SECTION C

THE IGNITION EQUIPMENT

Description and Specification of Equipment.

GENERAL DESCRIPTION

The coil ignition equipment is provided with an automatic advance mechanism which relieves the driver of the necessity of adjusting the timing. The advantages are particularly evident when accelerating and during hill climbing, since the danger of knocking or pinking through excessive advance is very much reduced.

The automatic advance device is housed in the distributor unit, and consists of a centrifugally operated mechanism by means of which the ignition is advanced in proportion to the engine speed.

Like the rest of the electrical equipment, it is wired on the "positive earth" system, which results in longer sparking plug life.

Distributor type

The distributor is a Lucas Model DKY4A, Service No. 40162 on early models and No. 40162E on later models with high-lift cams. (See Section C.14.) In "**TF**" engines the service number is 40367A. These identification marks are stamped on the side of the distributor. When ordering replacements, always quote these numbers.

Ignition coil type

The coil is a Lucas Model Q12, Service No. 45020. These identification marks are stamped on the base of the ignition coil. When ordering, always quote these numbers.

Sparking plugs

The standard sparking plugs for the M.G. "**TD**" Midget on engines prior to No. XPAG/TD2/22735 are Champion L.10S, 14 mm., $\frac{1}{2}$ in. reach.

Engines from No. XPAG/TD2/22735 onwards are fitted with the Champion NA.8, 14 mm., $\frac{3}{4}$ in. reach plug.

Section C.1

LOCATING THE CAUSE OF UNEVEN FIRING

To test with sparking plugs in position

(*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 screwdriver with a wooden or insulated handle 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. (4·8 mm.) from the cylinder head.

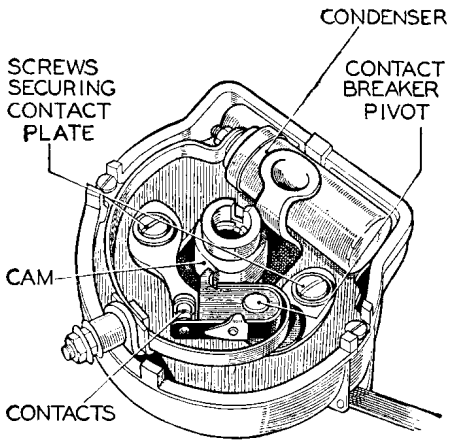

Fig. C.1.
The distributor with the cover and rotor arm removed, showing the contact breaker mechanism.

(*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. (See Section C.4.)

(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 affected. A replacement distributor cap must be fitted in place of one that has become tracked.

Section C.2

TESTING LOW-TENSION CIRCUIT

Low-tension circuit. Testing in position

(*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.) on distributors No. 40162D and ·014 in. and ·016 in. (·36 mm. and ·41 mm.) on distributors 40162E onwards. Correct the gap if necessary. (See Section C.14.)

(*c*) Disconnect the cable at the contact breaker terminal (CB) 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.

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*) Refer to the wiring diagram and 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 terminal.* Connect a voltmeter between the starter switch terminal

and a good earthing point. No reading indicates a damaged cable or loose connections.

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

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

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

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

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

(*j*) *Lighting and ignition switch terminal* "IG." Connect voltmeter to "IG" terminal on switch and earth. No reading indicates fault in switch, which must be renewed.

(*k*) "IG" *terminal to control box terminal* "A3" (white lead). Connect voltmeter to "A3" terminal on control box and earth. No reading indicates faulty cable or loose connections.

(*l*) *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 damaged cable or loose connections.

(*m*) *Ignition coil.* Disconnect the cable from the "CB" terminal of the ignition coil and connect a voltmeter to this terminal and to earth. No reading indicates a fault in the primary winding of the coil and a replacement coil must be fitted. If the correct reading is given, remake the connection to the coil terminal.

(*n*) *Ignition coil to distributor* (white with black lead). Disconnect the cable from the low-tension terminal on the distributor and connect the voltmeter to the end of this cable and to earth. No reading indicates a damaged cable or loose connections.

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

Section C.3

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 the cables, thread the knurled moulded terminal nut over the lead, bare the end of the cable for about $\frac{1}{4}$ 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.

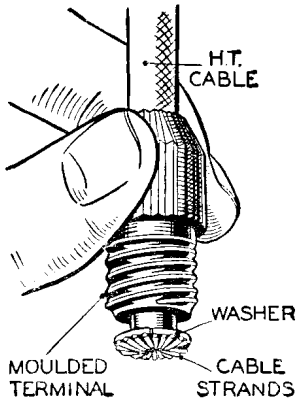

Fig. C.2.
Demonstrates the correct method of fitting the high-tension cable to the moulded terminal nuts of the ignition coil and distributor.

