# BSA SERVICE SHEET No. 803

## Models C10 and C11

*Reprinted April, 1957*

## COIL IGNITION EQUIPMENT

The coil ignition equipment comprises an ignition coil and a contact breaker. The ignition is provided with an automatic timing control which automatically varies the firing point according to the requirements of the engine. A warning light is provided, which lights up when the engine is stationary or running slowly, serving as a reminder to the rider to switch off.

The contact breaker unit has a moulded base, and the shaft is carried in two porous bronze bushes.

The centrifugal automatic timing control is housed in the body of the unit beneath the contact breaker base.

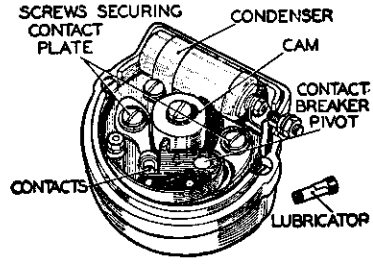


Fig. Y13.
Contact breaker, Model DKX1A

### ROUTINE MAINTENANCE

#### Lubrication

To be carried out every 3,000 miles.

Cam. Smear the surface of the cam very lightly with Mobilgrease No. 2 or, if this is not available, clean engine oil may be used.

Contact breaker pivot. Place a small amount of Mobilgrease No. 2 or clean engine oil on the pivot on which the contact breaker lever works. Do not allow any grease or oil to get on to the contacts.

Shaft. A lubricator is fitted in the shank of the unit, add a few drops of thin machine oil. Later models do not have this lubricator and no attention is required.

Automatic timing control. Add a few drops of thin machine oil through the hole in the contact breaker base through which the cam passes.

#### Cleaning

To be carried out every 6,000 miles. Wipe the inside and outside of the moulding with a soft dry cloth. Examine the contact breaker. The contacts must be free from grease or oil. If they are burned or blackened, clean them with a fine carborundum stone or very fine emery cloth, afterwards wiping away any trace of dirt or metal dust with a petrol-moistened cloth. Cleaning of the contacts is made easier if the contact breaker lever carrying the moving contact is removed. To do this, unscrew the nut securing the end of the contact breaker spring, and remove the nut, spring washer and bush. Lift the contact breaker lever off its bearing. After cleaning, check the contact breaker gap setting.

#### Contact Breaker Gap Adjustment

Turn the engine until the contacts are seen to be fully opened, and check the gap with a gauge having a thickness of .010in.—.012in. If the gap is correct, the gauge should be a sliding fit, but if the gap varies from the gauge, the setting must be adjusted.

To do this, keep the engine in the position giving maximum contact opening and

slacken the two screws securing the fixed contact plate. Adjust the position of the plate until the gap is set to the thickness of the gauge and tighten the two locking screws.

### High Tension Cables

Examine the high tension cables. Any which have the insulation cracked or perished, or show signs of damage in any other way, must be replaced.

## SERVICING

### Testing in position to locate ignition fault

If a failure of ignition or misfiring occurs, first make sure that the trouble is not due to defects in the engine, carburetter, petrol supply, sparking plug, etc. If necessary adjust the sparking plug gap to the setting recommended (see Service Sheet No. 404).

Examine the high tension cable. If the rubber shows signs of deterioration or cracking, the cable should be renewed.

Test plug and high tension cable by removing the plug and allowing it to rest on the cylinder head and observing whether a spark occurs at the points when the engine is turned. It should, however, be noted that this is only a rough test, since it is possible that a spark may not take place when the plug is under compression.

Switch on the ignition, turn the engine and observe the ammeter reading. If an ammeter reading is given which rises and falls with the closing and opening of the contacts, then the low tension wiring is in order. If the reading does not fluctuate in this way a short circuit in the low tension wiring is indicated, or the contacts are remaining closed. When no reading is given, a broken or loose connection in the low tension wiring or badly adjusted or dirty contacts are indicated.

To trace a fault in the low tension wiring, switch on the ignition, and turn the engine until the distributor contacts are opened. Refer to the appropriate wiring diagram (see Service Sheet No. 808) and with the aid of a voltmeter (0—10 volts), fitted with two insulated leads, the ends of which are provided with clips, check the circuit as follows :—

Lead (yellow and black) from the positive battery terminal to terminal B on ammeter. Connect voltmeter between ammeter and earth. No reading indicates faulty lead or loose connections.

Ammeter.

Connect voltmeter to ammeter (white and purple lead) and earth. No reading indicates faulty ammeter.

Lead (white and purple) between ammeter and ignition switch.

Connect voltmeter to terminal A on ignition switch and earth. No reading indicates faulty lead or loose connections.

Ignition Switch.

Connect voltmeter to terminal IG on ignition switch. No reading indicates fault in switch.

Lead (white) between ignition switch and ignition coil.

