SECTION C

THE IGNITION EQUIPMENT
(1½ and 2½ LITRE)

General Description.

GENERAL DESCRIPTION

The ignition is by coil and distributor, which is provided with centrifugal automatic advance mechanism. There is also a manual control which gives an advance range of approximately 15 degrees.

The positive earth system is used.

NOTE.—Later cars are fitted with modified distributors having " high-lift " cams. These distributors require a different contact breaker setting from the earlier types, and it is therefore imperative to consult Section C.13 to ascertain the correct contact breaker gap before carrying out any operation which involves re-setting the contact breaker.

2½ LITRE

Distributor

This is a Lucas Model DKY.4A. On earlier engines the Riley Service No. is S.502 and the Lucas Service No. is 405546. The identification marks are stamped on the side of the unit.

Series RMF engines have a distributor which bears the Riley Service No. 166182, and the Lucas Service No. 40277. Commencing at Engine No. RMB.2/1288, a distributor incorporating suction operation was fitted. The Riley Service No. is 166250 and the Lucas Service No. 40336A.

Ignition coil

This is a Lucas Model B.12, Service No. 45012A. The identification marks are stamped on the base of the coil.

Sparking plugs

These are Champion NA.8, 14 mm., with a gap of ·025 in. (·63 mm.).

1½ LITRE

Distributor

This is a Lucas Model DKY.4A, Riley Service No. D.7281, and the Lucas Service No. 404425. After Engine No. 7224 a different distributor is fitted which bears the Riley Service Part No. 300158, and the Lucas Service No. 40182, and on these distributors the identification marks are stamped on the side of the unit.

Ignition coil

This is a Lucas Model B.12, Service No. 45012A. The identification marks are stamped on the base of the coil.

Sparking plugs

These are Champion L.10S, 14 mm., with a gap of ·025 in. (·63 mm.).

Section C.1

TESTING WITH SPARKING PLUGS IN POSITION TO LOCATE THE CAUSE OF UNEVEN FIRING

Test in position to locate cause of uneven firing

(*a*) Start the engine and set it to run at a fairly fast idling speed.

(*b*) Short-circuit each plug in turn by placing a hammer head or the blade of a wooden-handled or insulated-type screwdriver between the terminal and the cylinder head. No difference in the engine performance will be noted when short-circuiting the plug in the defective cylinder. Shorting the other plugs will make uneven running more pronounced.

(*c*) Having located the cylinder which is at fault, stop the engine and remove the cable from the terminal of the sparking plug. Restart the engine and hold the end of the cable about $\frac{3}{16}$ in. from the cylinder head.

(*d*) If the sparking is strong and regular, the fault probably lies in the sparking plug. Remove the plug, clean, and adjust the gap to the correct setting or alternatively fit a replacement plug.

(e) If there is no spark or if it is weak and irregular, examine the cable from the sparking plug to the distributor. After a long period of service the rubber insulation may be cracked or perished, in which case the cable should be renewed. Finally, examine the distributor moulded cap, wipe the inside and outside with a clean dry cloth, see that the carbon brush moves freely in its holder and examine the moulding closely for signs of breakdown. After long service it may have become tracked, that is, a conducting path may have formed between two or more of the electrodes or between one of the electrodes and some part of the distributor in contact with the cap. Evidence of a tracked cap is shown by the presence of a thin black line in the places indicated. A replacement distributor cap must be fitted in place of one that has become tracked.

Section C.2

TESTING THE LOW-TENSION CIRCUIT

Testing in position. Low-tension circuit

(*a*) Spring back the securing clips on the distributor and remove the moulded cap and rotor. If the rotor is a tight fit, it can be levered off carefully with a screwdriver.

(*b*) Check that the contacts are clean and free from pits, burns, oil or grease. Turn the engine and check that the contacts are opening and closing correctly and that the clearance when the contacts are fully opened is between ·010 in. and ·012 in. (·25 mm. and ·30 mm.). Correct the gap if necessary. (See Section C.5.)

(*c*) Switch on the ignition, turn the engine with the starting handle and observe the ammeter reading, which should rise and fall with the closing and opening of the contacts. If the reading fluctuates in this way, the low-tension circuit is in order.

(*d*) If the ammeter reading remains steady, locate the fault in the low-tension circuit.

(e) Another method of testing is to disconnect the cable at the contact breaker terminal of the coil and at the low-tension terminal of the distributor, and connect a test lamp between these terminals. If the lamp lights when the contacts close and goes out when the contacts open, the low-tension circuit is in order.

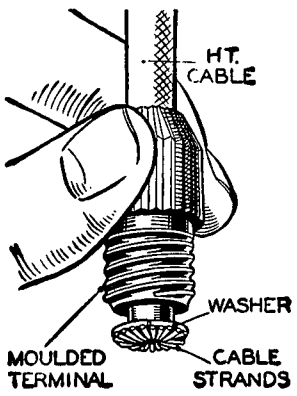

Fig. C.1.
Demonstrates the correct method of fitting the high-tension cable to the moulded terminal nut of the ignition coil.

Low-tension circuit—to locate fault

(*a*) Having determined, by testing as previously described, that the fault lies in the low tension circuit, switch on the ignition, and turn the engine until the contact breaker points are fully opened.

