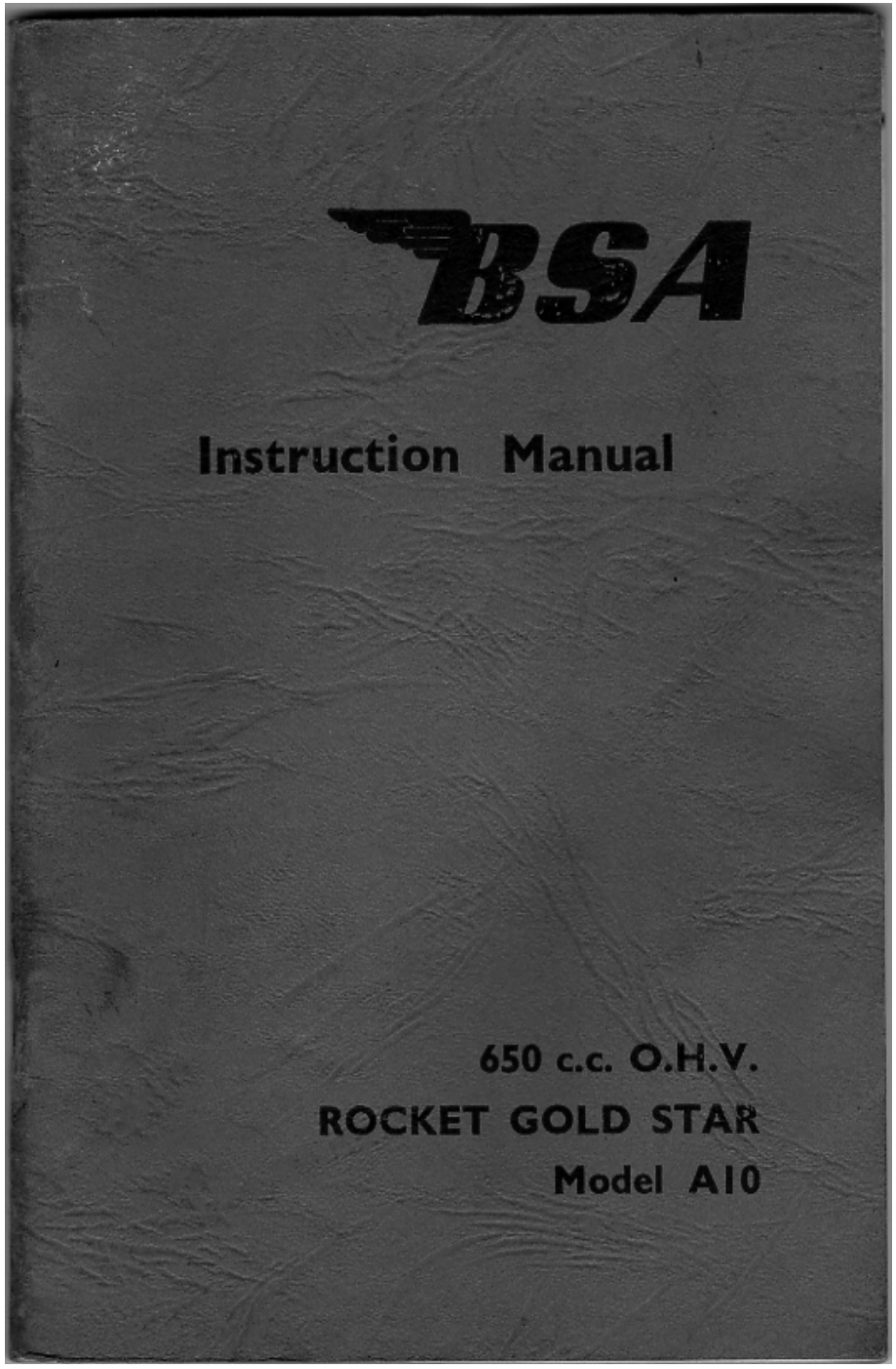
BSA
Instruction Manual
650 c.c. O.H.V.
ROCKET GOLD STAR
Model A10

INSTRUCTION MANUAL

for

BSA

A10 650 c.c. O.H.V.

ROCKET GOLD STAR

B.S.A. MOTOR CYCLES LTD., ARMOURY RD., BIRMINGHAM 11

Telephones: Birmingham VICtoria 2381
Telegrams and Cables: "SELMOTO," Birmingham

SERVICE, SPARES AND REPAIRS DEPARTMENT

Telephones: Birmingham VICtoria 2381
Telegrams and Cables: "SELMOTO," Birmingham

28/-

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This Instruction Manual is intended to acquaint the B.S.A. owner with details of the controls, general maintenance and technical data which may be required for normal operation of the machine.

It does not contain the information necessary to carry out complete stripping for major overhauls, but if any owner feels he is competent to carry out this type of work a Service Manual and an illustrated Spares Catalogue for this machine can be obtained from his B.S.A. Spares Stockist or local distributor.

Owners in the British Isles can obtain these publications direct from B.S.A. Motor Cycles Ltd., Service Dept., Armoury Road, Birmingham 11. The Service Manual is priced at seven shillings and sixpence, plus sixpence postage, and the Spares Catalogue is five shillings and sixpence, plus sixpence postage. Always quote full engine and frame numbers when ordering these publications.

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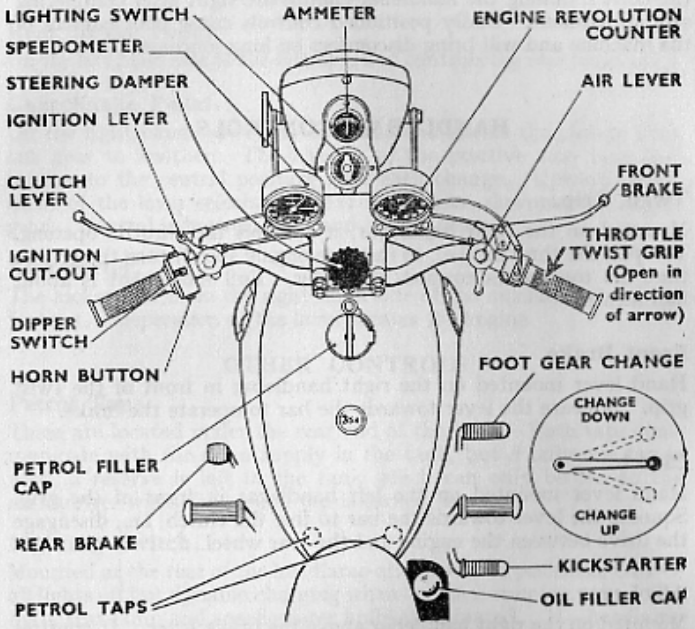


Fig. 1. The Controls.

TAKING OVER THE MACHINE

Before running the machine make sure that the oil tank, gearbox, primary chain case and front forks are properly topped up with oil and that the battery is filled and charged. (See appropriate chapters for filling instructions.) Normally these preparations will be carried out by the dealer who is selling the machine and the new owner has only to arrange the controls to his liking and the machine is ready for the road.

The Controls.

The new rider should make sure that he is quite familiar with all the controls before attempting to ride the machine. Most of the controls are adjustable and should be positioned so that they can be reached without moving the hands from the grips or the feet from the footrests. Handlebars and footrests should be adjusted so that a comfortable and natural riding position is achieved. Make sure that

the bolts retaining the handlebar clamps are tight after completing any adjustment. Badly positioned controls cause poor control of the machine and will bring discomfort on long journeys.

HANDLEBAR CONTROLS

Twist Grip.

Mounted on the right handlebar, it controls the throttle opening. To open the throttle (i.e., to increase engine speed) turn the grip so that the top moves towards the rider. Full movement is about half a turn.

Front Brake.

Hand lever mounted on the right handlebar in front of the twist grip. Squeeze the lever towards the bar to operate the brake.

Clutch.

Hand lever mounted on the left handlebar in front of the grip. Squeeze the lever towards the bar to free the clutch, i.e., disengage the drive between the engine and the rear wheel.

Air Lever.

Mounted on the right handlebar above the brake lever. It controls an air valve in the carburetter by means of a Bowden cable. The air valve should be closed when starting with the engine cold.

Ignition Lever.

Mounted on top of the left handlebar and controls the amount of ignition advance and retard.

Ignition Cut-out.

The control button (red) is situated on the dipswitch assembly. Pressure on this for a second stops the engine.

Horn.

The horn button (green) is mounted on the left handlebar in a combined mounting with the headlamp dipper switch.

Headlamp Dipper Switch.

On the left handlebar it controls the switching from main to dipped headlamp bulb filaments.

FOOT CONTROLS

Rear Brake Pedal.

On the left hand side of the machine and controls the rear brake only.

Gearchange Pedal.

On the right hand side of the machine and effects the change from one gear to another. The lever is of the positive stop type and returns to the central position after each change. Upward movement of the lever selects the next lower gear, downward a higher gear. Neutral is between first and second gear.

Kickstarter.

The kickstarter is on the right hand side of the machine behind the footrest. Depression of the lever rotates the engine.

OTHER CONTROLS

Petrol Taps.

These are located under the rear end of the tank. Both taps communicate with the main supply in the tank, but if only one tap is used, a reserve is left in the tank which can only be fed to the carburetter when the second tap is turned on.

Lighting Switch.

Mounted at the rear of the headlamp and has three positions, OFF—all lights off but dynamo charging when engine is running. L—pilot bulb, rear lamp and speedometer bulbs illuminated. H—headlamp bulb, rear lamp and speedometer bulbs illuminated and the switching from main to dipped beam controlled by the dip switch.

Ammeter.

Mounted on top of the headlamp and indicates the rate at which current flows into or out of the battery.

Speedometer.

Mounted on the top fork yoke. The trip mileage recorder can be turned back to zero by pulling out the spring-loaded flexible control and turning it in a clockwise direction.

Steering Damper.

Situated above the steering column at the centre of the handlebars. Tightening down the knob increases the friction damping.

Carburetter Tickler.

This is a small plunger in the top of the carburetter float chamber. Pressing it down pushes down the float and frees the needle valve thus permitting the carburetter to receive excess petrol.

To Start the Engine.

Stand astride the machine. Make sure that the gearbox is in neutral, i.e., between first and second gear. If the machine is in gear it will move forward as the kickstarter is pushed down.

If the engine is cold, first depress the carburetter tickler momentarily and retard the ignition slightly. Close the air lever, open the twist grip a small amount, and give the kickstarter pedal a firm downward swing.

