC output to the lighting circuit to prevent bulb failure + 12v DC output to a battery—if fitted, not required for ignition or lighting. The battery can be replaced with a capacitor pack if required, this gives greater reliability but has limited energy storage capability.
- **NOTE: A battery is NOT required to run the ignition or lighting but advantageous for brake, light operation or indicators.**



Rotor is supplied with a taper locking collet, enabling the rotor to be fitted on the 3/4" crankshaft without the need for a woodruff key, this allows system to be fitted even if keyway is damaged. The rotor can be fixed in any position making timing easier to set up

## How it works

The cdi (capacitive discharge ignition) works by charging a capacitor within the cdi unit from the source coil on the stator, this same coil also produces the timing signal. The rising voltage waveform initiates the ignition to fire earlier to give the timing curve.

## Fitting Instructions

- Step 1** Remove the petrol tank and seat, this allows access to original coils etc.
- Step 2** Remove LH engine cover, exposing the alternator. Undo the x3 nuts holding the alternator/stator. Retain the nuts. Remove old alternator/stator from the crank cases.
- Step 3** Undo the rotor nut, this can be done by holding the rotor with a suitable tool. If an impact wrench is available it is not normally necessary to hold the rotor.
- Step 4** Fit new stator in position shown (fig. 2), use the 3 spacers supplied, on the **threaded studs and use the original retaining nuts. Don't fully tighten yet.** Feed the stator cables through the crankcase using the original grommets as required. **Note:** The cables are not pre-terminated with connectors to make the cable feeding easier.
- Step 5** Remove the woodruff key from the crankshaft. Locate the taper locking collet on the crankshaft as far as possible and then fit the new rotor. Ensure the rotor is not touching the stator when turned by hand. If so it may be necessary to fit a spacer/washer on the crankshaft before the taper collet is fitted. Fit the original stepped nut and tighten a little so the rotor can still be moved relative to the crankshaft. We recommend using loctite on the thread to retain the nut.



Step 6	Setting the timing :	Model	C15/B40	B25	B44/B50
	Full advance	degrees	35.5°	37°	34°
	before TDC	mm	6.5mm	7.0mm	7.7mm

**Note:** For singles with twin plug heads the timing can be set a few degrees retarded as the explosion in the cylinder occurs more rapidly.

Note: The new rotor RO100-03. has degree markings to make timing set-up simple. With the piston set at TDC (Top Dead Centre) align the correct degree marking, i.e. '34°' for a B50, with the red dot on the stator plate. This sets the full advance to 34°. It can be checked by using a strobe light - where the 'FA' mark on the rotor should align with the red dot on the stator.

Tighten the rotor retaining nut to about 40Ft/lbs torque. Final adjustment can be made by moving the stator on the slotted holes - tighten the x3 nuts when set.

**Step 7** CDI connections see Fig.5. - Insert cables for regulator connector as shown.

**Step 8** Remove the original HT coils, the mechanical advance unit and points; these are not required for this system. If a distributor if fitted is also not required but may wish to be retained for originality.