(*b*) Check the circuit with a voltmeter (0—20 volts) as follows :—

Note.—*If the circuit is in order the reading on the voltmeter should be approximately* 12 *volts.*

(*c*) *Battery to starter switch.* Connect voltmeter to starter switch terminal and to earth. No reading indicates faulty cable or loose connections.

(*d*) *Starter switch to ammeter* (brown lead). Connect a voltmeter to the ammeter terminal and to earth. No reading indicates faulty cable or loose connections.

(e) *Ammeter.* Connect a voltmeter to the other ammeter terminal and to earth. No reading indicates a fault in the ammeter, which must be renewed.

(f) *Ammeter to control box terminal* "A" (brown with white). Connect a voltmeter to the control box terminal "A" and to earth. No reading indicates a faulty cable or loose connections.

(g) *Control box.* Connect a voltmeter to the control box terminal "A1" and to earth. No reading indicates a fault in the series winding of the control box.

(h) *Control box* "A1" *to ignition switch* (brown with blue). Connect a voltmeter to the ignition switch terminal and to earth. No reading indicates a faulty cable or loose connections.

(i) *Ignition switch.* Connect a voltmeter to the other ignition switch terminal (white lead) and to earth. No reading indicates a fault in the ignition switch.

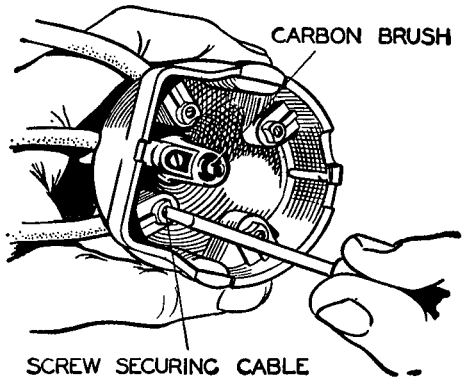

Fig. C.2.
Shows how the high-tension cables are secured to the distributor pick-up segments by means of pointed fixing screws.

(j) *Ignition switch to control box terminal* "A3" (white lead). Connect the voltmeter to the control box terminal "A3" and to earth. No reading indicates a faulty cable or loose connections.

(k) *Control box terminal* "A3" *to ignition coil terminal* "SW" (white lead). Connect a voltmeter to the ignition coil terminal "SW" and to earth. No reading indicates a faulty cable or loose connections.

(l) *Ignition coil.* Connect a voltmeter to the ignition coil terminal "CB" and to earth. No reading indicates a fault in the primary winding of the coil.

(m) *Ignition coil to distributor* (white with black lead). Disconnect the low-tension cable to the distributor and connect the voltmeter between the end of the cable removed and earth. No reading indicates a faulty lead or loose connection. Reconnect the cable to the distributor.

(n) *Contact breaker and condenser.* Connect the voltmeter across the contact breaker points. No reading indicates a fault in the condenser.

Section C.3

THE HIGH-TENSION CABLES

(a) The high-tension cables must be examined carefully and any which have the insulation cracked, perished or damaged in any way must be replaced by 7 mm. rubber-covered ignition cable.

(b) To fit new high-tension cables thread the knurled moulded terminal nut over the lead, bare the end of the cable for about ¼ in. (6 mm.), thread the wire through the brass washer removed from the original cable and bend back the strands over the washer. Finally screw the nut into its terminal.

(c) The cables from the distributor to the sparking plugs must be connected up in the correct firing order, which is 1, 2, 4, 3.

Section C.4

ATTENTION TO THE SPARKING PLUGS

It is recommended that the plugs be inspected, cleaned and tested every 3,000 miles (5000 km.).

When sparking plugs are removed from the engine their gaskets should be removed with them and replaced on the plugs, which should be placed in a suitable holder. It is advisable to identify each plug with the number of the cylinder from which it was removed so that any faults revealed on examination can be traced back to the cylinder concerned. The plug stand illustrated in Fig. C.3 is of simple construction, possessing a series of holes to admit the upper ends of the plugs.

When examining the plugs, place a new plug of the same type beside the others to afford a ready comparison of the relative condition of the used plugs.

Examine for signs of oil fouling. This will be indicated by a wet, shiny, black deposit on the insulator. This is caused by oil pumping due to worn cylinders and pistons, or gummed-up or broken rings. Under such conditions, oil from the cylinder walls is forced up past the rings on the suction stroke of the piston, and is eventually deposited on the plugs.

A permanent remedy for this cannot be effected, the

only cure being the fitting of a new piston and rings, or, in extreme cases, a rebore may be necessary.

Next examine the plugs for signs of petrol fouling. This is indicated by a dry, fluffy, black deposit which is usually caused by over-rich carburation, although ignition system defects such as a run-down battery, faulty distributor, coil or condenser defects, or a broken or worn-out cable, may be additional causes. The important thing is for the carburetter setting to be correctly adjusted and the ignition system overhauled as indicated in Sections C.3 and C.5. If the plugs appear to be suitable for further use, proceed to clean and test them.