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

Section C.4

ATTENTION TO SPARKING PLUGS

To obtain the best engine performance and the most economical running, the sparking plugs must be kept clean and correctly adjusted. They should be removed and cleaned after the first 500 miles (800 km.) of use in a new engine. This is advisable since the slower engine speeds and the conditions of the "running in" period have a tendency to cause fouling of the plugs.

Plugs should subsequently be removed for inspection, cleaning and adjustment after each period of 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 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 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.

When examining plugs note the condition of their gaskets. A large proportion of the heat from the insulator is dissipated to the cylinder head by means of the copper gasket between the plug and cylinder head. Plugs not screwed down tight become over-heated, causing pre-ignition, short plug life and " pinking."

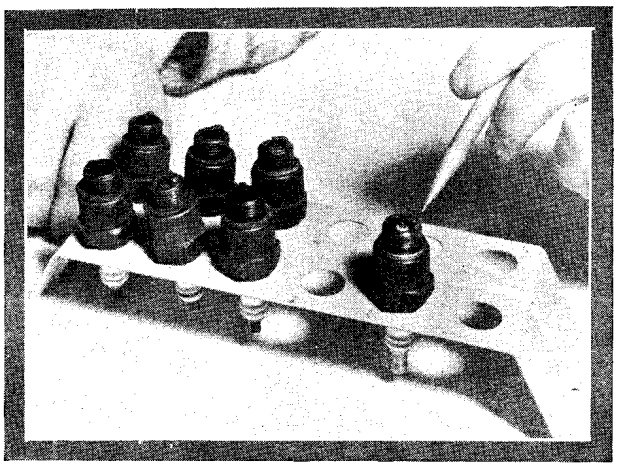

Fig. C.3.
The use of a simple plug stand of the type illustrated is recommended to hold the plugs when they are removed from the engine.

Gaskets in different conditions are illustrated in Fig. C.4. The upper left-hand gasket was obviously not properly compressed, owing to the plug not being tightened down sufficiently.

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 a prolific cause of plug overheating.

The right-hand upper 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 in the lower right-hand corner of Fig. C.4.

If the gaskets are at all questionable they should be replaced by new ones without hesitation.

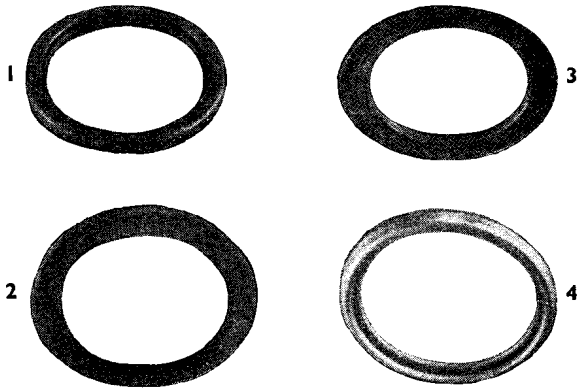

Fig. C.4.
This illustration shows plug gaskets in various conditions —(1) indicating insufficient tightening down of the plug, (2) over-tightening of the plug, (3) correct degree of tightening, (4) new gasket before use.

Plug inspection

After removal of the plug, the condition of the electrodes and deposits on the insulator and plug body should be examined.

1. If the insulator is brown in colour, the electrodes grey and the plug body dry or covered with a thin layer of soot, the engine condition and mixture strength are satisfactory.
2. A dry, greyish-yellow or brown insulator with a thin layer of light fawn powder deposit indicates the use of a leaded fuel or a rich mixture.
3. When the insulator is dry and fawn or white in colour, and the electrodes are corroded and burnt at the tips, the plug temperature is too high. This is caused either through the use of an unsuitable plug ; by a weak mixture ; or by high combustion temperatures.
4. Soot deposits, forming a black velvety coating on the insulator and plug body, show that the plug does not reach a self-cleansing temperature. This may be due to a mixture which is too rich, but if the deposit is wet it indicates that oil is also reaching the combustion space in excessive quantities. Correct operation may be restored by adjusting the mixture, but an overhaul of the engine is necessary to reduce the amount of oil passing the piston.
5. After cleaning, examine the plugs for cracked insulators and the lower end for wear produced through previous cleaning.

