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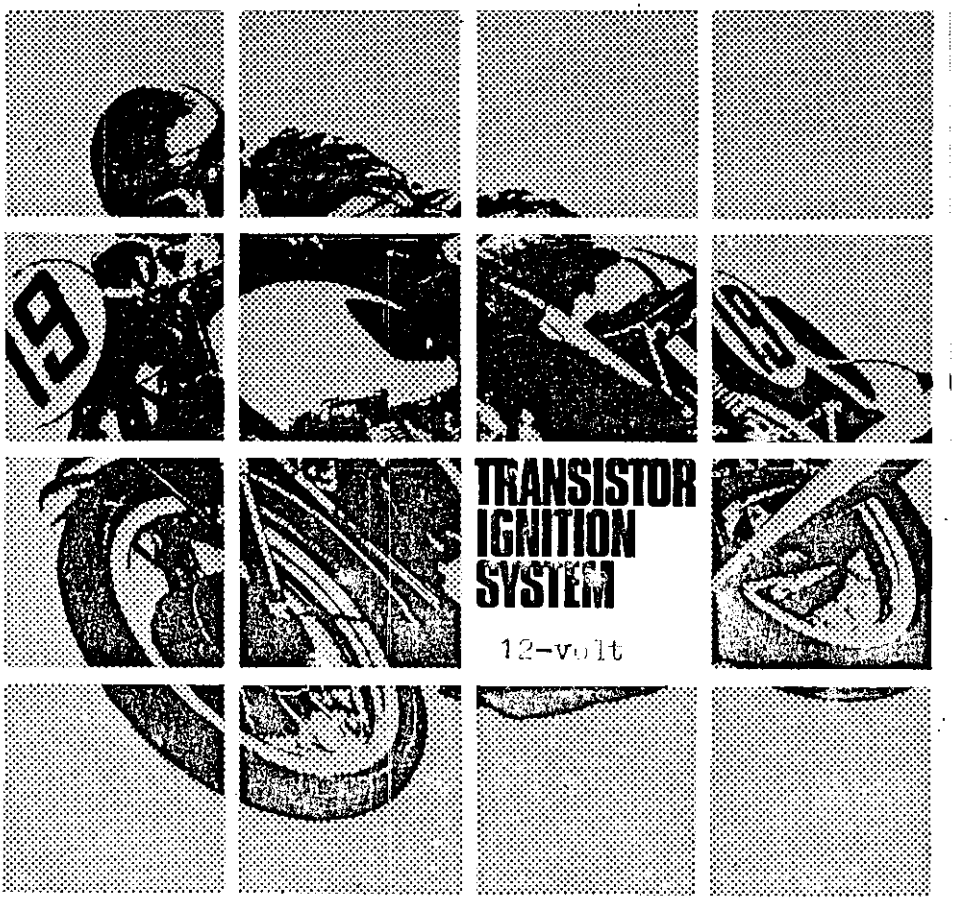

TRANSISTOR IGNITION SYSTEM

12-volt

ELECTRONIC IGNITION

Remove the petrol tank and contact breaker cover plate. Undo the two long mounting bolts which secure the contact point plates to the timing cover, being careful not to drop the washers. Remove centre bolt from cam and screw in long extractor bolt to end of ignition camshaft. Tighten until it breaks the taper fit onto the exhaust camshaft. Remove contact points plate and ignition cam complete.

Fit rotor into exhaust camshaft taper, making sure that the locating pin has located. Refit mounting bolt and tighten. Fit stator plate to timing plate using original mounting bolts, coils facing out. Initially these mounting bolts can be just finger tight with the stator plate in the centre of the elongated timing slots. As the mounting shoulders in timing cases vary, check that the printed circuit on the stator does not short onto the case : if required chamfer the shoulder to clear printed circuit. Feed the colour coded shielded lead through the timing case cover aperture where the previous contact points connections were living and connect to the colour coded terminals on the stator plate. **CONNECT THEM THE RIGHT WAY ROUND, BLACK LEAD TO BLACK TERMINAL, WHITE LEAD TO WHITE TERMINAL.**

Take the colour coded lead which is fixed to the transistor amplifier and route it carefully on the motor cycle, avoiding touching any hot spots or running parallel to the ignition lead. (H.T. lead) It is alright for the lead from the stator plate to cross the H.T. lead, but not for it to run parallel to the H.T. lead for any distance.