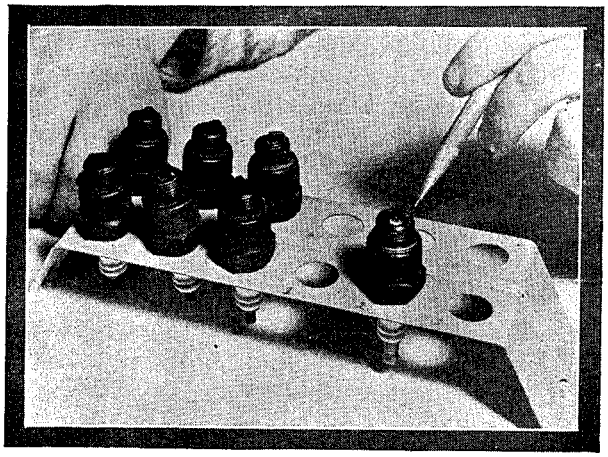

Fig. C.3.
The use of a simple plug stand of the type illustrated is recommended to hold the plugs when they are removed from the engine.

First remove the plug gaskets and examine them for condition. Gaskets in different conditions are illustrated in Fig. C.4. The upper left gasket was obviously not properly compressed, owing to the plug not having been tightened down sufficiently. A large proportion of the heat of the plug is normally dissipated to the cylinder head through the copper gasket between the plug and the head. Plugs not screwed down tightly can thus easily become overheated so that they operate out of their proper heat range, thus producing pre-ignition, short plug life and "pinking." On the other hand it is unnecessary and unwise to tighten up the plugs too much. What is required is a reasonably good seal between the plug and the cylinder head.

The lower left-hand gasket clearly indicates that the plug was pulled down too tightly or has been in service too long. Note its distorted condition and the evidence of blow-by, which is also a cause of plug overheating.

The upper right-hand gasket demonstrates a gasket in good condition, providing an adequate seal and a good path for heat dissipation.

For comparison a new gasket is shown at the lower right-hand corner of Fig. C.4. If gaskets are at all questionable they should be replaced by new ones without hesitation.

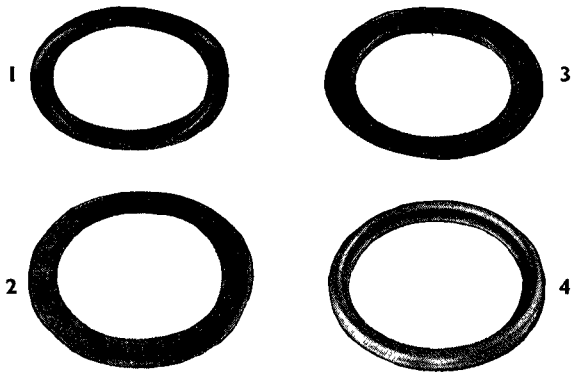

Fig. C.4.
This illustration shows plug gaskets in various conditions —(1) Indicating insufficient tightening down of plug. (2) Over-tightening of plug. (3) Correct degree of tightening. (4) New gasket before use.

If the plugs require cleaning it is preferable to make use of a proper plug cleaner of the type recommended by the plug manufacturers, and the makers' instructions for using the cleaner should carefully be followed out.

Occasionally a blistered insulator or a badly burnt electrode may be noticed when examining the plugs.

If the plug is of the type normally recommended for the engine and it was correctly installed (down tightly on the gasket), this condition may have been brought about by a very lean mixture or an overheated engine. There is, however, a possibility that a plug of another type is required, but as a rule the Champion plug recommended should be adhered to.

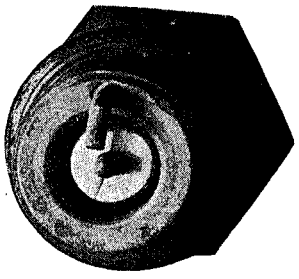

Fig. C.5.
Here is shown a plug with a cracked insulator.

After cleaning carefully, examine the plugs for cracked insulators and wear of the insulator nose due to excessive previous cleaning. In such cases the plugs have passed their useful life, and new plugs should be installed.

Examine the insulator for deposits underneath the side electrode which have possibly accumulated and which act as a "hot spot" in service.

After cleaning the plugs in the special cleaner, blow all surplus abrasive out of the body recesses, and off the plug threads, by means of an air-blast. Next examine the threads for carbon. Any deposits can be removed and the threads cleaned with a wire brush. A wire buffing wheel may also be utilised, but reasonable care must be used in both methods in order not to injure the electrodes or the tip of the insulator. The thread section of the plug body is often neglected when cleaning the plugs, owing to the fact that it is not generally realised that, like the gaskets, the threads are a means of heat dissipation and that when they are coated with carbon it retards the flow of the heat from the plug, producing overheating. This simple procedure will also ensure absence of binding on the threads on replacement and also avoid the unnecessary use of the plug spanner.

Fig. C.6.
The plug threads should be cleaned with a wire brush to remove deposits on the thread.

When replacing a plug, always screw it down by hand as far as possible and use the spanner for final tightening only. Whenever possible use a box spanner to avoid possible fracture of the insulator.

Examine the electrodes for correct gap by inserting a feeler ·025 in. (·64 mm.) thick between them. Avoid an incorrect reading in the case of badly pitted electrodes.

Remember that electrode corrosion and the development of oxides at the gap area vitally affects the sparking efficiency. The special cleaner can remove the oxides and deposits from the insulator, but the cleaner stream does not always reach this area with full effect owing to its location, and cannot necessarily deal with corrosion effectively as this sometimes requires too strong a blast for proper removal.