Whenever possible, sparking plugs should be cleaned in a special plug cleaner of the type supplied by the plug manufacturer. Oily plugs should be washed with petrol first. A compressed air jet should then be used to remove any abrasive from the interior of the plug body and the insulator. If a plug cleaner is not available, a wire brush is the best substitute. This should also be used to clean any accumulation of carbon from the threads. The thread portion of the plug body is often neglected when cleaning owing to the fact that it is not generally realised that, like the gaskets, the threads are an important means of heat dissipation and that when they are coated with carbon it retards the flow of heat from the plug and leads to overheating.

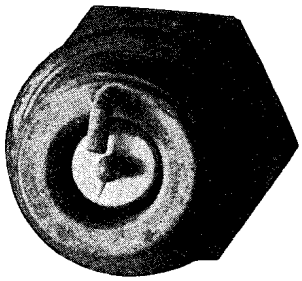

Fig. C.5.
Here is shown a plug with a cracked insulator.

Cleaning the thread will also facilitate refitting of the plug and avoid the use of unnecessary force on the plug spanner.

Having ensured that the plug is thoroughly clean and still serviceable, the electrodes should be reset. A combination gauge and setting tool produced by the makers of Champion sparking plugs greatly facilitates the correct and easy setting of the sparking plug points, but care should be taken to avoid a false reading through distortion of the points by burning.

When resetting the points, the side electrode only should be adjusted to give the correct clearance. **Never bend the centre electrode.**

Champion L.10S or NA.8 plugs are fitted as standard (see page C.1), and their correct spark gap should be set between ·020 in. and ·022 in. (·50 mm. and ·56 mm.).

Remember that electrode corrosion and the development of oxides at the gap area vitally affects the sparking efficiency. The special plug cleaner can remove 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, pressures, explosion shock, and electrical and chemical action to which the plugs are submitted during miles of service are so intense that the molecular structure of the metal of the points is eventually affected. Plugs then reach a worn-out condition where resetting of the points no longer serves a useful purpose and where plug replacement is called for. Every 12,000 miles (20000 km.) new plugs should, therefore, be fitted.

Before replacing a used 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 tester. Generally speaking, a plug may be considered satisfactory for further service if it sparks continuously under a pressure of 100 lb./sq. in. (7 kg./cm.^{2}) with the gap between the points set at ·022 in. (·56 mm.). It is essential that the plug points then be reset to the smaller gap of ·020 in. (·50 mm.) before the plug is refitted to the engine.

While the plug is under pressure in the tester it should be inspected for leakage by applying oil round the terminal and insulator. Leakage is indicated by the production of air bubbles, the intensity of which give an indication of the degree of leakage.

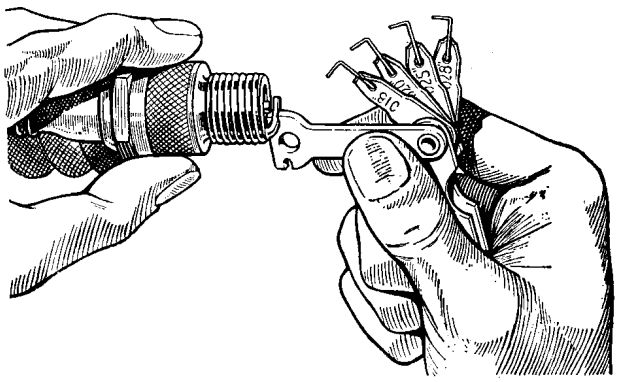

Fig. C.6.
Adjustments to the spark plug gap should be made only by bending the side wire, preferably by using a proper setting tool such as the " Champion " setting tool here illustrated.

The leaking gases have a " blow-torch " effect when the engine is running which rapidly raises the temperature of the plug to above its heat range, thus producing overheating, pre-ignition, and rapid electrode destruction.

The top half of the insulator is also frequently responsible for poor plug performance due to the following faults : splashes, accumulation of dirt or dust, cracked insulators (caused by a slipping spanner), overtightness of the terminals. Examine for a cracked insulator at the shoulder and the terminal post and remove any accumulations of dirt and dust.

Since each engine design has its own particular working temperature and pressure inside the cylinder, it is essential that only sparking plugs recommended by The M.G. Car Company Ltd. be used. A plug designed for a hot dry engine will not function satisfactorily in relatively cool oily engines, as it will constantly oil up and cause trouble. On the other hand, a plug suitable for the oily engine will not function in the hot type engine as the points will overheat and cause pre-ignition.

The threaded portion or " reach " of the plug is also important since it determines the position of the points in the combustion chamber and may produce pre-ignition if the threads on the plug body protrude beyond the cylinder head.