Note that while it is necessary to close the air lever when starting from cold, this may not be necessary when the engine is warm, and should certainly not be so if a restart is made after a short wait only. On some occasions, such as when the engine is not fully warmed up, or when it has cooled down a little during a temporary halt, for instance, it may require the air lever to be partly closed for starting, and the rider is advised to study this point.

During normal running the air lever should always be kept fully open, and the ignition lever advanced as far as possible, although a slight gain in power at low speeds on hills may sometimes be obtained if both levers are eased back a very small amount.

To Engage First Gear.

With the engine idling slowly disengage the clutch by pulling in the handlebar lever and, after a moment, lift the gear lever as far as it will go so that first gear is selected. If the lever will not move through its full travel and the gear does not engage, move the machine backwards and forwards slightly maintaining a light pressure on the lever until the gear is felt to engage.

Open the throttle slightly and gently release the clutch lever until the clutch can be felt to take up the drive. Open the throttle a little more and very slowly release the clutch as the machine moves away. Do not rev the engine excessively or allow the clutch to slip for longer than is necessary to get the machine away in first gear.

To Change Gear (Up).

Close the throttle, disengage the clutch and press the gearchange pedal downwards as far as it will go. All these operations should be performed simultaneously. Immediately after changing gear, re-open the throttle and re-engage the clutch. Violent pressure on the gear lever is not desirable and a smooth firm movement of the pedal is most effective. After a little practice, smooth and quiet gearchanges will be possible at all times.

To Change Gear (Down).

Open the throttle slightly, disengage the clutch and draw the gearchange lever upwards to its limit, all these operations being performed simultaneously. Return the throttle to its original position and re-engage the clutch as soon as the gear change has been completed.

To Select Neutral.

Neutral is situated between first and second gear. To select neutral from first gear, with the clutch withdrawn push the gearchange pedal down gently until it is felt to click into position. If the lever is pushed down too far it will travel through to second gear. To select neutral from second gear, pull the lever up until it is felt to click into position.

Riding Hints.

Avoid violent acceleration and braking, particularly on wet roads. Always use both brakes together and apply them smoothly and progressively. Try to anticipate the need to change gear or brake, so that your riding is not jerky or untidy. Maintain a natural riding position as this provides maximum control and prevents discomfort on long journeys.

Running-in

The rider who has just purchased a new machine will do well to remember that all the internal parts are just as new as the enamel and plating which can be seen, and they must be well "run-in" before the engine can be given any really hard work.

The "running-in" process is the most important period in the life of the engine, and the handling it receives during the first 1,000 to 1,500 miles will determine the service it will provide in return.

It is advisable not to exceed one-third throttle in any gear during the early stages. If excessive speeds are used there is the risk of piston seizure and other troubles, and in any event until the machine has been "run-in" it cannot be expected to give its best performance. In particular, avoid rapid acceleration, and do not allow the engine to labour on hills in a high gear when a change to a lower gear would ease the load.

As the mileage builds up the permitted throttle opening may be increased until, when the "running-in" process has been completed, full throttle can be employed.

Do not let the oil level in the tank get too low, as economy in oil may prove very expensive at a later date. Running consistently with the oil level too low may cause the oil to become unduly hot. It must be remembered that the oil cools as well as lubricates, and a new engine tends to run a little hotter than one that is well "run-in". After the first 250 miles, drain and refill the oil tank with fresh oil and clean the filters. Repeat this process after 1,000 miles, and thereafter every 2,000 miles. The correct grades of oil are given in the lubrication chart. The oil in the gearbox should also be changed at 500 miles and further changes made every 2,000 miles.

During the "running-in" period it is advisable to check the various adjustments such as tappet clearances, contact breaker gap, clutch

adjustment, etc., rather more frequently than usual, and to check the tightness of all nuts and bolts to make sure that the initial bedding down does not loosen any components.

It is a good idea to add a small quantity of upper cylinder lubricant to the petrol each time the tank is replenished. If this is difficult, add about an eggcupful of engine oil to every two gallons of petrol.

Routine Maintenance.

To keep the machine in good condition and provide trouble-free running, maintenance must be regularly carried out. The following list of items requiring regular attention will serve as a guide to the periods between servicing and the method of carrying out the various adjustments will be found under the appropriate headings in the later chapters.

Weekly.

Check tyre pressures and remove any embedded stones or pieces of metal.

Oil all exposed joints and cables.

Examine the battery and top-up if necessary. More frequent examination is advisable in a hot climate.

Every 300 Miles.

Check oil levels in oil tank, gearbox and primary chaincase and top-up if necessary.

Every 1,000 Miles.

Grease clutch arm, central stand.
Grease brake cam spindles.
Check rear chain adjustment, and lubricate.
Check brake adjustment.

Every 2,000 Miles.

Grease rear hub and 8 in. dia. front hub.
Grease brake cam spindles (front hubs).
Oil brake cam spindles (rear hub).
Change the engine oil and clean the filters.
Change the oil in the gearbox.
Check primary chain adjustment.
Check tightness of all nuts and bolts.

Every 3,000 Miles.

Check contact breaker adjustment and apply a few drops of light machine oil to the felt pad.

Cleaning.

Take care when cleaning the machine that dirt is not introduced into the carburetter, hubs, magneto, etc. Do not attempt to rub off dry dirt or mud as this will damage the enamel. Wash off any dirt with a copious supply of clean water, preferably from a hose. Any oily areas should be treated with a detergent before being hosed down. Dry the machine with a piece of clean rag and, if possible, clean it on a warm dry day so that all moisture is removed before polishing with a good wax polish. Exposed threads and controls which might suffer from rusting should receive a smear of oil to protect them.

Maintenance and Overhaul.

Whenever any work is carried out on the machine attention to detail and scrupulous cleanliness must be observed. All joints must be clean and gaskets in good condition before re-assembly. Threads must be kept clean and free from grit. and exposed threads should be oiled or greased before assembly. Good fitting spanners should be used at all times and nuts must be done up quite tight, but spanners of greater than standard length should not be employed as they may cause failure through over-tightening.

ENGINE

Lubrication System.

The lubrication system is of the dry sump type and is operated by a double gear pump situated in the bottom of the timing case (see Fig. 3). The oil tank capacity is 5½ pints. Oil is drawn from the oil tank through the wire mesh filter as illustrated in Fig. 2, to the supply pump (smaller set of gears). It is then pumped past the non-return valve to the timing side main bearing and thence to the hollow crankshaft and the big-end bearings, whilst a further oilway supplies oil via a pressure control valve to the timing gears and camshaft trough.

After lubricating the engine the oil drains down through a filter to the bottom of the crankcase, from which it is drawn by the return pump (larger set of gears), past the anti-syphon ball valve and delivered up the return pipe to the tank. At the junction of the return pipe with the tank a by-pass pipe leads a supply of oil to the rocker gear. The surplus oil from the rockers flows down the push rod tunnel back into the crankcase.

If the ball valve (A) does not seat properly, the big-ends may not receive an adequate supply of oil. Remove the valve periodically and thoroughly clean the ball and its seat. If the latter appears unsound, replace the ball on its seat and give it a sharp tap with a light hammer and a suitable punch to ensure that it has properly bedded down.

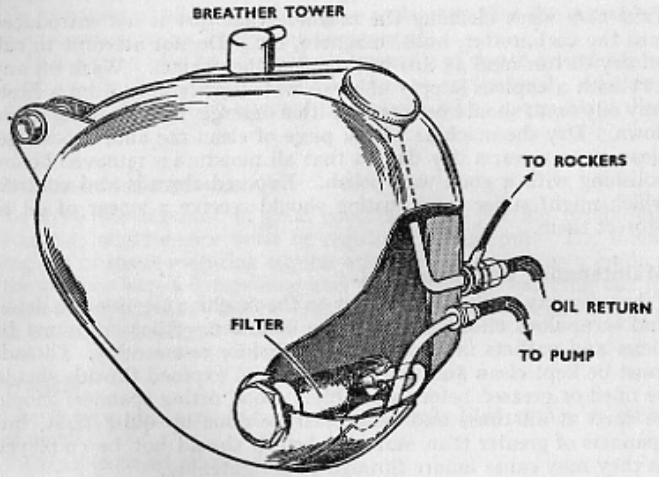


Fig. 2. The Oil Tank.

If the anti-syphon ball valve should get stuck in its seating, there will be no return of oil to the tank. To rectify this remove the cover plate, insert a piece of wire into the valve orifice, and lift the ball off its seating to free it. To check the flow of oil in the lubricating system, remove the tank filler cap whilst the engine is running. Oil should be seen issuing from the return pipe just inside the filler cap.

The oil tank filter is attached to the large chromium plated nut screwed into the outside of the oil tank. When the filter requires cleaning this nut should be unscrewed and the filter washed in petrol. Make sure that all the petrol has evaporated from the filter before replacing.

The pump filter can be withdrawn after removing the crankcase cover plate and should be thoroughly washed with petrol, dried and replaced. The oil pump is extremely reliable and it is most unlikely that it will give trouble, therefore it should not be disturbed unnecessarily. The pump is held in position by the two bolts with spring washers under their heads. The two other bolts hold the sections of the pump together.

Oil Changes.

The oil should be changed every 2,000 miles. To drain the oil, remove the filter in the side of the oil tank by unscrewing the large hexagonal cap. The oil remaining in the crankcase can be drained

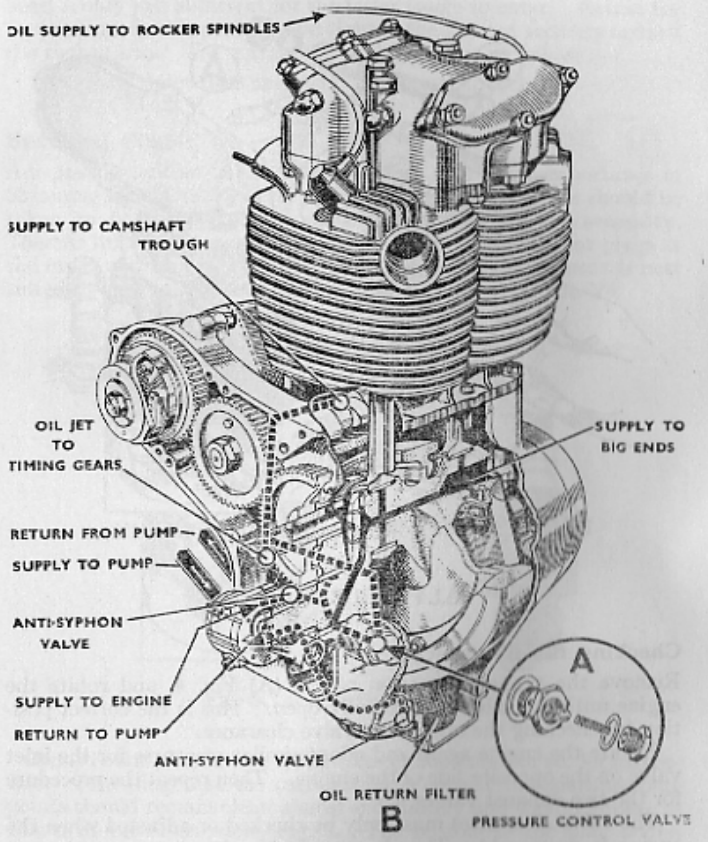


Fig. 3. Lubrication System.

by removing the crankcase bottom cover plate which is retained by four studs. Removal of this cover plate allows access to the crankcase filter which can be withdrawn for cleaning. The filters should be washed thoroughly in petrol and allowed to dry completely before being replaced. When replacing filters make sure that they engage correctly with the feed pipes which pass through them. Whenever possible the oil should be drained when the engine is warm, as the oil will then flow more freely.