When plugs appear worthy of further use it is good practice to dress the gap area on both centre and side electrodes with a small file before resetting them to the correct gap. The intense heat, pressure, explosion shock, and electrical and chemical action to which the plugs are submitted during miles of service are so

Fig. C.7.
This type of sparking plug is fitted as standard to the Riley 1½ and 2½ litre engines.

intense that the molecular structure of the metal points is eventually affected. Plugs then reach a worn-out condition and resetting the points can no longer serve a good purpose. When points are burnt badly, it is indicative that the plug has worn to such an extent that its further use is undesirable and wasteful.

Before replacing the plug in the engine, test it for correct functioning under air pressure in a plug tester, following out the instructions issued by the makers of the plug tester. Generally speaking, a plug may be considered satisfactory for further service

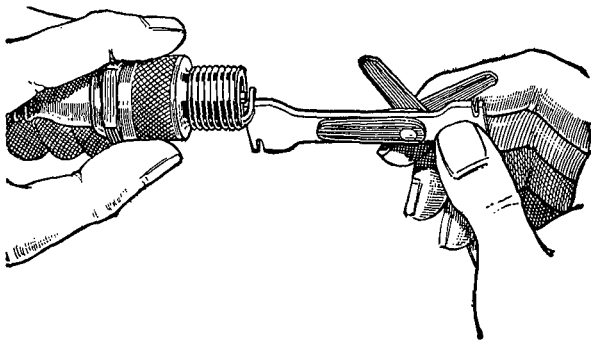

Fig. C.8.
Adjustments to the spark plug gap should be made only by bending the side wire, preferably by using a proper setting tool such as the " Champion " instrument illustrated here.

if it sparks continuously under a pressure of 100 lb. per sq. in. (7 kg./cm.^{2}) with the gap between the points set at ·025 in. (·64 mm.).

While the plug is under pressure in the tester it should be inspected for leakage by applying oil round the terminal. Leakage is indicated by the production of air bubbles, the intensity of which will serve to indicate the degree of leakage. The leakage gases have a " blow-torch " effect when the engine is running which rapidly raises the temperature of the plug, raising it above its designed heat range, thus producing overheating, pre-ignition, and rapid electrode destruction.

The top half of the insulator is frequently responsible for poor plug performance due to the following faults : splashes ; accumulation of dirt and dust ; cracked insulators, caused by a slipping spanner ; over-tightness of the terminals.

Examine for a cracked insulator at the shoulder and the terminal post and remove any accumulations of dirt and dust.

Section C.5

THE CONTACT BREAKER MECHANISM

After the first 500 miles (800 km.) and subsequently every 3,000 miles (5000 km.) check the contact breaker as follows :—

(*a*) Turn the engine until the contact breaker points are fully opened, and check the gap with a gauge having a thickness of from ·010 in. to ·012 in. (·25 mm. to ·30 mm.). If the gap is correct, the gauge should be a sliding fit. Do not alter the setting unless the gap varies considerably from the gauge thickness.

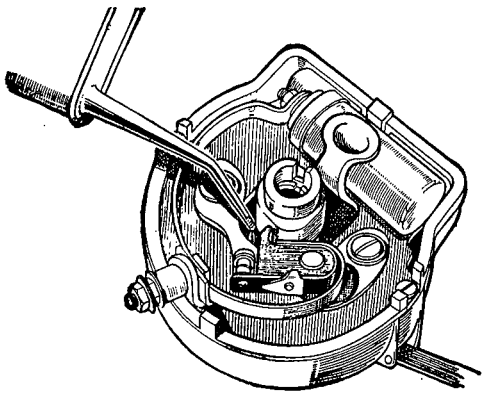

Fig. C.9.
The advance control mechanism is lubricated through the aperture round the cam spindle. Take care no oil finds its way onto the contact points.

To adjust the setting, keep the engine in the position which gives maximum opening of the contacts and then 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 then tighten the two locking screws.

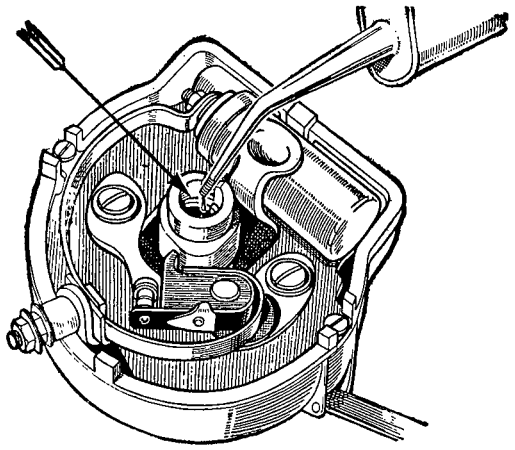

Fig. C.10.
The cam bearing is lubricated through the opening revealed when the distributor rotating arm is withdrawn. Engine oil to Ref. F should be used.

(*b*) If the contacts are dirty or pitted, they must be cleaned by polishing them with a fine carborundum stone, and afterwards wiping them with a petrol-moistened cloth. The moving contact can be removed from its mounting in order to assist cleaning. (See Fig. C.16.) Check and adjust the contact breaker setting after cleaning the contacts.