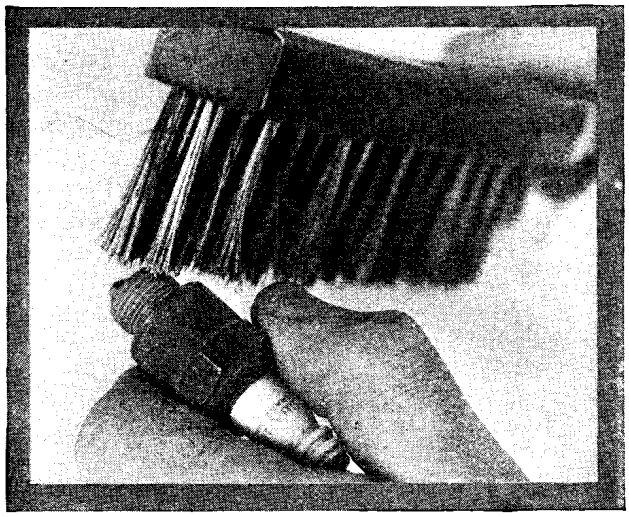

Fig. C.7.
The plug threads should be cleaned with a wire brush to remove deposits on the thread.

Section C.5

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.) on early models. (See Section C.14 for later models.) 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.

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.

Remember that the cam only keeps the contact points fully open over 10° and that care must be taken to ensure that the points are in the fully open position.

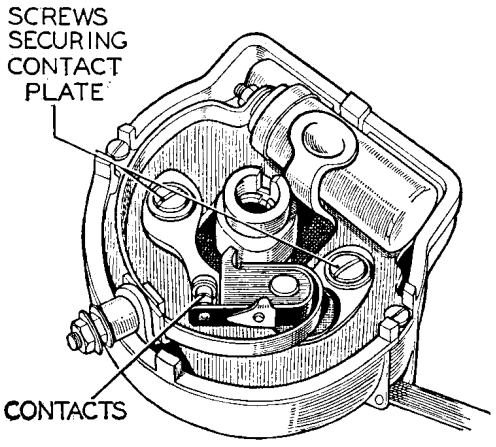

Fig. C.8.
The contact breaker, showing the adjusting screws.

(*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.9). Check and adjust the contact breaker setting after cleaning the contacts.

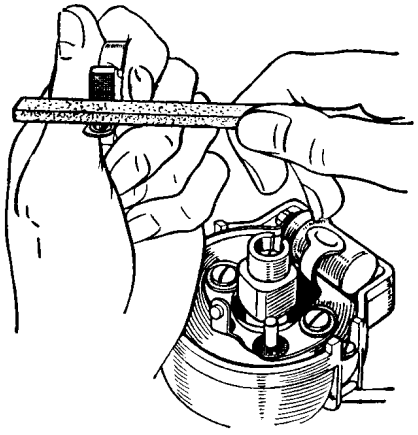

Fig. C.9.
The distributor points are best cleaned by removing the rocker-arm from its pivot and dressing the points with a stick of carborundum as shown.

(*c*) 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 clean off all trace of emery dust and apply a spot of clean engine oil to the top of the pivot.

The contact breaker spring tension should be between 20 and 24 oz. (567–680 gm.) measured at the contacts.

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 contact breaker lever pivot pin.

(*b*) Lift the rotor arm off the top of the spindle and add a few drops of thin machine oil through the lubricating passage provided in the spindle

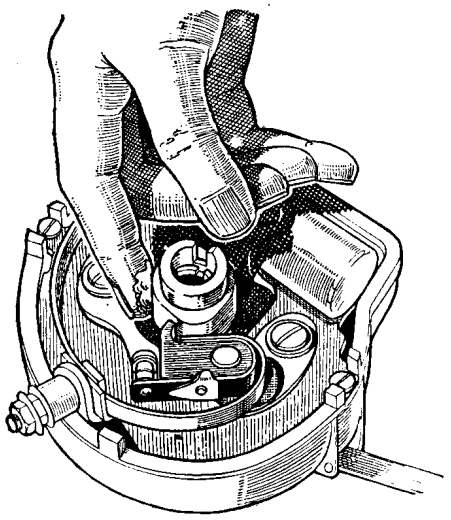

Fig. C.10.
Every 3,000 miles (5000 km.) the cam may be given a slight smear of grease or engine oil in the manner shown.

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 onto the shaft as far as it will go.

(*c*) Add a few drops of thin machine oil through the hole in the contact breaker base through which the cam passes, in order to lubricate the automatic timing control. Do not allow any oil to get on or near the contacts.