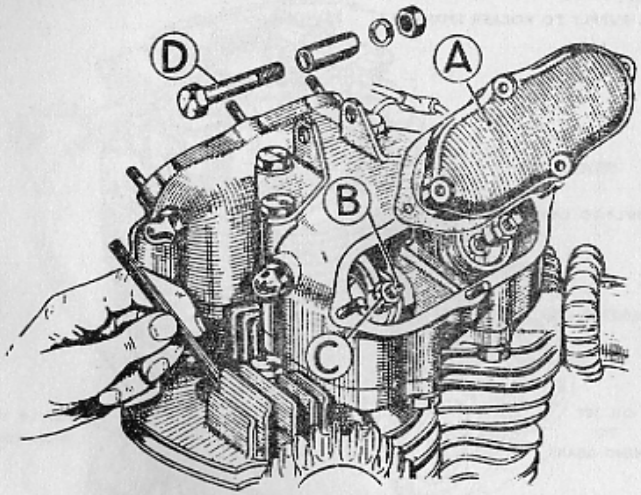


Fig. 4. Tappet Adjustment and Ignition Setting.

VALVE CLEARANCES

Checking the Clearances.

Remove the tappet inspection covers (A) Fig. 4, and rotate the engine until one inlet valve is fully open. This is the correct position for checking the other inlet valve clearance.

Rotate the engine again and adopt similar measures for the inlet valve on the opposite side of the engine. Then repeat the procedure for the two exhaust valves.

The valve clearances must only be checked or adjusted when the engine is quite cold. The clearances are critical and no attempt should be made to experiment with different settings as damage to the engine may result.

How to Adjust the Clearance.

The adjusters which are of the screwed type, are on top of the rockers immediately above the valves. The clearance is measured by means of feeler gauges inserted between the valve stem and the screw (B) Fig. 4.

If adjustment is necessary, hold the tappet head (B) and slacken the locknut (C). The tappet head (B) should then be moved up or down until the space between the end of the valve stem and tappet

head is only just sufficient for the feeler gauge to enter. Retain the tappet head in this position and tighten the locknut securely against the rocker arm. The correct valve clearance is as follows:—

Inlet .008 in. Exhaust .010 in.

Sparking Plugs.

Adequate attention to the sparking plugs is of great importance in obtaining satisfactory engine performance, and every care should be taken to fit the correct type when replacements are necessary. There is little to be gained by experimenting with different plugs as the make and type fitted by us as official factory equipment is best suited to the requirements of the engine. Use Champion N4.

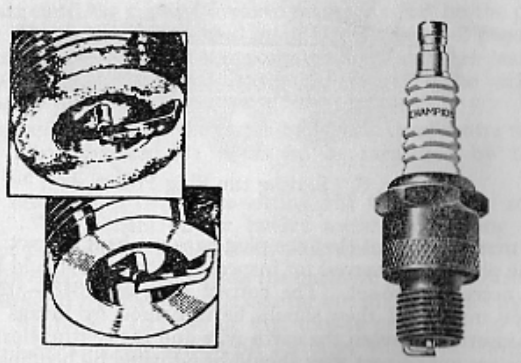


Fig. 5. The Sparking Plug.

Remove the plugs every 1,000 miles (1,500 kms.) or so, for inspection. Providing that the carburation is correct the sparking plug points should remain clean almost indefinitely and should appear as shown in the lower view, Fig. 5. The bottom of the plug bodies should remain a smooth black and the central insulation should retain its natural colour. If the mixture is too rich, a sooty deposit will form on the body of the plugs as in the upper view of Fig. 5, but a weak mixture will cause the end of the plugs to go white. A heavily leaded fuel may cause a greyish deposit to form on the plugs and excess oil will show its presence by a shiny black deposit and gum.

A light deposit due to any of these causes can be easily removed by cleaning the plugs on a proper air blast unit such as is to be found at most garages, but if it is found necessary to clean the plugs frequently the cause should be investigated. If the deposit is allowed to accumulate, particularly inside the plug bodies, the plugs may

spark internally with an adverse affect on performance and it may even stop the engine altogether. If eventually the cleaning process fails to restore the plugs to their original efficiency, then new ones should be fitted.

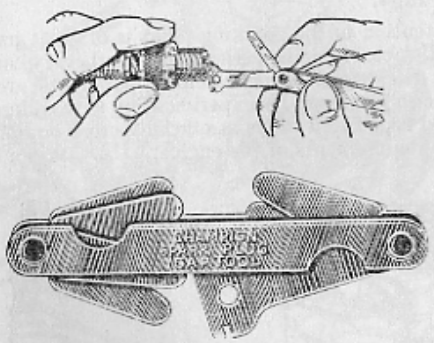


Fig. 6. Setting the Plug Points.

It is most important that the plug gaps are kept correct. Whenever the plugs are removed for inspection, the gaps should be tested and if necessary, re-set. The correct gaps are .018—.020 inches (.45—.50 mm.) and they should be measured by means of feeler gauges inserted between the earth wire and the central electrode. If the gaps are not correct they should be adjusted by bending the side wire, but in no circumstances must any attempt be made to bend the central electrode as this will damage the insulation and make the plugs ineffective.

The gaps are most easily adjusted with the aid of the special tool illustrated in Fig. 6, which also has feeler gauges attached to assist in measuring the plug gaps. This tool is obtainable from any Champion Plug stockist or from the Champion Sparking Plug Co. Ltd., Feltham, Middlesex.

Before replacing a plug make sure that the threads are clean and that the copper washer is in good condition. If it has become worn or badly flattened, a new one must be fitted to ensure a gas-tight seal. Screw the plug in as far as possible by hand, then use a tubular box spanner for final tightening, to avoid the possibility of damage to the insulator. In no circumstances should an adjustable spanner be used.

The insulation on top of the plugs should be wiped clean before replacing the caps, and then finally, the caps themselves should be wiped to remove dirt and grease.

Ignition Timing.

It is unlikely that the ignition timing will alter but if for any reason it is found necessary to check or re-set the ignition timing, it is advisable first to check the magneto contact breaker gap and, if necessary, re-adjust as described on page 44.

To check the timing, remove the sparking plugs and the magneto end cover. Insert a slim rod through the right-hand sparking plug hole to feel the top of the piston. Rotate the engine until the piston is at top dead centre on the compression stroke (i.e., both valves closed). Keep the rod as vertical as possible and mark the top dead centre position on it. The best way of rotating the engine is to engage top gear and turn the rear wheel.

Turn the engine backwards through about 45° then bring it forward again until the contact breaker points are just on the point of opening. This is best determined by inserting a piece of paper (such as cigarette paper) between the points. The points are just about to open when the paper is only lightly gripped and can be withdrawn with a gentle pull.

The correct position for the piston before top dead centre with the ignition fully advanced is: 13/32 in. as measured by the rod through the plug hole.

If the timing does require re-setting, the timing cover must be removed. This is held on by twelve screws of varying length. Note their positions for replacement purposes.

With the cover removed, release the magneto pinion from its shaft. This is removed by releasing the central nut and using an extractor Part No. 61–1903. The use of this tool is preferable to the old practice of levering the pinion off its taper with a screwdriver or other lever, as this would be liable to damage the fibre pinion. Remove the sparking plugs and rotate the engine until the timing side piston is at the top of its stroke, as described above.

Rotate the engine until the piston has descended the correct amount from the top of its stroke. This is best accomplished by engaging top gear and turning the rear wheel backwards by hand. A little care is necessary to ensure that the dimension given is accurately set. Now set the ignition control in the fully advanced position. This is done by moving the ignition lever on the left handlebar in a clockwise direction as far as it will go. Refit the magneto pinion loosely on its shaft. This is so that the shaft can be moved independently of the pinion. Rotate the contact breaker at the opposite end of the magneto, in its normal direction of rotation until the contact breaker points are just open (not more than .002 in.). Press the magneto pinion home on to its taper, and carefully check the ignition setting. If it is correct, tighten the central nut. Finally, replace the timing cover (renew the paper gasket to ensure an oil-tight joint), together with the tappet inspection covers, and the sparking plugs.

It cannot be too strongly emphasized that the ignition timing must be correctly set for satisfactory engine performance, and also that any temptation to improve upon the maker's setting should be avoided, as this setting has been found best after careful trial and experiment.

Valve Timing (including Dynamo Chain Adjustment).

Under normal running conditions the valve timing cannot become disturbed, and it is inadvisable to dismantle the timing gear train

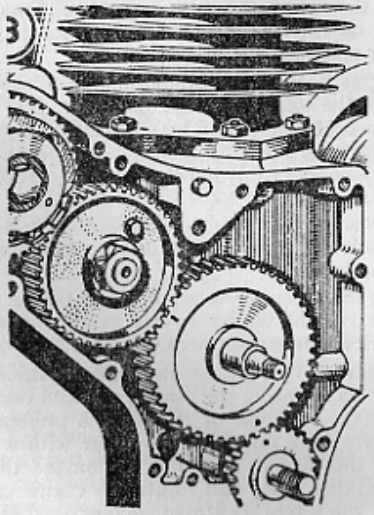


Fig. 7. Valve Timing Marks.

unless absolutely essential. Should it be necessary, however, to check the timing, the following procedure should be observed, components being removed in the following order:—

Remove the timing cover by unscrewing the fixing screws, noting their positions for replacement purposes. The dynamo chain is of the endless type(i.e., there is no connecting link), so that the chain and the large sprocket must be taken off together. The sprocket fits on to a tapered shaft without a key, and after removing the nut and locking washer, the use of a suitable extractor is advisable to avoid possible damage to the cover. Alternatively, apply a spanner to the dynamo sprocket nut and give it a sharp blow in a clockwise direction, with the chain in position. This should free the large sprocket. Once this sprocket is withdrawn from its spindle, the chain may be lifted off the small sprocket, leaving the latter in position on the dynamo spindle.