(*c*) Check that the moving arm moves freely on its pivot. If it is sluggish, remove the moving arm and polish the pivot pin with a strip of fine emery cloth. Afterwards apply a spot of clean engine oil or grease to Ref. D (page P.2) to the top of the pivot.

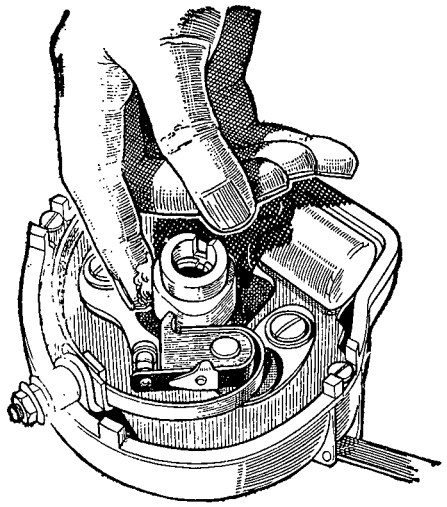

Fig. C.11.
Every 3,000 miles (5000 km.) the cam may be given a slight smear of engine oil or grease to Ref. D in the manner shown.

Section C.6

DISTRIBUTOR LUBRICATION

To be carried out after servicing the distributor and at intervals of about 3,000 miles (5000 km.) :—

(*a*) Give the cam a light smear of grease to Ref. D (page P.2) and apply a slight trace of oil to the top of the pivot pin on which the contact breaker lever works.

(*b*) Lift the rotor arm off the top of the spindle and add a few drops of thin oil to Ref. F (page P.2) through the lubricating passage provided in the spindle to lubricate the cam bearing and distributor shaft. (Do not remove the screw in the top of the spindle as an oilway is provided.) Refit the rotor correctly and push it on the shaft as far as it will go.

(*c*) Add a few drops of thin oil to Ref. F (page P.2) through the aperture in the contact breaker base round the cam in order to lubricate the automatic timing control. Do not allow any oil to get on or near the contacts.

Section C.7

REMOVAL AND REPLACEMENT OF THE DISTRIBUTOR

The distributor, which has a centrifugal advance and hand control, is spigoted in the right-hand side of the engine and retained by a slotted clamp plate with a spring-loaded retaining bolt screwed into the boss.

To remove the unit, detach the distributor head and undo the L.T. cable from the distributor body to the coil.

Remove the bracket holding the advance and retard hand control arm. Undo the spring-loaded retaining bolt.

Do not slacken the pinch bolt which contracts the clamp plate to the distributor body or the timing will be lost.

On some models it may be necessary to swing the dynamo outwards in order to reach the bolt.

Before removing the distributor, make sure that the rotor arm is pointing to the segment in the cover for one particular cylinder. It is usual to choose the segment for the plug lead to No. 1 cylinder.

Lift the distributor away from the cylinder block, noting that the rotor will turn a certain amount due to the helical gear drive from the camshaft.

Provided that the engine is not turned, the distributor may be replaced in the same position so that the rotor arm is returned to the correct position as the distributor and camshaft gears mesh with each other.

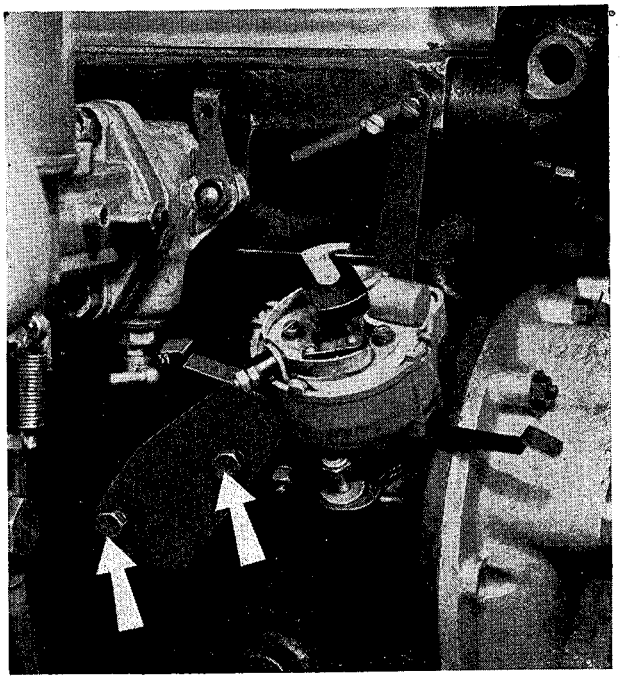

Fig. C.12.
The mounting plate for the advance/retard hand control on the 2½ litre engine, showing its two attachment screws.

Replace the retaining bolt.

Final adjustments may be carried out on the road by slackening the distributor clamp pinch bolt and moving the distributor unit as desired. Do not forget to retighten the clamp bolt.

Section C.8

IGNITION TIMING

The ignition timing required varies according to the condition of the engine and the fuel used and can only be determined by actual road test.

The ignition timing also varies slightly with different engines and the correct procedure is to set the spark so that the engine will just " pink " when given full throttle in top gear at just under 30 m.p.h. (48 k.p.h.) on a flat road.