Section C.7

REMOVAL OF THE DISTRIBUTOR

Disconnect the low-tension lead from the terminal on the side of the distributor body. Spring back the two retaining clips and lift off the distributor head, which can be lodged on the cylinder block. To facilitate replacement turn the engine over until the rotor arm is pointing to the segment in the cover for No. 1 cylinder plug lead.

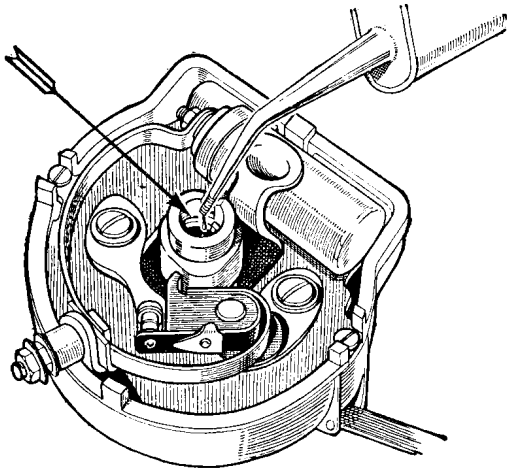

Fig. C.11.
The cam bearing is lubricated through the opening revealed when the distributor rotating arm is withdrawn. Thin machine oil should be used.

Remove the locking wire from the dowel bolt holding the clamp plate to the cylinder block on earlier models and take out the bolt. Disconnect the bonding wire from the cylinder block to the clamp and then the distributor can be lifted straight up. In the case of later models with cotter bolt attachment it is first necessary to mark the base of the distributor body and the face of the housing in the cylinder block to ensure correct replacement before unscrewing the cotter bolt locknut one or two turns and carefully tapping it inwards to release the distributor body stem.

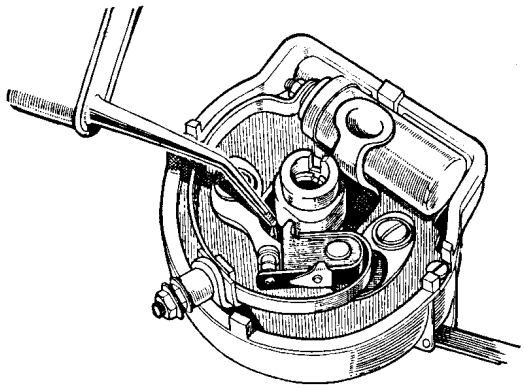

Fig. C.12.
The advance control mechanism is lubricated through the aperture round the cam spindle. Take care no oil finds its way onto the contact points.

Provided the engine is set as indicated and not disturbed subsequently no difficulty will be encountered in correctly timing the spark when the distributor is replaced as indicated in Section C.8.

Section C.8

IGNITION TIMING ADJUSTMENT AND REPLACEMENT OF THE DISTRIBUTOR

When the distributor has been removed, it must be retimed on replacement. It should be set with points just breaking at T.D.C. To do this proceed as follows :—

Set the engine with the Nos. 1 and 4 cylinders on top dead centre (see Fig. C.13).

Examine the valves to see which of the previously mentioned cylinders is starting its firing stroke.

Turn the distributor until the rotor is facing the appropriate segment (i.e. the segment connected to the high-tension cable leading to the same cylinder), and insert the distributor in its housing, "feeling" it in so that the nearest tooth is engaged. Turn the body about until the locking screw will enter, and lock it.

Set the contact points to ·012 in. (·3 mm.) (see Section C.14), and check that the hole in the crankshaft pulley still coincides with the arrow on the timing

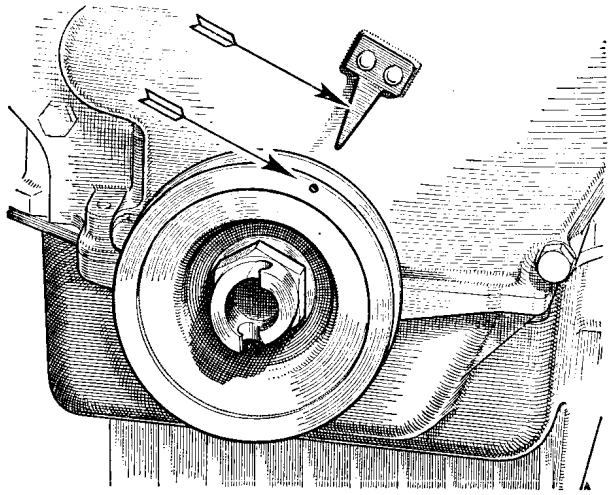

Fig. C.13.