Connect voltmeter to ignition coil terminal "SW" and earth. No reading indicates faulty lead or loose connections.

Ignition Coil.

Connect voltmeter to ignition coil terminal "CB" and earth. No reading indicates that fault lies in the coil primary winding.

Lead between ignition coil and contact breaker.

Remove the lead from the terminal on the contact breaker, and connect voltmeter between the end of this lead and earth. No reading indicates faulty lead or loose connections. Reconnect lead.

Contact Breaker.

Connect voltmeter across the contacts. If no reading is obtained, remove the condenser and test again. If a reading is now given, a new condenser must be fitted.

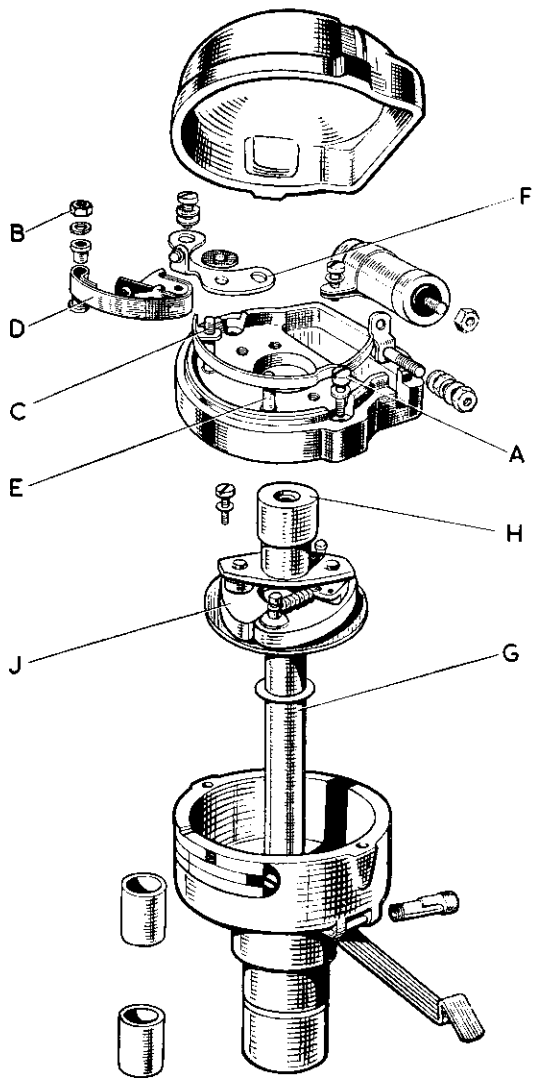


Fig. Y14. Model DKX1A Dismantled

Measure the contact breaker spring tension. This should be 20—24 ozs. measured at the contacts.

If, after carrying out these tests, the fault has not been located, remove the high tension lead from the plug. Switch on the ignition and turn the engine until the contacts close. Flick the contact breaker lever open while the high tension lead from the coil is held about $\frac{3}{16}$in. away from the cylinder block. If the ignition equipment is in order a strong spark should be obtained. If no spark is given, it indicates a fault in the circuit of the secondary winding of the coil and the coil should be replaced.

## To Dismantle

Spring back the securing clips and remove the moulded cap.

To remove the contact breaker base, it is only necessary to withdraw the two screws "A" (Fig. Y14) together with the spring washers. The contact breaker base can be lifted off.

To remove the moving contact, unscrew the nut "B" on the pillar "C" and remove the nut, spring washer and bush. The contact breaker spring "D" can then be lifted off and the contact arm lifted from its pivot "E." The fixed contact is carried on a plate "F" secured by two screws. The condenser can be removed when its terminal nuts and single securing screw are removed.

The shaft "G" carrying the cam "H" and automatic timing control "J" can be removed when the driving dog is taken off.

The automatic timing control should not be dismantled unnecessarily. If it is desired to dismantle the mechanism, carefully note the position of the various components in order that they may be refitted correctly.

**Bearings**

If replacement of bearings is necessary, the following points should be borne in mind. Badly worn bearings are usually indicated by the maximum opening of the contacts varying considerably as the shaft is slowly rotated by hand, while side pressure is applied to the cam.

Porous bronze bearing bushes should be inserted in the body on a highly polished mandrel, which on withdrawal will give the finished bore diameter without machining.

Before use, these bushes should be stored in a covered container, and fully covered with oil of a grade equivalent to Mobiloil Arctic or other good thin mineral oil. The minimum time of soaking should normally be 24 hours ; in case of extreme urgency, this period may be shortened by heating the oil to 100°C., when the time of immersion may be reduced to 2 hours.

**Reassembly**

In the main, reassembly is the reverse of the operations described above. Note that an insulating washer is placed over the contact breaker pivot before the moving contact is fitted.

B.S.A. MOTOR CYCLES LTD.
Service Dept., Birmingham, 11
Printed in England

J.U./A2398