To obtain the correct timing the distributor contact points must be set to a clearance of ·010 in. to ·012 in. (·25 mm. to ·30 mm.), after which the distributor head must be set so that the points just break at 8° B.T.D.C. on the 1½ litre and 4° to 8° B.T.D.C. on the 2½ litre with the hand ignition control fully advanced (pushed right in at the panel).

No timing marks are visible and the method of determining the correct piston position is to use a sliding plunger in conjunction with a dial gauge (see

Fig. C.13). This unit screws into the sparking plug hole and the piston travel may be measured accurately.

Four degrees from T.D.C. equals ·0075 in. (·19 mm.) of piston travel and eight degrees equals ·030 in. (·76 mm.).

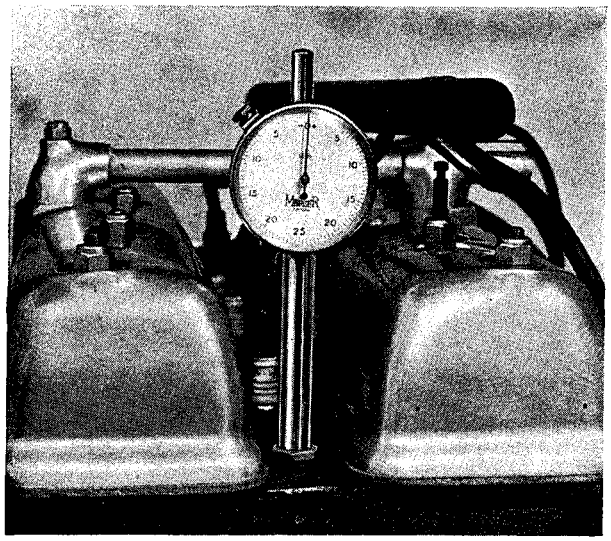

Fig. C.13.
It is possible to manufacture a suitable gauge for checking the exact position for T.D.C. From this point the correct piston position can be obtained.

Important.—*To ensure an accurate setting of the distributor points an electrical method should be used.*

With the low-tension lead connected to the distributor, turn on the ignition switch and connect a 12-volt lamp in parallel with the contact breaker point (i.e. one lead from the L.T. terminal and the other to earth) and turn the distributor slowly until the lamp lights ; this indicates the correct position for the distributor. If the engine has been set as indicated above, then the timing is correct.

Alternatively a second operator can watch the ammeter, which will flick back to zero when the points open.

Section C.9

DISMANTLING THE DISTRIBUTOR

(Before dismantling carefully note the positions in which the various components are fitted so that they can be replaced correctly.)

(*a*) Spring back the securing clips and remove the moulded cap.

(*b*) Lift the rotor off the top of the spindle. If it is a tight fit, it should be levered off carefully with a screwdriver.

(*c*) Slacken the nut on the terminal post and lift off the end of the contact breaker spring. Lift the contact breaker lever off its pivot pin. Take out the two screws, complete with spring washers and flat steel washers, from the plate carrying the fixed contact and remove the plate.

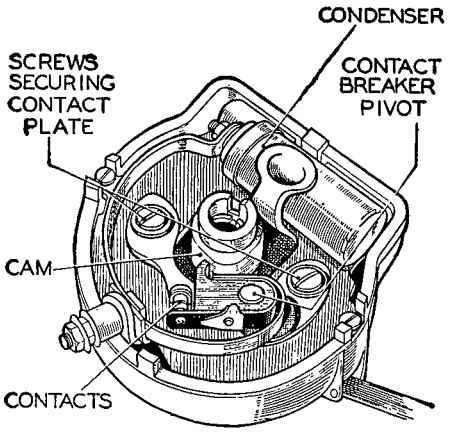

Fig. C.14.
The distributor with the cover and rotor arm removed, showing the contact breaker mechanism.

(*d*) Undo the two screws fitted at the edge of the contact breaker base and lift them out together with the spring washers. The contact breaker base can then be removed from the body of the distributor.

(*e*) Unscrew the terminal nut, lift off the spring washer and remove the connector strip.

(*f*) Drive out the parallel pin passing through the driving gear and then press the shaft out of the gear.

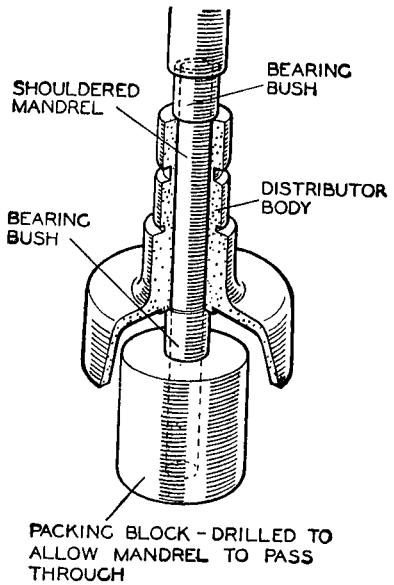

Fig. C.15.
Replacement of the bearing bushes.

(*g*) Lift the cam, automatic timing control and shaft assembly from the distributor. Take out the screw from inside the top of the cam spindle and lift the cam off. The automatic timing control is then accessible.

Section C.10

THE CONDENSER

The best method of testing the condenser is by substitution. Disconnect the original condenser and connect a new one between the low-tension terminal of the distributor and earth.