The timing mark on the rim of the crankshaft pulley and the pointer on the chain case which indicate top dead centre for Nos. 1 and 4 pistons when they coincide.

cover. The contact breaker points should now just be commencing to open. Should this not be the case, release the clamping bolt or cotter bolt at the base of the distributor, turn the distributor anti-clockwise until the points are fully closed, and then turn carefully clockwise until the contact points just commence to open.

Securely tighten the clamp bolt on earlier models or the cotter bolt on the later models.

Re-check timing to make sure that tightening the clamp bolt or cotter bolt has not altered the setting.

Note.—*Before setting the timing, make sure that the automatic advance and retard mechanism is working properly and is in its fully retarded position while the timing is being set.*

Important.—To obtain an accurate setting an electrical method should be used to determine the actual position at which the points break, and the following method can 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

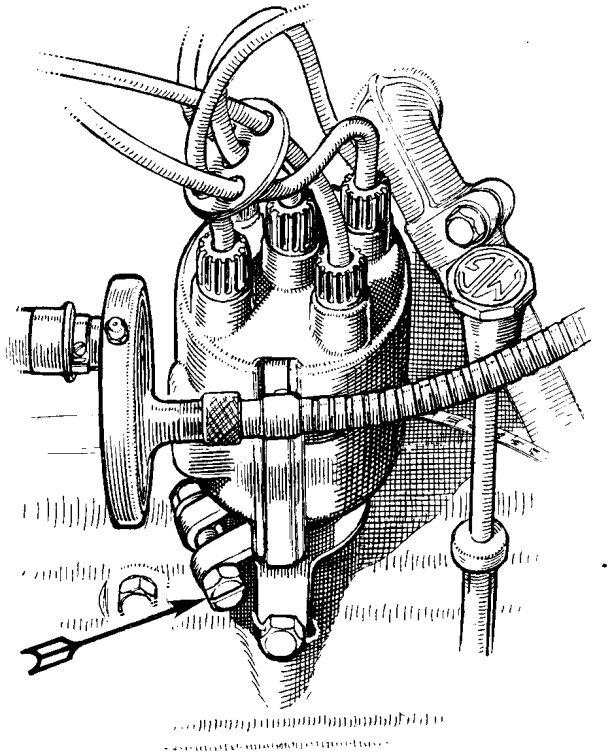

Fig. C.14.

The distributor clamp bolt, indicated by the arrow, permits the distributor body to be rotated independently of the spindle to set the timing of the spark. It should *not* be disturbed unless it is necessary to alter the spark timing. The bolt with the lock wire passing through the plate lug is the one holding the distributor in position and is the only one which should be released when it is desired to withdraw the distributor without disturbing the setting of the timing. Later models are fitted with a cotter bolt attachment as explained in Section C.13.

point (i.e. one lead from the distributor low-tension terminal and the other to earth) and turn the distributor until the lamp lights, which indicates that the points have just opened.

Or

Get a second operator to watch the ammeter and then turn the distributor body, when it will be observed that the small reading recorded on the ammeter when the points are closed "flicks" back to zero immediately 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, then :—

(*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 which is slotted to assist removal. Lift the contact breaker lever off its pivot pin and remove the insulating washer. Take out the two screws, complete with spring washers and flat steel washers, from the plate carrying the fixed contact and remove the plate.

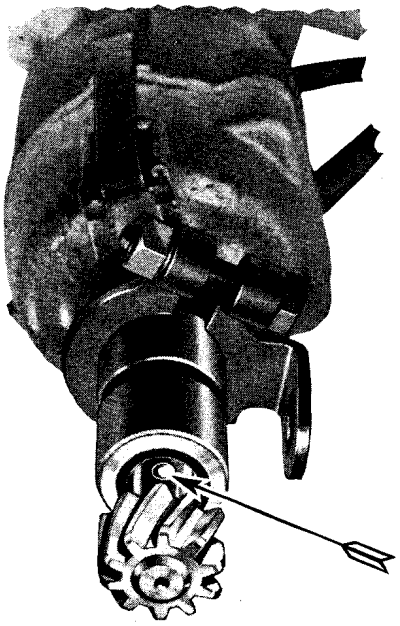

Fig. C.15.
The parallel driving pin locating the driving collar to the contact breaker spindle is here shown.

(*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 condenser terminal nut, lift off the spring washer and remove the connector strip. Soften the solder securing the condenser in its clip with a hot iron, and remove the condenser by applying pressure at one end.

Note.—*The condenser should not be removed unless absolutely necessary.*

(*f*) Drive out the parallel driving pin passing through the collar of the driving gear at the lower end of the spindle, and withdraw the driving gear from the spindle, taking care of the washer between the gear and the spindle which controls the end float.