The dynamo strap should be slackened to enable the dynamo to be rotated by hand to a suitable position, so that its sprocket can pass through the aperture in the inner timing cover, when the latter is removed. This is held in position by four screws, and it should now be detached. The breather sleeve will probably remain in the cover, leaving the cork washer adhering to the camshaft gear. Then examine the camshaft gears, verfying that their markings correspond with those shown in Fig. 7. It may be necessary to rotate the engine serveral times before the marks appear in their correct positions.

During re-assembly, make sure that the breather cork washer is intact (replacing if necessary) and that the driving peg in the camshaft gear engages with the hole in the breather sleeve. Remember to bend the locking washer into position on the large dynamo chain sprocket after tightening the nut. The dynamo spindle is eccentrically mounted and the body must be rotated until the slack in the chain is approximately $\frac{1}{4}$ in. If the slackness is excessive, the chain is liable to damage the timing case. Before tightening the dynamo strap, press the dynamo firmly against the back of the timing case to ensure an oil-tight joint by trapping the cork seal. Finally, fit new paper washers between the cover joint faces.

Cylinder Head.

After the machine has covered its first 250 miles when new or after decarbonising, check the tightness of the cylinder head bolts. This is because the gasket tends to settle down after the initial clamping. To check all the bolts the petrol tank and rocker box will have to be removed. To ensure even distribution of pressure with consequent freedom from distortion, tighten the bolts in rotation as shown in Fig. 8. This should be done when the engine is cold. If when remounting the rocker box, the gaskets are found to have been damaged, new ones should be used for re-assembly.

Decarbonisation.

Decarbonisation should only be carried out when there are definite symptoms that excessive carbon build-up inside the engine is interfering with performance. The usual symptoms are an increased tendency to pink (a metallic knocking when under load) and a general falling off in performance with a tendency for the engine to run hotter than usual.

It is customary to attend to the valves during decarbonisation as this provides a reasonable interval between valve overhaul and avoids the necessity for dismantling the engine especially for this purpose at a later date.

It is necessary to remove the petrol tank in order to carry ou decarbonisation. Turn off the petrol and detach the petrol pipes Remove the petrol tank strap which is located under the front of

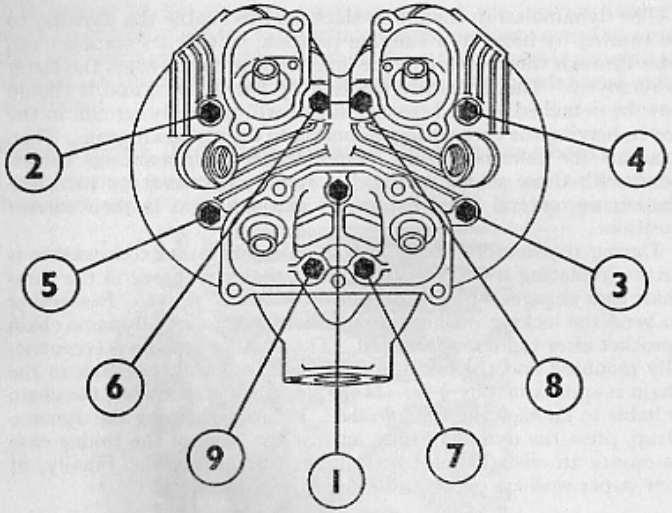


Fig. 8. Cylinder Head Bolts.

the tank, and is held in position by two nuts. The central tank locking bolt can then be removed after the rubber plug in top of the tank is pulled off. Next detach the high tension leads and the sparking plugs. Disconnect the engine steady stay by unscrewing the bolt (D), Fig. 4.

Take off the carburetter. If an air cleaner is fitted, this must be unscrewed from the intake so that the carburetter can be tied back out of the way. The exhaust pipes are a push fit in the head and can be pulled away when the nuts holding the exhaust system to the frame are released. Disconnect the oil feed pipe to the rockers, and remove the rocker box covers (A) Fig. 4. It will be necessary to take out the front stud inside the rear cover before the rocker box can be removed. Finally undo the five bolts, including the one inside the rear cover aperture, also four nuts under the rocker box and then lift off.

The cylinder head is taken off by removing the nine bolts as shown in Fig. 8. If the head shows a tendency to stick, a few light taps with a wooden mallet under the exhaust ports will loosen it. Examine the gasket carefully for any defects. If it has brown patches on it, especially between the bores, a new one should be obtained for re-assembly.

Carefully scrape all the carbon from inside the heads, taking care not to scratch the soft aluminium surface. Then rotate the kick-starter until the pistons are at the top of their stroke and scrape off the carbon on top of the pistons. As the carbon deposit at the extreme edge of the piston acts as an effective oil seal, it is a good idea to leave this undisturbed. This can be done by placing an old piston ring on top of the piston, just inside the top of the bore and, using this as a guide, remove all the carbon not covered by the ring. Take great care that the soft aluminium surface of the piston is not scored. The best tool for the job is an old screwdriver, the edges of which have been rounded by wear, and provided that a little patience is employed, all traces of carbon can be removed to leave the surface smooth and unmarked.

It is unlikely that the rockers will require any attention, but if it is desired to remove them, the acorn nuts should be unscrewed from the ends of the spindles. The spindles should then be tapped out from the threaded end using a soft punch to avoid damaging the threads. Take careful note of the rocker assembly for replacement, as the various washers must obviously be inserted in the correct order

To remove the valves, place a wooden block, which will fit inside the cylinder head, on a bench and then lay the head over the block with the valve heads resting on it. Compress the valve springs until the split collets can be lifted out. When the collets are out, the valve springs and top collar can be removed. Examine the valve springs and if they have shortened appreciably they should be replaced. Valve springs are not expensive items and it is false economy to continue to use them when their useful life is exhausted. The correct free length of these springs when new is:—

Inner spring 2 in. Outer spring 2-1/8 in.

The inside of the valve ports must be carefully scraped free of carbon. Take care not to damage the valve seat faces with the decarbonising tool. If any carbon falls into the valve guides, it must be carefully removed with a piece of clean rag.

If the valves and their seats are only discoloured or lightly pitted, then it will be sufficient merely to grind them in with a little grinding paste, but if there is considerable evidence of pitting it should be returned to a dealer for regrinding, as attempts to grind the valve in with grinding paste will only cause premature wear of the valve seat. Probably the valve seat in the cylinder head will still be in good condition, but if it is pitted the head must be removed and sent to your dealer for refacing with a proper valve seat cutting tool. The valve seat angle is 45°.

With the valves and seats in good condition or if they have been refaced then they will require lightly grinding in to ensure that a good gas seal is created. Smear a small quantity of fine grinding paste on to the face of the valve head and return the valve to its

seat. A light spring inserted under the valve head greatly facilitates the grinding operation as it assists in raising the valve so that it can be rotated to a new position. Using a grinding tool which adheres to the valve head by suction, rotate the valve backwards and forwards whilst maintaining light pressure. Raise the valve and turn it to a new position after every few movements. Grinding should be continued until the mating surface of the valve and seat show uniform metallic surfaces all round.

If the valve guides are worn the old ones can be driven out by means of a single punch applied from inside the cylinder head. New guides should be driven in from the top as far as they will go. Whenever new guides have been fitted the valve seats must be refaced with a proper valve seat cutter to ensure that the seat is concentric with the guide bore.

Before re-assembling the valves and springs all traces of grinding paste must be removed from both the valve and seat and the valve stem smeared with clean engine oil. Replace the valve, then compress the valve springs with the aid of a suitable tool until the collets can be inserted. A blob of grease on the valve stem will assist in keeping the collets in position as the valve spring is released. Make sure that the split collets retaining the valve spring collar is correctly seated in the recess on the valve guide.

Removing the Cylinder Barrel.

It should not be necessary to remove the cylinder barrel unless it is felt that the piston rings require attention. This may be shown by such symptoms as excessive blue smoke in the exhaust and by lack of compression, although if the valves are not in good condition this is more likely to be the cause of the latter symptoms.

Rotate the engine until the pistons are at the bottom of their stroke, remove the cylinder base nuts (nine in all) and carefully lift the block upwards until the pistons are clear of the bores. It is as well to have an assistant to steady the pistons as they emerge from the block, to avoid possible damage. As soon as the barrel has been withdrawn, cover the crankcase with a clean piece of cloth to keep the dirt out. Scrape the paper washer off the cylinder base flange and/or the crankcase face.

Examine the cylinders carefully for wear and if a deep ridge has formed at the top of the bores then a rebore may be necessary and you should consult your dealer for confirmation. Pistons $\frac{1}{2}$ mm. and 1 mm. oversize are available for rebore purposes, but owners in Great Britain can take advantage of the Exchange Replacement System to obtain a rebored barrel with matched piston, through their local B.S.A. spares stockist. The barrel will also require a rebore if there are any deep scores as these will cause loss of compression and excessive oil consumption. Any shiny marks on the bores are an indication of seizure and the cause of this should be determined and rectified.

The outside face of the piston rings should possess a smooth metallic surface and any signs of discolouration or shiny portions mean that the rings must be replaced. The rings must also possess a certain amount of springiness so that the ends lie at least $\frac{3}{16}$ in. apart when released from the barrel.

The rings should be free in their grooves but with a minimum side clearance. If the rings are stuck in the grooves remove them and clean out all the carbon from the groove and the inside face of the ring. Care is necessary when removing the rings as they are brittle and only permit a minimum amount of movement. A suitable tool for removing the carbon from the ring grooves is a piece of old piston ring ground as a chisel.

To check the piston ring gaps place each ring in the least worn part of the cylinder bore and make sure that it is square in the bore by locating it with the top of the piston. Measure the gap between the end of the ring with a feeler gauge. The correct gap when new is .009—.013 in. and although an increase of a few thousandths of an inch is not important, any large increase to say .025 in. means that the ring should be replaced. If a new ring is being measured the gap may be less than the amount specified and in this case the ends of the ring must be opened out with the careful use of a very fine file. Take care that no ridge is left on the edges of the ring which could score the barrel.