Disconnect the contacts on the twin coils and connect the power (live) side of the coil circuit (on a Triumph twin this is any one of the white live terminals) and connect to the negative side of the transistor amplifier.

Connect the positive side of the transistor amplifier to an earth connection. Take the black lead from the centre terminal on the transistor amplifier and join it to what was the live side of the coil. Connect this to one live side of one coil. Make a short connecting link for the other terminal of the coil which has the transistor amplifier connection and connect it to what was the old live side of the next coil. Connect the last remaining terminal on the coil to earth.

This system is now ready to run. To test, remove one plug, earth the plug body and connect the H.T. lead. Switch the ignition system on and off and the plug will spark. If it does not, something is wrong and your connections should be checked. One very important point to remember is that the transistor amplifier must be wired up with the same earth polarity as the overall system of the motor cycle. In other words a positive earth motor cycle, must have the transistor amplifier earthed to the positive sign only. Failure to do this will result in the transistor amplifier being irreparably damaged.

This simple test of turning the ignition system on and off tests the circuit consisting of the transistor amplifier, the coil (or coils), the H.T. and sparking plug.

To test the pulse generator, it is only necessary to pass a simple hand magnet backwards and forwards past the coils on the stator. This can be done quite easily by just moving the magnet backwards and forwards over one of the coils, the magnet can be anywhere up to an inch and a half away from one of the coils on the stator plate. If a spark is obtained it shows that the complete system is alright and only needs to be finally timed stroboscopically in relation to the engine. If no spark is obtained at the plug, but there was a spark obtained by simply switching on and off the ignition then there is some failure in the wiring of the stator plate. If no spark is obtained do not change the colour coded leads over. This will not in fact damage the transistor amplifier but will cancel the electronic advance and retard, and will result in the ignition being non-advancing. The only fault that can occur is for a break in the wiring of the stator plate to have occurred in transit. This can be easily tested by using a simple flashlamp battery and bulb tester. Test the circuit for continuity by connecting the flashlamp battery up so that the power is fed into one of the terminals and is taken out from the other terminal, and from there to a low power (1.5 watt) bulb.

Assuming all the tests check alright, route all the new wiring as tidily as possible, slip the transistor amplifier into the tool box or mount it in any convenient position — remember it does not need to be in a particularly cool place or in the air-stream but it is advisable, just for safety's sake to fix it in an anti-vibration mount. Refit the tank, connect the petrol pipes and start the engine. The motor cycle should start easily and it is then a relatively simple matter to stroboscopically set the correct ignition setting. The timing is adjusted in exactly the same manner as with the normal points by moving the stator plate to the correct position in the elongated holes. Do not forget

system which is electronic and therefore, the engine should be timed for maximum advance with the motor turning over at more than 4,000 revs per minute. Whilst the engine is running with the stroboscope attached, the advance and retard is very clearly noticeable and you can check that the advance and retard mechanism is functioning correctly.

Fitting Instructions for Other Models

To fit this system to any of the BSA range of big twins, a similar procedure is adopted regarding the removal of the cam and points etc. The only differences are in the direction of rotation of the rotor and the omission of the locating key in the rotor drive taper. Referring to the Figure 1. below, which shows the relative position of the magnets and coils at firing, it is easy to see how this can be used to prepare not the crankshaft at full advance firing position and then fit the rotor so that the magnets are approximately 40-45 degrees before the coils on the stator. Please note carefully the direction of rotation of the rotor. Having set the timing by this method it will be accurate enough to start the engine and then to set the correct timing using a stroboscope in the usual manner.

The other Figures 2, 3, 4 and 5 show wiring diagrams for single cylinder or distributor fed engines, twin coil setups, double ended coils and three cylinder set ups. Using these wiring diagrams and having understood the principle of this system it is easy to adapt it to fit any motor cycle. However, this kit will fit straight on to Triumph, BSA and Norton Commandos.

FIGURE 1 Magnet positioning diagram for full advance firing position
Set your engine to its full advance timing. Fit rotor in position shown so that the magnets are positioned 40-45° before the coils on the stator (you can judge this by eye). This should be sufficiently accurate to start the engine. Final accurate timing is done with a stroboscope. Adjustments are made by moving the stator in its slots or by repositioning the rotor if you have run out of stator adjustment.