Should a new condenser be necessary, it is advisable to fit a complete condenser and contact bracket plate assembly, but should a condenser only be available, care must be taken not to overheat the condenser when soldering it in position.

Section C.11

FITTING NEW DISTRIBUTOR BUSHES

(*a*) In order to ensure easy running of the distributor shaft when the shank has been rebushed, the new bushes must be fitted so that they are in correct alignment. The bushes must be fitted by means of a vertical drilling machine or hand press, using a mandrel and a packing block of the type shown.

(*b*) Fit the mandrel in the drilling machine or hand press and place the distributor body in an inverted position on the table below it.

(*c*) To remove the bushes, a sleeve must be fitted over the mandrel to build it up to the required size. With this sleeve fitted in position, force the old bushes out of the shank by applying a steady pressure. Before new bushes are fitted they should be allowed to soak for twenty-four hours in thin engine oil.

(*d*) Take the sleeve off the mandrel. Place one of the longer bushes on the mandrel, then the distributor body in an inverted position and finally one of the smaller bushes.

(*e*) Locate the end of the mandrel through the packing piece and press the mandrel downwards, taking care that both bushes enter the distributor shank squarely. Continue forcing the bushes into the shank until the mandrel reaches the end of its travel.

(*f*) After fitting, the bushes must not be opened out by reamering or any other means, as this would tend to impair the porosity of the bushes, and so prevent effective lubrication from being obtained.

Section C.12

REASSEMBLING THE DISTRIBUTOR

Note.—*Before reassembly, the automatic advance mechanism, distributor shaft, and the portion of the shaft on which the cam fits must be lubricated with thin, clean engine oil.*

(*a*) Assemble the automatic timing control, taking care that the parts are fitted in their original positions and that the control springs are not stretched. Two holes are provided in each toggle ; the springs must be fitted to the inner hole in each case. Place the cam on its spindle and secure by tightening the locking screw.

(*b*) Fit the shaft in its bearings and replace the driving member. Remembering that the small offset of the driving tongue lies towards the front of the engine when the slot for the rotating arm in the cam faces towards the centre of the engine (or towards the condenser in the distributor body) fit the driving pin and burr over the collar each side, to retain it in position, with a suitable punch.

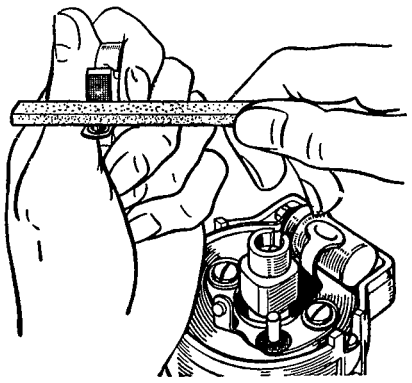

Fig. C.16.
The distributor points are best cleaned by removing the rocker-arm from its pivot and dressing the points with a stick of carborundum as shown.

(*c*) Place the contact breaker base in position on the distributor body and secure it by replacing the two screws. A spring washer must be fitted under each of the screw heads, and the screws must be fully tightened.

(*d*) Place the end of the connector strip over the condenser terminal post, refit the spring washer and secure it by tightening the terminal nut.

(*e*) Position the plate carrying the fixed contact on the contact breaker base and secure it by replacing and lightly tightening the two screws, placing a spring washer and flat steel washer under the heads of each of the screws. Place the insulating washer over the contact breaker pivot pin and position the contact breaker

lever over the pivot pin. Locate the end of the contact breaker spring under the head of the terminal screw and tighten the nut to lock the spring in position. Adjust the contact breaker setting to give a maximum opening of from ·010 in. to ·012 in. (·25 mm. to ·30 mm.).

Note.—*If it becomes necessary to renew the contacts a replacement set comprising fixed and moving contacts must be fitted. When a new set of contacts is fitted the contact gap must be set to between ·010 in. and ·012 in. (·25 mm. and ·30 mm.). During the first few hours running the initial "bedding-in" of the contact breaker heel will reduce the gap, and after a suitable running-in period (approximately 500 miles) the contact breaker must be examined and the gap reset to the figure quoted above.*

(*f*) Place the rotor on the top of the spindle, locating the register correctly, and push it fully home.

(*g*) Fit the distributor moulding and secure it by means of the spring clips.