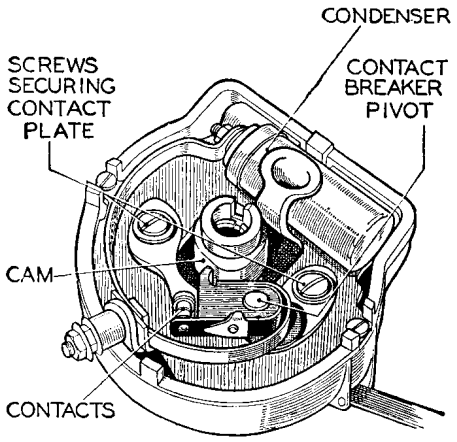

Fig. C.16.
The distributor with the cover and rotor arm removed, showing its components.

(*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 breaker plate assembly, but should a condenser only be available, use a hot iron to soften the solder securing the defective condenser in the clip and remove the condenser by applying pressure at one end. Care must be taken not to overheat the new condenser when soldering it in position.

The capacity of the condenser is 0·2 microfarads.

Section C.11

FITTING NEW DISTRIBUTOR BUSHES

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.

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

(*b*) 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 to Ref. F (page P.2).

(*c*) 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.

(*d*) 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.

(*e*) After fitting, the bushes must not be opened out by reaming 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 assembly, 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 to Ref. F (page P.2).*

(*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 shank in its bearings and replace the driving gear, with the special thrust washer between the gear and the distributor body. Fit the driving pin and burr over the gear each side with a suitable punch to retain it in position.

(*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

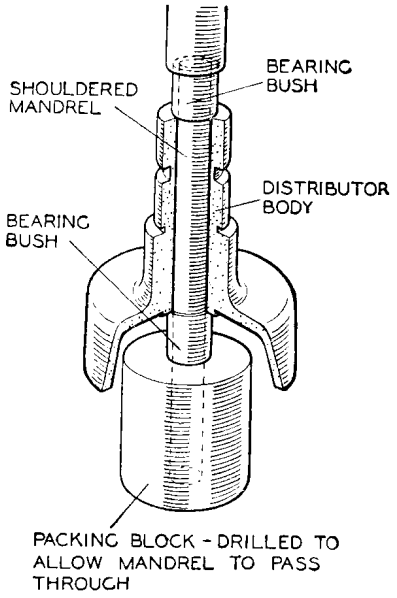

Fig. C.17.
Replacement of bearing bushes.

washer under the head 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 slotted 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.*

(*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.