It is not necessary to remove the pistons unless they require replacement or further dismantling of the engine is being carried out. To remove a piston, first prise out one of the wire gudgeon pin circlips by inserting a suitable pointed instrument in one of the notches provided. Before the gudgeon pin can be withdrawn, the piston must be warmed by wrapping it in a cloth that has been immersed in boiling water and wrung out. Alternatively, an electric iron can be applied to the crown of the piston until it is thoroughly warm. When the piston is warm, tap out the gudgeon pin with a light hammer and a punch of suitable diameter. The pistons must be carefully supported to avoid any side strain on the connecting rods.

Re-assembly is carried out in the reverse order to dismantling. Scrupulous cleanliness must be observed and the components should be smeared with fresh oil before replacing.

Make sure that the pistons are on the same connecting rods from which they were removed.

Warm the pistons before inserting the gudgeon pins and make sure that the new circlips are correctly located in their grooves. Slide each piston ring carefully over the pistons, until it reaches its groove. Fit a new paper washer to the crankcase face, lightly smearing with jointing compound before doing so. Before replacing the cylinder barrel, prepare two strips of wood $\frac{3}{4}$ in. square by about 8 in. long, so that they can be laid across the crankcase mouth under

the pistons (one in front and one behind). These will enable the pistons to be held square while the barrel is lowered. It will simplify the fitting of the barrel if the piston rings are compressed into the grooves by means of piston ring compressors, so that as soon as the pistons enter the bores, the clips will automatically be pushed off, when they and the two wooden strips can be moved away before the barrel is finally lowered into position.

Replace the cylinder head gasket and cylinder head, tightening down the bolts as shown in Fig. 8, to prevent risk of distortion. The push rods can now be replaced by inserting them down the push rod apertures in the head and fitting them into their respective tappet cups.

Note: The exhaust push rods are longer than the inlet rods. Make sure that the push rods are correctly inserted into the rocker ends, and tighten the rocker box down. This must be done carefully to avoid straining the rocker box due to the action of the valve springs. There are four nuts below the rocker box, and five bolts above the rocker box, one of which is accessible through the rear tappet cover. Remember to replace the engine steady stays Fig. 4, when tightening down the remaining four bolts.

Check the tappet clearances as described on page 14 and replace the covers (A) Fig. 4. Connect the oil feed pipe to the rockers. Clean and adjust the sparking plugs as described on page 15 and then connect the H.T. leads, making sure that each is coupled to its correct plug. Replace the carburetter, and screw on the air cleaner. Replace the exhaust system, check all nuts and bolts and finally replace the petrol tank and petrol pipes.

CARBURATION

The carburetter is of simple and robust construction and the only attention that may be required is adjustment of the pilot jet and throttle stop.

An exploded view of the carburetter is shown in Fig. 9. Opening the twist grip throttle control raises the throttle slide thus controlling the supply of air to the engine. The tapered needle controlling the supply of fuel is attached to the throttle slide so that a balanced mixture is always provided. The needle has five notches at its upper end and it is secured in the throttle slide by a spring clip which locates in one of these notches. The throttle valve size and the needle position are carefully set before despatch from the factory and no alteration to these settings is necessary or desirable. An air valve controlled by the lever on the handlebar is used to restrict the air supply when starting the engine from cold.

Mixture control at tickover and low speeds is controlled by the pilot jet which has an adjustable air supply. An adjustable throttle stop is also provided to regulate the slow running speed.

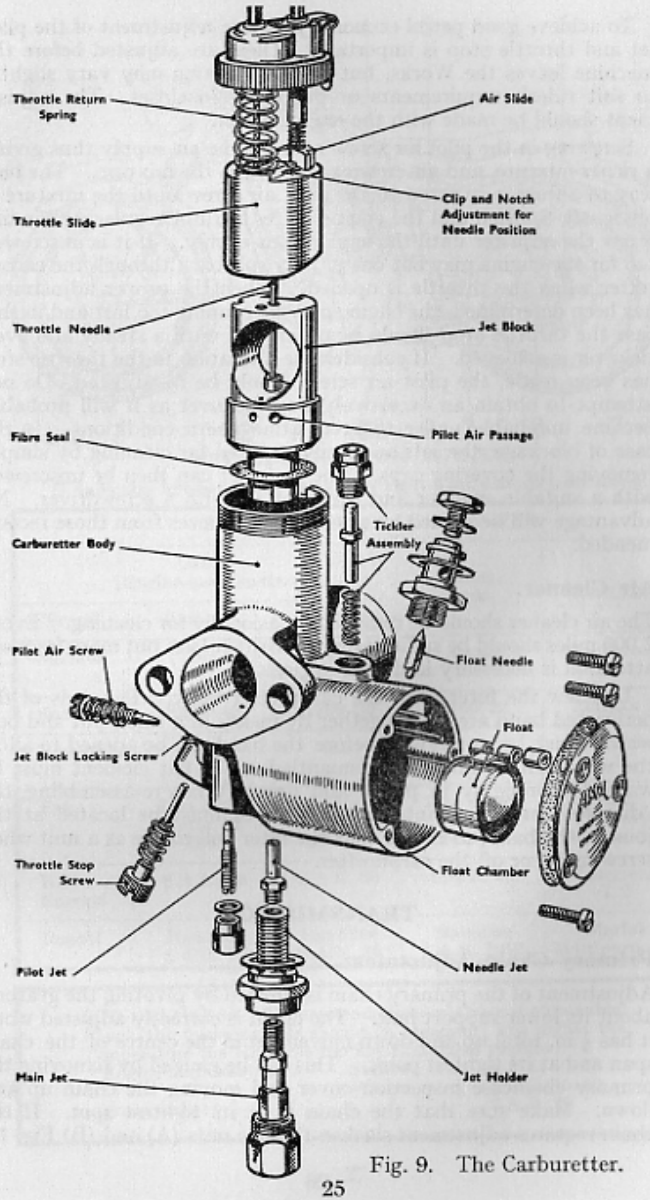


Fig. 9. The Carburetter.

To achieve good petrol economy accurate adjustment of the pilot jet and throttle stop is important. These are adjusted before the machine leaves the Works, but the best setting may vary slightly to suit rider's requirements or particular localities. The adjustment should be made with the engine warm.

Screwing in the pilot air screw restricts the air supply thus giving a richer mixture, and unscrewing it weakens the mixture. The best way to adjust is to screw in the pilot air screw until the mixture is obviously too rich and the engine starts to run irregularly then unscrew the adjuster until the engine runs evenly. If it is unscrewed too far the engine may cut-out or may spit back through the carburetter when the throttle is opened. When the proper adjustment has been determined, the engine may be running too fast and in this case the throttle stop should be unscrewed until a steady and even tickover is achieved. If considerable alteration to the throttle stop has been made, the pilot air screw should be re-adjusted. Do not attempt to obtain an excessively slow tickover as it will probably become unreliable under different atmospheric conditions. In the case of blockage, the jets are easily exposed for cleaning by simply removing the covering caps. The main jet can then be unscrewed with a suitable spanner and the pilot jet with a screwdriver. No advantage will be gained by altering the jet sizes from those recommended.

Air Cleaner.

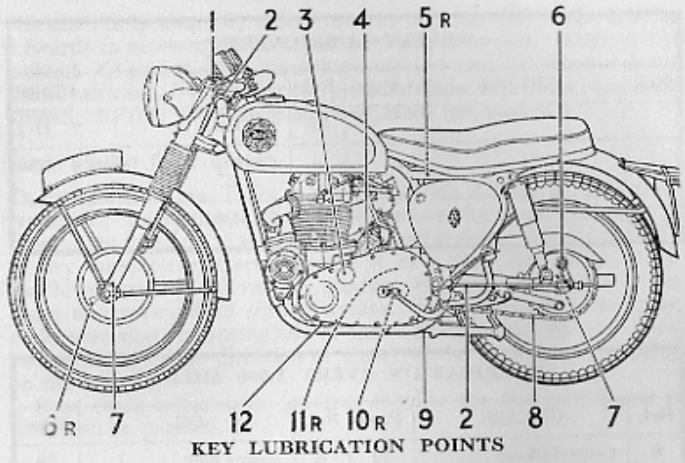
The air cleaner should be removed occasionally for cleaning. Every 2,000 miles should be sufficient in the British Isles but more frequent attention is necessary in dustier regions.

Unscrew the filter from the carburetter body. The ends of the perforated band are held together by means of a small nut and bolt which must be unscrewed before the band can be opened to allow the whole filter unit to be dismantled. The felt element must be washed thoroughly in petrol and dried. When re-assembling, the "dimples" impressed into the end plates must be located at the joint in the band, to ensure that the filter will rotate as a unit when screwing on or off the carburetter.

TRANSMISSION

Primary Chain Adjustment.

Adjustment of the primary chain is effected by pivoting the gearbox about its lower support bolt. The chain is correctly adjusted when it has ½ in. total up and down movement in the centre of the chain span and at its tightest point. This can be gauged by removing the primary chaincase inspection cover and moving the chain up and down. Make sure that the chain is at its tightest spot. If the chain requires adjustment slacken the two nuts (A) and (B) Fig. 10.



KEY LUBRICATION POINTS

(L indicates left-hand side, remainder right-hand side or both sides).

RECOMMENDED LUBRICANTS

OILS (Engine and Gearbox)			Front Forks	GREASE
Brand	Summer	Winter		
Mobiloil	BB	A	Arctic	Mobilgrease M.P.
Shell	X100–40	X100–30	X100–20	Retinax A
Castrol	XXL	XL	Castrolite	Castrolease L.M.
Esso	Esso Extra Motor Oil 40/50	Esso Extra Motor Oil 20W/30	Esso Extra Motor Oil 20W/30	Esso Multi-Purpose Grease H
B.P. Energol	S.A.E. 40	S.A.E. 30	S.A.E. 20	Energrease L.2
Regent	Havoline S.A.E. 40	Havoline S.A.E. 30	Havoline S.A.E. 20W	Marfak Multipurpose 2

FOR OVERSEAS. Recommendations as above if obtainable. If not, the following rule should be observed: The higher the Temperature the Higher is the S.A.E. number required.