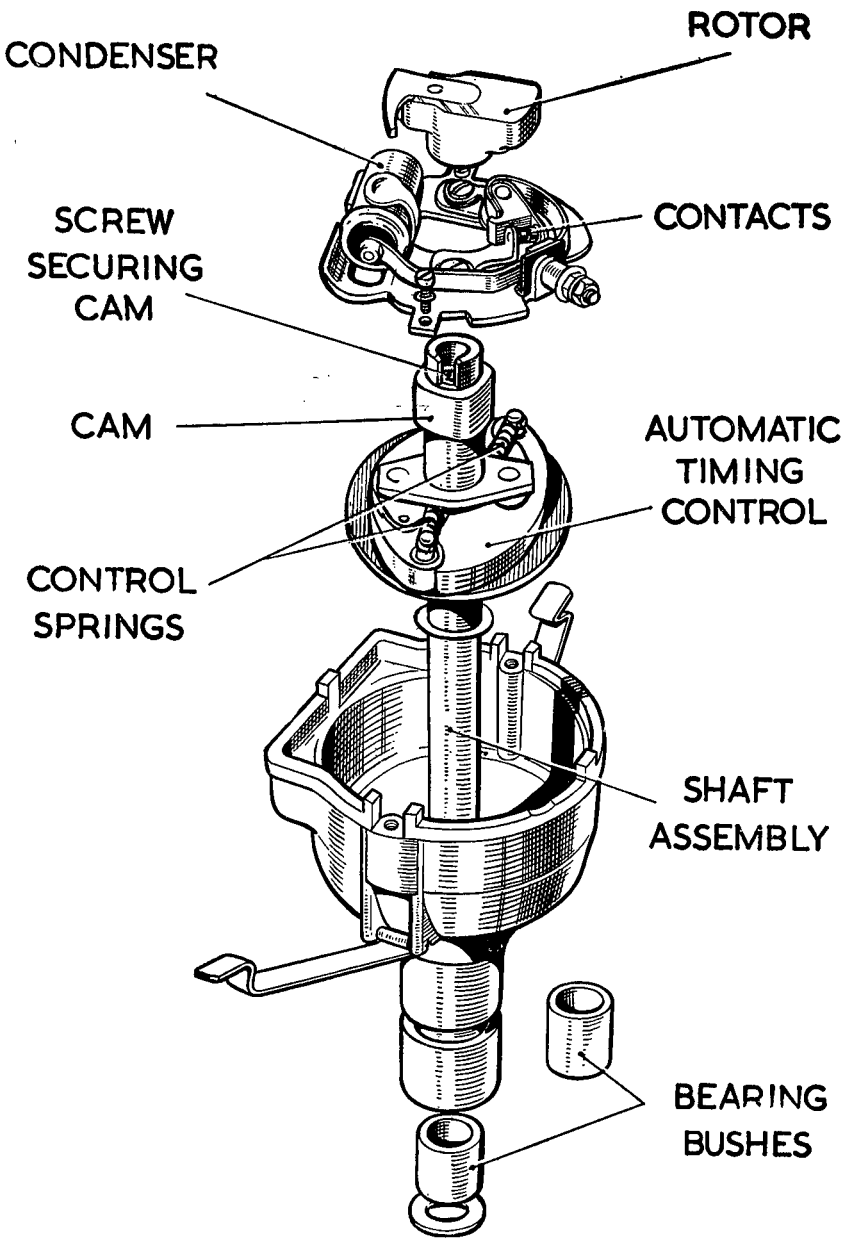

Fig. C.17.
The component parts of the distributor.

Section C.13

DISTRIBUTORS WITH "HIGH-LIFT" CAMS

Later models are fitted with a new type of distributor having "high-lift" cams. Owing to the shape of these cams, the contact breaker gap must be set to ·014 in. to ·016 in. (·36 mm. to ·41 mm.). Previous distributor cams were of two types, "symmetric" and "asymmetric," and both of these types necessitated a contact breaker gap of ·010 in. to ·012 in. (·25 mm. to ·30 mm.).

The wider gap of the "high-lift" cam, together with the steep angle of the cam face, gives more accurate ignition timing, and controls the pitting and piling action, which limits useful contact life.

When setting contact gaps with the "high-lift" cam, more care is needed when checking that the fibre heel is on the highest point of the cam rise, because maximum separation is only obtained over a small angular movement of the distributor shaft.

All three types of cam are illustrated in Fig. C.18. Apart from the appearance of the cams, distributors fitted with the "high-lift" cams can be identified by reference to the suffix letter which follows the Lucas Service number. On the 1½ litre model, distributors bearing after the Service No. 40182 the suffix "E," or any letter subsequent to "E," are fitted with "high-lift" cams, and those with suffix letters previous to "E" are of the "symmetric" or "asymmetric" type.

Similarly on 2½ litre cars, distributors with the suffix "D" or any letter subsequent to "D" after the Service No. 40277, are of the "high-lift" type, while those with suffix letters previous to "D" are of the "symmetric" or "asymmetric" type.

It should be noted that the earlier types of distributor, namely those bearing the Service No. 404425 on the 1½ litre Riley and 405546 on the 2½ litre Riley, are of the "symmetric" or "asymmetric" type.

Fig. C.18.

The three types of distributor cam. The correct contact breaker gap for the "symmetric" and "asymmetric" types is ·010 in. to ·012 in. (·25 mm. to ·30 mm.) and for "high-lift" type ·014 in. to ·016 in. (·36 mm. to ·41 mm.).

Section C.14

VACUUM CONTROLLED DISTRIBUTORS (2½ LITRE)

Distributors with a vacuum controlled advance unit introduced on the 2½ litre engine commencing at No. RMB.2/1288 or RHD cars and at RMB.2/1316 on LHD cars.

The new distributor is interchangeable with the old as a set with the carburetters as follows :—

Old Part	*Description*	*Qty.*	*New Part*
166182	Distributor ...	1	166250
166169	Pinion—distributor	1	166251
—	Auto-ignition pipe ...	1	166249
—	Nut—union	2	166252
—	Olive	2	166253
S.526	Carburetter ...	1 pr.	166348
166175	Control lever ...	1	166293