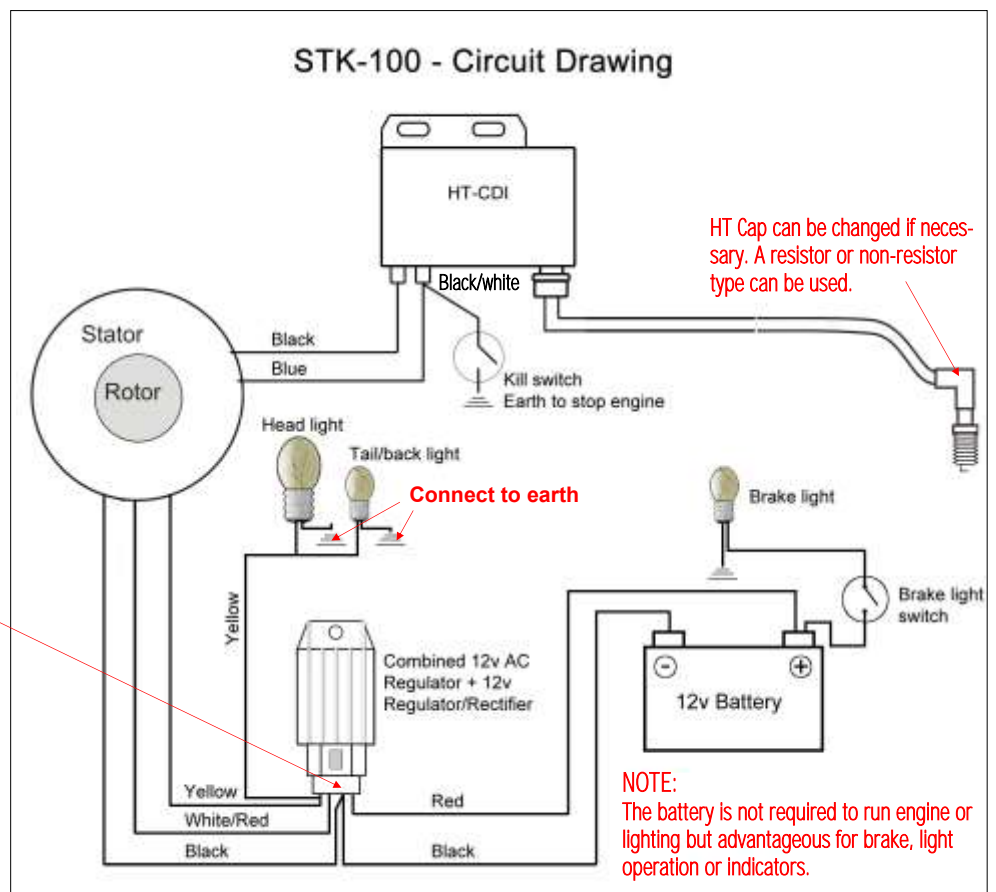
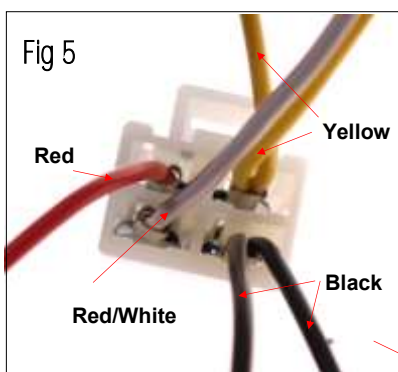
**Step 9** The black/white cable from the HT-CDI is for connection to a stop switch - when grounded it will cut the ignition; see circuit diagram.

**Step 10** Connect the alternator feed to the combined reg/rectifier as shown below. This will provide regulated 12vAC for the lighting and 12vDC for battery charging if fitted.

### Troubleshooting

#### No Spark

- Disconnect black/white from kill switch in case it is faulty
- Check resistance of source coil on stator, this should read 290 ohms between the blue and white cables.
- The cdi ignition produces very high voltage but for a short duration, so the spark is not easily visible.





# Ignition/Alternator Kit - BSA B25, B40, B44, B50, C15, Royal Enfield Bullet STK-100D - CDI ignition + 12v AC lighting + 12v DC battery charging



## CONTENTS

Stator BP100      Rotor R0100      Digital CDI      RR215  
 Fitting kit      HT55 + 5K ohm HT Cap  
 1 Male & 1 Female bullet + cover      2 Ring Tags M6

## PRODUCT FEATURES

- Replacement for Lucas or Wipac alternator. Complete digital self generating ignition and alternator, pre-programmed advance curve gives optimum performance.
- No battery, contact breaker assembly or distributor required for the ignition.
- New simple timing set-up align marks on the rotor and stator at TDC. Rotor is supplied with a taper locking collet, enabling the rotor to be fitted on the 3/4" crankshaft without the need for a woodruff key, this allows system to be fitted even if keyway is damaged, or the shaft worn or undersize. The rotor can be fixed in any position making timing easier to set up.
- Single phase alternator 50w output with combined regulator and regulator/rectifier. This gives a controlled 12v AC output to the lighting circuit to prevent bulb failure + 12v DC output to a battery—if fitted, not required for ignition or lighting. The battery can be replaced with a capacitor pack if required, this gives greater reliability but has limited energy storage capability.
- **NOTE: A battery is NOT required to run the ignition or lighting but advantageous for brake, light operation or indicators.**
- Rotor is supplied with a taper locking collet, enabling the rotor to be fitted on the 3/4" crankshaft without the need for a woodruff key, this allows system to be fitted even if keyway is damaged. The rotor can be fixed in any position making timing easier to set up.