Engine and Gearbox:	Summer	S.A.E. 40–50
	Winter	S.A.E. 40–20
Front forks:		S.A.E. 20

WEEKLY LUBRICATION					
Ref.	GREASE	Page	Ref.	OIL	Page
			5R	Oil Tank	11
			—	Control Rod Joints and	10
			2	Exposed Cables ...	10

LUBRICATION EVERY 1,000 MILES					
Ref.	GREASE	Page	Ref.	OIL	Page
9	Central Stand	10	8	Rear Chain	29
11R	Clutch Control Arm	10			

LUBRICATION EVERY 2,000 MILES					
Ref.	GREASE	Page	Ref.	OIL	Page
7	Front Hub (8" dia.)	32	5R	Oil Tank	11
7	Rear Hub...	32	10R	Gearbox	31
6R	Brake Cam Spindle (Front Hubs)	32	6	Brake Cam Spindle (Rear Hub)	32
			3	Primary Chain Oil-bath	29

SPECIAL NOTES
Examine Engine Pressure Valve at 1,000 miles (see A, Fig. 3). Clean Oil Tank and Crankcase Filters at 2,000 miles. (12 and 5R) Check Front Fork Oil Level at 10,000 miles. (1) Lubricate Magneto Cam Ring at 3,000 miles. (4)

Slacken the locknut (C) and Screw the adjuster (D) backwards or forwards as necessary until the adjustment is correct. Tighten the locknut (C) and the two clamping nuts (A) and (B), then recheck the adjustment. Whenever the primary chain adjustment has been altered, the rear chain must be re-adjusted (see page 33).

Care of the Rear Chain.

To maintain the rear chain in good condition it must be lubricated regularly. Every 1,000 miles or so remove the chain and wash it thoroughly in petrol to remove all dirt and grease. Allow the chain to dry completely, then immerse it in a tray containing warm graphited grease. Allow the mixture to cool, then remove the chain and wipe off all surplus grease. When replacing the chain make sure that the spring clip of the connecting link has its closed end pointing in the direction of travel of the chain (i.e., forwards on the top run).

Rear chain adjustment involves moving the rear wheel and is described on page 33.

Clutch Adjustment.

The main clutch adjustment is inside the inspection cover on the gearbox. Remove the two screws and lift the cover away. Slacken the locking nut (G) Fig. 10, to free the adjusting screw (H). The adjustment should be made so that when the clutch is fully withdrawn the lever on top of the cover is at right angles to the clutch push rod. This ensures that the minimum side thrust is imposed on the push rod. When this adjustment has been completed the cable should be adjusted by means of the adjuster at (E) until it has approximately $\frac{1}{8}$ in. free play at the handlebar end.

Clutch Spring Adjustment.

After considerable use it may be necessary to increase the spring pressure a little. To do this remove plug (D) Fig. 11, and screw in each of the four adjuster nuts seen in Fig. 12, bringing them into position successively by operating the kick starter, and giving each the same amount of adjustment (say two turns). Withdraw the clutch to ensure that it frees properly and that the end plate does not tilt. If the plate does tilt the clutch will not free properly and the springs should therefore be re-adjusted until the plate remains square when the clutch is withdrawn.

Primary Chaincase.

This is fitted with a combined oil level and drain plug. To drain remove the plug by applying a spanner to hexagon (A) Fig. 11. To refill replace the plug and remove screw (B). Fill with seasonal engine oil through the plug hole (C) until it starts to drip out through the hole for screw (B). Then replace screw (B) and plug (C).

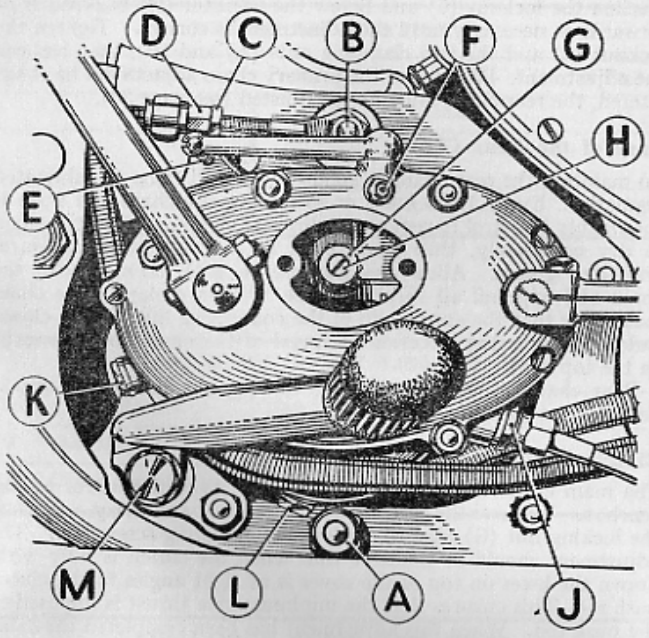


Fig. 10. Clutch and Front Chain Adjustment.

Mineral base seasonal engine oil should be used in the primary chaincase (see page 27). The chaincase oil capacity is eight fluid ozs. (225 c.c.).

Primary Chaincase Removal.

Removal of the retaining screws and the left-hand footrest will permit the primary chaincase outer cover to be withdrawn. The engine sprocket and clutch must be removed to allow further dismantling. The rear of the chaincase is secured to the crankcase by three bolts behind the engine sprocket and these can be undone after breaking the locking wire through the head of the bolts. A single bolt at its lower rear end secures the rear of the chaincase to the frame.

Engine Sprocket Removal.

Insert a screwdriver between the coils of the engine shaft shock absorber spring and prise up the bent-over tab of the lockwasher.

The mainshaft nut can then be undone. If any difficulty is experienced due to the engine rotating, engage top gear and apply the back brake. Remove the spring and sliding sleeve. Detach the primary chain by undoing the spring link. The engine sprocket and the central splined sleeve can then be withdrawn from the engine mainshaft.

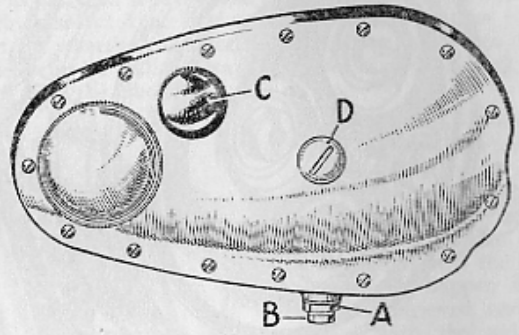


Fig. 11. Primary Chaincase.

Gearbox.

The gearbox is of straightforward design employing constant mesh gears. Apart from occasionally topping up or changing the oil, very little maintenance should normally be required.

When topping up with oil, remove the level plug at (K) Fig. 10 and add oil through the clutch inspection aperture. The oil level must not be above the plug hole, and if the gearbox is overfilled the surplus must be allowed to drain away before the plug is replaced. Removal of the plug (L) allows all the oil contained in the gearbox to drain out. Whenever possible the gearbox should be drained immediately after a run when the oil is warm. A mineral type of oil should be used, of the same grade as that specified for the engine (see page 27). The gearbox capacity is 14 fluid ozs. (398 c.c.).

Access to the gearchange and kickstarter mechanism inside the outer cover is simply obtained. Move the gears to neutral then remove the four stud nuts and three screws round the outside edge of the gearbox outer cover. Do not touch the screw and nut which are not on the edge of the cover as these do not prevent its removal. The outer cover will come away complete with kickstarter, gearchange and clutch levers. As the cover is withdrawn the kickstarter lever will tend to rotate under the pressure of the spring, and the clutch lever should be used as a stop to prevent the complete release of the spring.

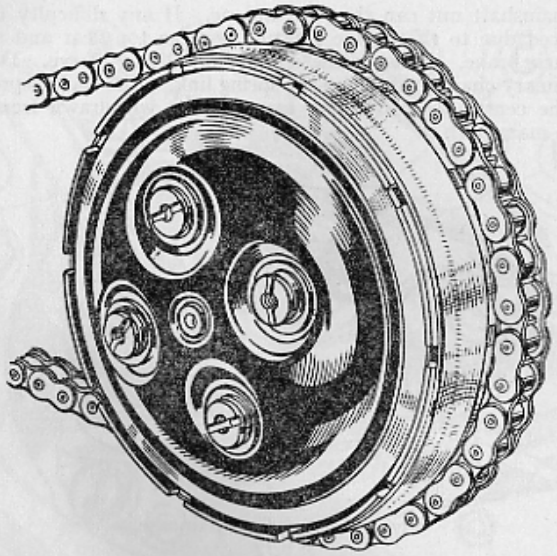


Fig. 12. Clutch Spring Arrangement.

WHEELS

All the hubs are fitted with ball journal bearings and normally they require no attention other than greasing. A few strokes of the grease gun every 2,000 miles provide sufficient lubrication. This does not apply to the 190 mm. front hub; the bearings are packed with grease during assembly which will last until the wheel is in need of a complete overhaul. One stroke of the grease gun every 2,000 miles is sufficient for the 190 mm. and the 8 in. front brake cam spindle. On rear brakes apply a few drops of oil to the cam spindle through the hole revealed by rotating the spring clip.

Brake Adjustment.

Both brakes are provided with knurled finger adjusters. The front brake also has an additional adjuster on the handlebar lever so that the brake can be readjusted from the saddle.

These adjustments will give a setting for maximum efficiency with the shoes just clear of the drum when the brake is off, and close enough for immediate contact when the brake is applied. **Note:** If the brakes are adjusted too closely, i.e., that they should rub, the heat generated may distort the brake drum and melt the grease in the hub.

Front Wheel Removal and Replacement (190 mm. and 8 in. Brake).

To detach the wheel first disconnect the brake cable by pushing it out of the brake clip at (E) Fig. 13, and unscrewing it from the bracket at (F). Remove the torque arm nut (C) and undo the pinch bolt (A). Insert a tommy bar in the hole in the head of the spindle at (B) and unscrew the spindle, noting that it has a left-hand thread and therefore unscrews in a clockwise direction. Support the wheel as the spindle is withdrawn, and when it is clear the wheel can be pulled away from the right-hand fork leg and removed from the machine.

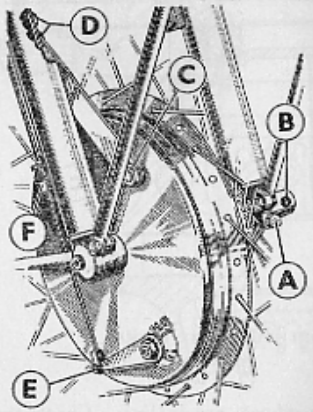


Fig. 13. Front Wheel Removal (190 mm. and 8 in.)

After removal do not let the wheel fall on to the bush which projects from the brake drum side of the hub. Although the bush is pressed in, it may, if subjected to a sharp blow, be forced back into the hub. If this should happen the bush can be retrieved and repositioned with the aid of the wheel spindle.