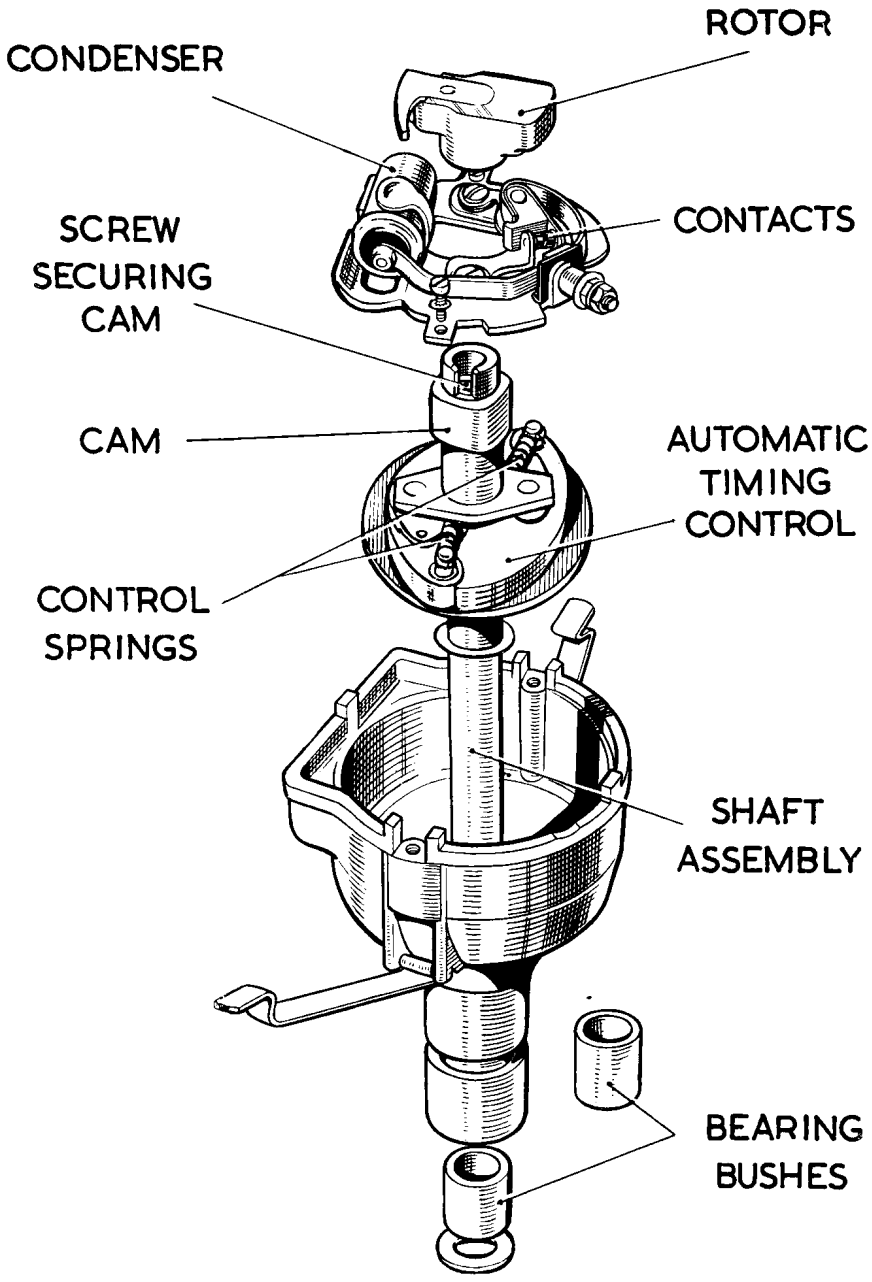

Fig. C.18.
The component parts of the distributor

Section C.13

MODIFIED DISTRIBUTOR FIXING

A new standardised method of distributor fixing has been incorporated in all M.G. Midget (Series **"TD"**) cars, commencing at Engine No. XPAG/TD2/20942, and all Series **"TF"** cars.

The modified fixing consists of a tapered cotter bolt passing through the distributor housing boss in the cylinder block and contacting the stem of the distributor, and it replaces the split adjusting clip hitherto employed.

Distributors using the cotter pin attachment are released by slackening the cotter bolt inwards to free its tapered surface from the stem of the distributor.

While the location of the distributor rotor will not be disturbed owing to the action of the offset driving tongue, release of the distributor body and stem will affect the ignition point, and it is therefore essential to mark the distributor body and the face of its housing before removal to ensure correct ignition timing on replacement. The distributor housing face is marked with a scale to facilitate this.

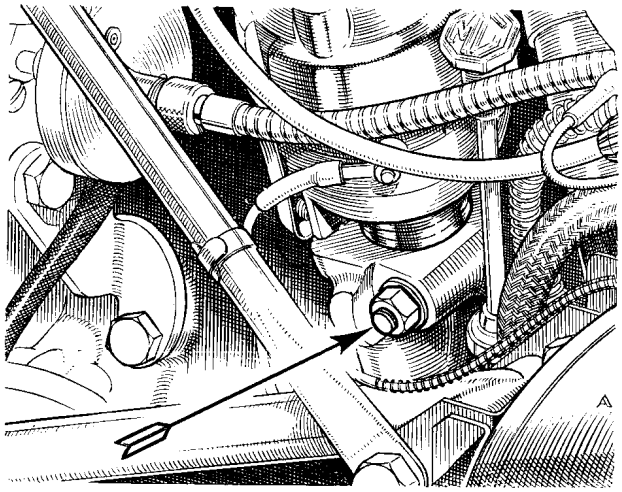

Fig. C.19.
The later type fixing for the distributor, consisting of a cotter bolt engaging the distributor body stem.

Section C.14

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 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 of the contact points is only obtained over a small angular movement of the distributor shaft.

All three types of cam are illustrated in Fig. C.20. Apart from the appearance of the cams, distributors fitted with high-lift cams can be identified by reference to the suffix letter which follows the Service No. Distributors bearing the suffix "E" or any letter subsequent to "E" after the Service No. 40162 are fitted with high-lift cams, and those with suffix letters previous to "E" are of the symmetric or asymmetric type.

Fig. C.20.
The three types of distributor cam.

The contact breaker setting for the symmetric and asymmetric types is ·010 in. to ·012 in. (·25 mm. to 30 mm.) gap, and for the high-lift type is ·014 in. to ·016 in. (·36 mm. to ·41 mm.).