## How it works

The cdi (capacitive discharge ignition) works by charging a capacitor within the cdi unit from the source coil on the stator, this same coil also produces the timing signal. The cdi digitises the signal and uses the microprocessor to derive the pre-programmed ignition timing curve. Electronic advance at 5000 rpm is 31°.

**NOTE: for the B44/B50 and ex. WD B40, models. Modification may be required if the alternator/clutch cover has an inspection plate retained by 3 small screws. The rotor may touch one of the x3 blind threaded bosses, requiring 2-3mm of metal to be removed to give sufficient clearance.**

## Fitting Instructions

- Step 1** Remove the petrol tank and seat. Remove original HT coil, rectifier & zener diode if fitted.
- Step 2** Remove LH engine cover, exposing alternator. Undo the x3 nuts holding the alternator/stator. Retain the nuts. Remove old alternator/stator from the crank cases.
- Step 3** Undo the rotor nut, this can be done by holding the rotor with a suitable tool. If an impact wrench is available it is not normally necessary to hold the rotor.
- Step 4** Fit new stator in position shown (fig. 2), use the 3 spacers supplied, on the threaded studs and use the original retaining nuts. Don't fully tighten yet. Feed the stator cables through the crankcase using the original grommets as required. **Note:** The cables are not pre-terminated with connectors to make the cable feeding easier.
- Step 5** Remove the woodruff key from the crankshaft. Locate the taper locking collet on the crankshaft as far as possible and then fit the new rotor. Ensure the rotor is not touching the stator when turned by hand. If so it may be necessary to fit a spacer/washer on the crankshaft before the taper collet is fitted. Fit the original stepped nut and tighten a little so the rotor can still be moved relative to the crankshaft. We recommend using loctite on the thread to retain the nut.



Step 6	Setting the timing :	Model	C15/B40	B25	B44/B50
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Tighten the rotor retaining nut to about 40Ft/lbs torque. Final adjustment can be made by moving the stator on the slotted holes - tighten the x3 nuts when set.

**Step 7** **CDI connections see Fig.4.-** Fit the 3 yellow cable seals onto the blue, white & black cables followed by the terminals. It is recommended these are crimped and soldered. Insert the terminals in to the connector block, see numbers on the connector block, and circuit diagram. Black cable in to position 1, the White cable in to position 2 and the Blue in to position 3. If removal is required - see notes below.

**Step 8** Remove the original HT coils, the mechanical advance unit and points; these are not required for this system. If a distributor if fitted is also not required but may wish to be retained for originality.

**Step 9** Locate the HT coil in a convenient position, note the HT coil is supplied with an adaptor plate, also the HT cables can be cut to length as required. Only use the HT coil provided as this is suitable for cdi ignition, also the plug caps should be used as these are 5k ohms resistor type and will protect the digital cdi from damage.

**Step 10** Locate the CDI unit in a position to allow the orange and black wires to connect to the HT coil. The orange lead with a female 1/4 terminal is connected to the male terminal on the HT coil, the black cable with the M6 ring terminal connects to the mounting bolt for the HT coil (earth). The remaining black/white wire from the CDI is for connection to a stop switch - when grounded it will cut the ignition; see circuit diagram., on next page.

**Step 11** See Fig.5. Insert cables for regulator connector as shown.

### Terminal removal

The terminals are retained in the connector block by a small tab. If they have been put in the wrong position they can be repositioned by using a small screwdriver or similar to depress the tab at the same time pulling gently on the cable.

NOTE: For the seal connector block it is first necessary to remove the red plastic cover.

### Troubleshooting

#### No Spark

- Disconnect black/white from kill switch in case it is faulty
- Check resistance of source coil on stator, this should read 290 ohms between the blue and white cables.
- The cdi ignition produces very high voltage but for a short duration, so the spark is not easily visible.
- When inserting the terminals in the connector - see Fig 4 - you should hear a click, gently pull each cable to make sure they are attached. NOTE: They only fit one way.