The wheel is replaced in the reverse order to that for removal. It is most important that after the spindle has been tightened, the forks are depressed once or twice to enable the left-hand fork end to position itself on the spindle shank. If this precaution is not observed, the fork leg may be clipped out of position and will not function correctly.

Rear Chain Adjustment.

First put the machine on its centre stand. Whenever the rear wheel is adjusted, the nut securing the torque arm to the brake plate must be slackened slightly so that the plate may pivot freely. Undo the spindle (B) Fig. 16, on the right-hand side of the machine, a few turns, and slacken nut (A) just sufficiently to allow the wheel to move.

Slacken the locknuts (C) and screw out the adjusters (D) to tighten the chain. With the wheel in its lowest position, there should be a total up and down movement of 1¼ in. in the centre of the chain at its tightest point. Ensure that the wheel spindle is

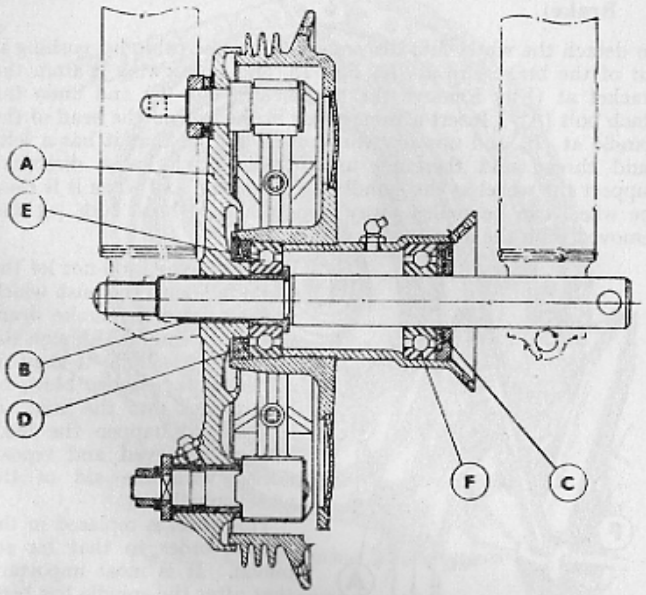


Fig. 14. Section of Front Hub (8 in. brake).

against the adjusters and that the wheels are in line. Check the alignment by means of a taut piece of string which should be equidistant from the front and rear of each wheel.

Tighten the nut (A), the spindle (B) and the nut securing the torque arm to the brake plate. Re-check the chain adjustment and the wheel alignment.

Rear Wheel Removal.

Removal of the wheel does not affect the chain or brake adjustment. Remove the spindle (B) Fig. 16. It has a normal right-hand thread and therefore unscrews in an anti-clockwise direction. The distance bush (E) falls clear when the spindle is removed and the wheel can then be pulled away from the brake drum and withdrawn from the machine.

When detaching the rear wheel it is quite unnecessary to touch the hexagon (A) on the left-hand side.

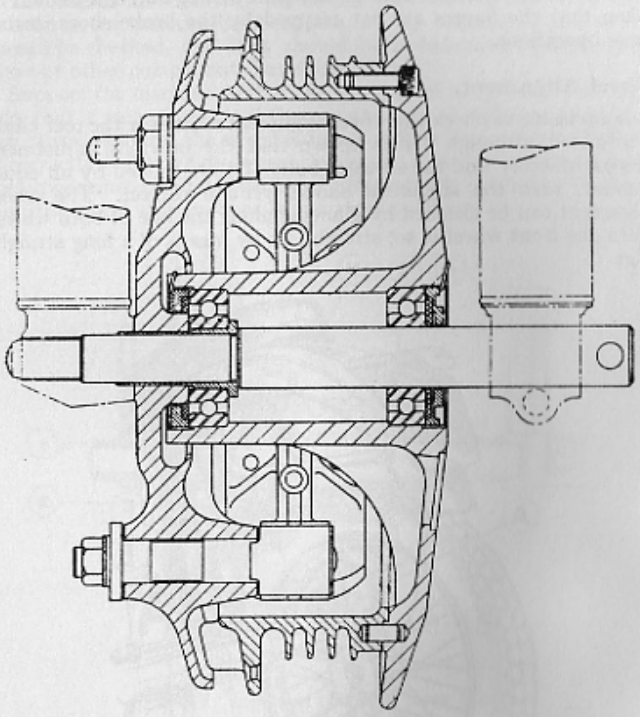


Fig. 15. Section of Front Hub (190 mm. brake).

Brake Shoe Removal and Replacement.

After the brake plate has been removed from the wheel, the brake cam lever should be detached and the cam spindle pushed in slightly to allow the shoes to clear the brake plate. Insert a screwdriver between the brake shoes at the fulcrum pin and twist the screwdriver.

Place a small lever between one of the shoes and the cover plate and lever the shoes away from the plate until the spring pressure is released. Both shoes can then be lifted away from the cover plate.

The shoes can be replaced by the reverse procedure. Hook the springs on to the shoes and place the ends of the shoes in position on the fulcrum pin and cam lever. Then push the shoes outwards until the springs pull them into their correct position.

Note: The brake shoe springs are quite strong and care should be taken that the fingers are not trapped by the brake shoes during these operations.

Wheel Alignment.

It is advisable to check the wheel alignment whenever the rear chain is adjusted, although if it is known that the previous adjustment was satisfactory and the adjuster bolts (D) are moved by an equal amount, then the alignment should remain correct. The wheel alignment can be checked by glancing along the line of both wheels when the front wheel is set straight, or by means of a long straight edge.

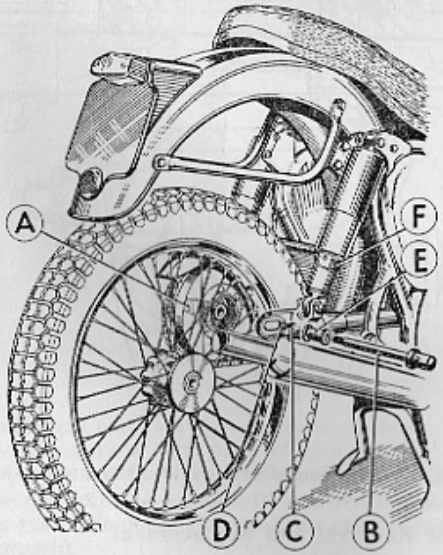


Fig. 16. Rear Wheel Removal.

Wheel Balancing.

Wheels which are out of true or out of balance will have a very detrimental effect on steering. Wheel trueing is a job best left to the specialist, but the spokes should be examined occasionally to see that none of them show any signs of working loose. Single spokes can often be retightened or replaced without affecting the true of the wheel, but if a number of spokes have been affected the wheel should be retrued.

The wheels are normally balanced before leaving the Works but, as soon as the machine has been run-in, the balance of the wheels should be checked, and they should be re-balanced whenever new tyres or other components have been fitted.

Support the machine so that the wheel is off the ground and make sure that it spins freely. If there is any sign of stiffness investigate the cause, as unless the wheel is free it will be impossible to balance it correctly. Rotate the wheel slowly and allow it to settle. Mark the uppermost point of the tyre. Repeat the operation to check that the wheel always stops in the same position.

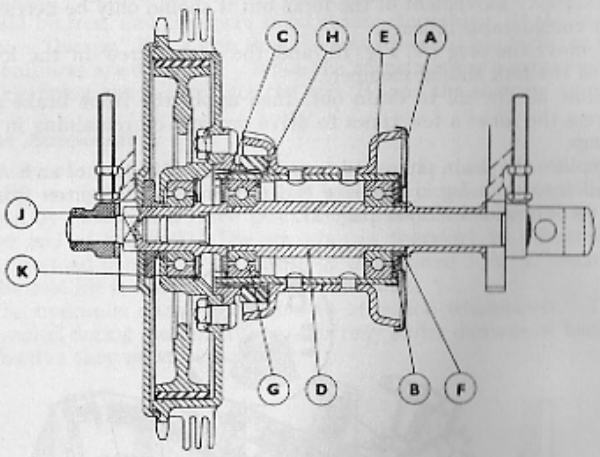


Fig. 17. Section through Rear Hub.

The point marked is obviously the lightest point on the wheel and weight must be added at this point until the wheel is properly balanced. Wind a piece of lead wire round the spoke, or between the two spokes that are nearest to the mark until the wheel becomes balanced, and shows no tendency to stop in any particular position. Finally bind the balance weight firmly with adhesive tape to lock it in position.

Brake Shoe Relining.

Complete relined brake shoes are available through the Exchange Replacement service which operates in the British Isles only.

The brake shoes are of the floating type and as the linings are not symmetrical with the shoes, it is most important that they are properly fitted. The shoes are marked "L" and "T" for "leading" and "trailing", the leading shoe being opened by the cam in the direction of rotation of the wheel.

After fitting, replace the brake assembly in the drum, slacken the fulcrum pin nut, and apply the brake. The fulcrum pin will move slightly until the shoes are centralized with the drum, when the pin must be tightened securely.

FRAME AND FORKS

Front Forks.

Under normal conditions the only servicing the front forks require is occasional renewal of the oil. The need for this may be indicated by excessive movement of the forks but it should only be necessary after considerable mileage.

Remove the plug (A) Fig. 18, and the drain screw in the lower end of the fork sliding member.

Allow all the oil to drain out, then apply the front brake and depress the forks a few times to drive out any oil remaining in the system.

Replace the drain plugs and pour 7½ fl. ozs. (213 c.c.) of an S.A.E. 20 oil into each leg. Replace the top plugs and tighten firmly. For recommended oils see page 27.

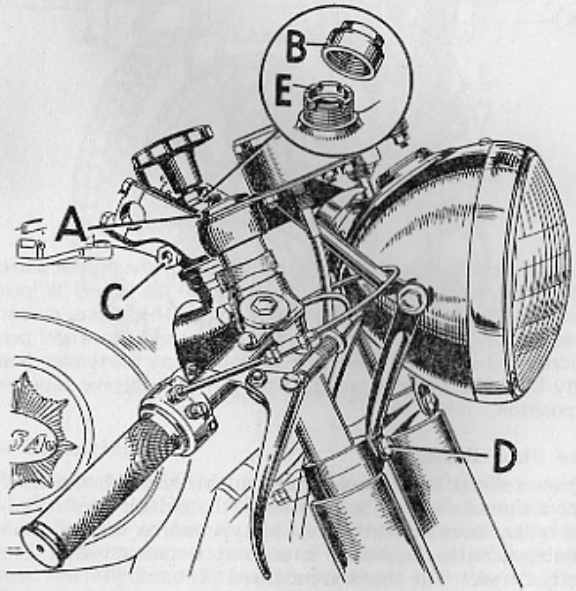


Fig. 18. Steering Head Adjustment.