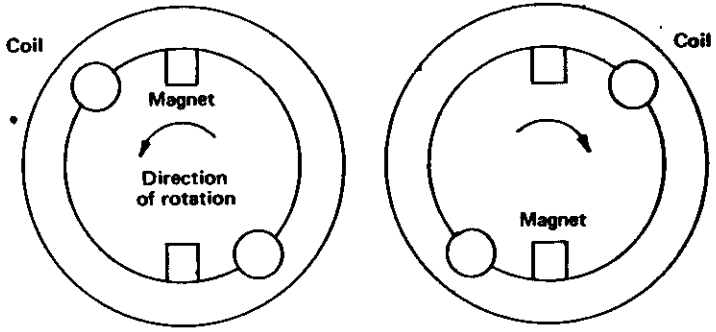

FIGURE 2 Circuit for single cylinder engines or engines fitted with a distributor
The coil primary current should not be more than 4 amp. The coil can be 12 volt plus ballast resistor for low compression low revving engines or 12 volt less ballast for high compression engines. The most preferrable system is to use a 6 volt low inductive coil.

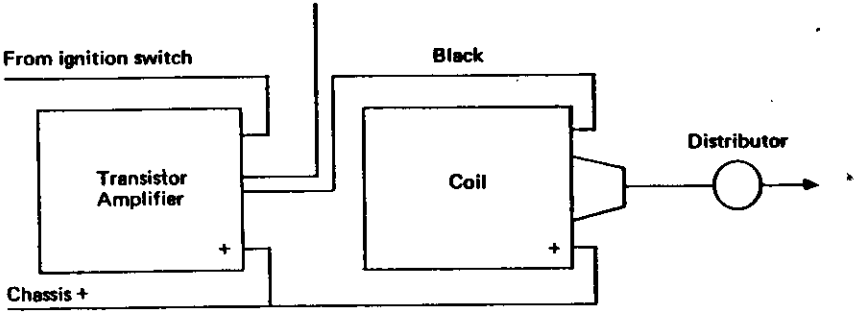

FIGURE 3 Circuit for twin cylinder engines using twin coils
For high performance engines use twin 6 volt coils
or twin 6 volt low inductive coils

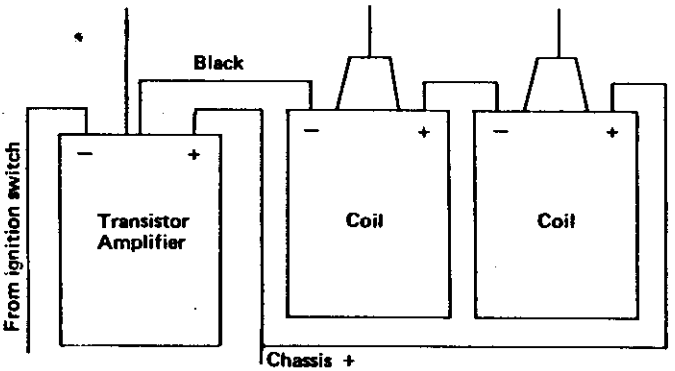

FIGURE 4 Circuit for triple cylinder engines. (Coils must be changed from 12 volt to 6 volt.)
For high performance engines using triple 6 volt coils or triple 6 volt low inductive coils

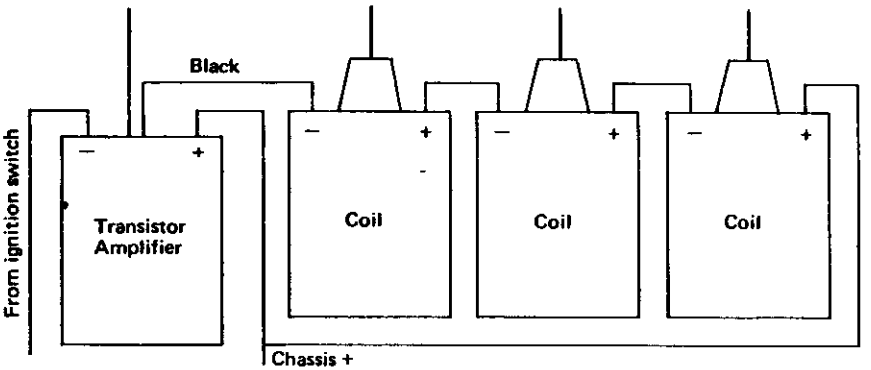

FIGURE 5 Circuit for twin cylinder engines using double ended coils
The coil should be 12 volt