Steering Head Adjustment.

The steering head should be tested occasionally for play and to ensure that it rotates freely. Support the crankcase on a box so that the front wheel is clear of the ground, then grasp the front fork legs and attempt to push them backwards and forwards. If any play is detected the steering head must be adjusted.

Unscrew the steering damper and remove the chromium-plated top cap (B) Fig. 18. Slacken the clamping nut (C), then tighten down the sleeve (E) until the adjustment is correct. Hold the handlebars lightly and move them round slowly. The steering should be free, and the forks must rotate smoothly. If the movement is "lumpy" it is a sign that the adjustment is too tight, or that the ballraces are damaged. When the adjustment is correct tighten the clamping nut (C), replace the cap (B) and the steering damper.

Rear Suspension.

The two suspension units comprise a telescopic damper unit and a totally enclosed coil spring. The pressure on the spring can be varied by means of a three position cam adjuster Fig. 19, at the lower end of the unit. The springs can therefore be adjusted to suit the load conditions or nature of the ground. A "C" spanner in the tool kit is used to rotate the cam ring.

The hydraulic dampers require no attention whatsoever. They are sealed during manufacture and if they suffer damage or become ineffective they must be replaced.

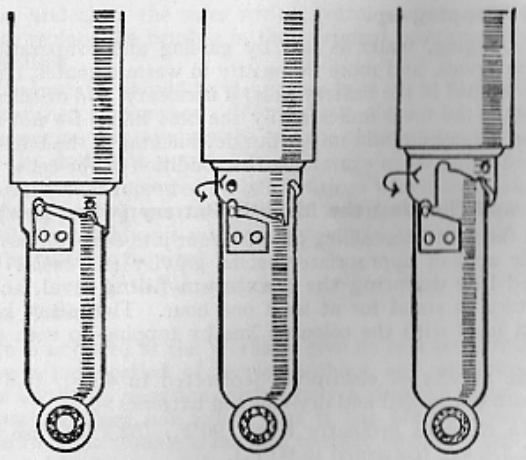


Fig. 19. The Rear Suspension.

The complete suspension units can be removed from the frame after detaching the two pivot bolts. The top spring housing is retained by two collets and the spring must be compressed before they can be removed. In some instances, the assistance of a second person may be necessary to compress the spring.

Frame.

The frame will not require any attention unless the machine has been involved in an accident. It should then be inspected very carefully and the wheel alignment checked. If the frame is damaged or distorted it must be replaced, or submitted to your B.S.A. dealer for rectification if feasible.

ELECTRICAL EQUIPMENT

The electrical equipment fitted requires very little attention, but the few instructions given in this chapter should be followed carefully to provide maximum life and reliability.

Battery.

Access to the battery is obtained by removing the two retaining bolts under the rear of the dual seat so that the seat can be lifted and pulled away to the rear. Release the securing clasp to gain access to the top of the battery, and by merely unscrewing the two battery terminals the battery is left free to be lifted out.

Battery Topping-up.

During charging, water is lost by gassing and evaporation. At weekly intervals, and more frequently in warm climates, check the electrolyte level in the battery cells; if necessary, add distilled water to maintain the level indicated by the blue line. Do not use tap water, as it may contain impurities detrimental to the battery, nor use naked lights when examining the condition of the cells.

Filling and Soaking the MLZ9E Battery (when new).

Discard the vent-hole sealing tapes. Pour into each cell pure dilute sulphuric acid of appropriate specific gravity (see below) **to the coloured line denoting the maximum filling level,** and allow the battery to stand for at least one hour. Thereafter, keep the acid just level with the coloured line by topping-up with distilled water.

Specific gravity of electrolyte (corrected to 60°F., 15.5°C.) for filling both uncharged and dry-charged batteries:—

(a) In climates ordinarly below 90°F., (32.2°C.), use acid of 1.270 s.g. (corrected to 60°F.).

(b) In climates ordinarily above 90°F., use acid of 1.210 s.g

Cleaning.

Wipe away all dirt and moisture from the top of the battery.

Battery—Maintaining Condition.

Never leave the battery in a discharged condition. If the motor cycle is to be out of use for any length of time, have the battery fully charged, and every fortnight give it a short refreshing charge at 1.5 amperes to prevent any tendency for the plates to become permanently sulphated.

All models employ a positive earth wiring system. Make sure that the battery is connected correctly.

Dynamo.

The two brush dynamo is coupled to a cut-out and regulator unit fitted inside the toolbox. The regulator varies the output of the dynamo to match the lighting load and the state of charge of the battery. When the battery is in good condition the charge rate will be only one or two amps. A discharge reading may sometimes be observed immediately after switching on the lights, but as soon as the battery voltage falls the regulator causes the dynamo output to balance the load.

About every 10,000 miles, take off the cover band and check the brushes and commutator. See that the brushes move freely in their holders by holding back the brush springs and pulling gently on the flexible connectors. If a brush is inclined to stick, remove it from its holder and clean the sides with a petrol moistened cloth. Be careful to replace the brushes in their original positions in order to retain bedding.

The commutator should be clean, free from oil or dirt and should have a polished appearance. If it is dirty, clean with a dry duster while the engine is rotated slowly. If the commutator is very dirty, moisten the cloth with petrol.

The armature is mounted on ball bearings which are packed with high melting point grease during initial assembly. This grease will last until the machine is in need of a complete overhaul, and no other lubrication is required.

Electric Horn.

The horn is adjusted at the Works to give its best performance and will give a long period of service without any attention. If it becomes uncertain in action, giving only a choking sound, or does not vibrate, it does not follow that it has broken down. First ascertain that the trouble is not due to some outside source such as a discharged battery, or a loose connection or short circuit in the wiring.

If none of the previous suggestions proves successful, the horn may be readjusted as follows:—

Turn the adjusting screw in the rear of the horn body slightly to left or right while depressing the horn button until the best note is obtained.

If the horn still gives trouble it should be removed and returned to the manufacturers.

Headlamp.

The headlamp is of the sealed unit type employing a pre-focus bulb. To gain access to the bulbs, the headlamp rim complete with light unit must be removed by slackening the screw on top of the headlamp shell and pulling the rim away at the top. The headlamp bulb is retained by a bayonet fitting cap. Push on the cap, turn it to the left, and then withdraw. The bulb is located by a flange which has a notch engaging with a projection inside the holder to ensure that it is correctly positioned. Note that the prongs of the bayonet fitting cap are not symetrical so that it can only be replaced in the correct position.

The headlamp requires no maintenance except to ensure that the contacts are kept clean and tight. The reflector is sealed to the glass and in the event of either becoming damaged the complete unit must be replaced.

Headlamp Beam Setting.

When the motor cycle carries its normal load the headlamp driving beam should be projected straight ahead and parallel with the road surfaces.

Many garages possess a Lucas Beam Setter. This is a scientific instrument enabling accurate beam setting to be effected, and owners are strongly advised to make use of this service whenever possible.

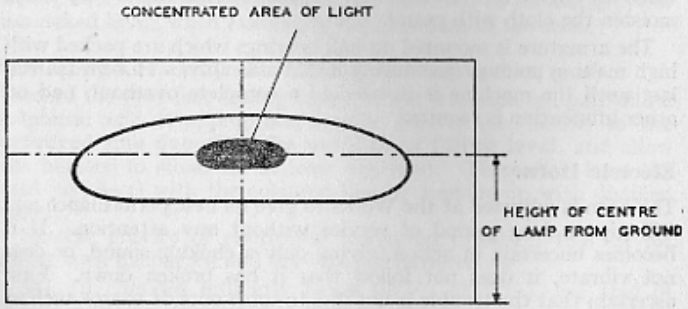


Fig. 20. Headlamp Beam Setting Pattern.

When such facilities are not available, the headlamp can be set by marking off a smooth blank wall and shining the lamp on it from a distance of 25 feet. Details are shown in Fig. 20.

When checking setting:—

(a) Front of motor cycle to be square with screen.

(b) Front of motor cycle to be carrying normal load and standing on level ground.

(c) Recommended distance for setting is at least 25 feet.

To make an adjustment slacken the headlamp fixing bolts and move the lamp until the correct setting is obtained. Finally, retighten the bolts.

Stop Light Switch.

This is operated automatically by the brake pedal.

Tail Lamp.

Access to the tail lamp is obtained by removing the two screws securing the red transparent plastic cover. Note that the locating prongs of the bulb are offset so that it can only be replaced one way round.

Bulbs.

The correct replacement bulbs are as follows:—

Head	...	...	...	Lucas No. 312 30/24 watts.
Pilot	...	...	...	Lucas No. 988 3 watts.
Stop/Tail	...	...	...	Lucas No. 384 6/18 watts.
Speedometer		...	...	8v. .3 amp.

Circuit Diagram.

A diagram of the charging and lighting circuits appear on page 45. The insulation of the wires is individually coloured and these colours are shown on the diagram.

Renewing High Tension Cable.

If the high tension cables show signs of cracking or perishing they must be replaced by 7 mm. rubber-covered ignition cable. To make the connection to the pick-up terminals, thread the moulded terminal nuts over the cables for about quarter-inch, thread the wire through the washers removed from the original cables and bend back the wire strands. Screw the nuts back into their respective terminals.

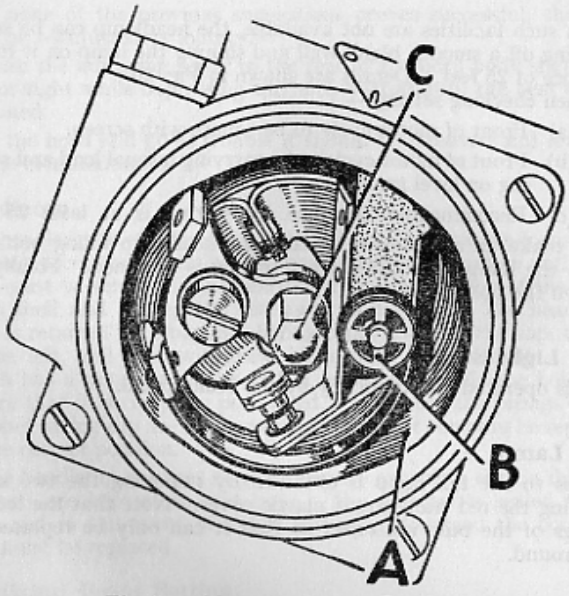


Fig. 21. Magneto Contact Breaker.

Magneto.

The cam ring is lubricated from a felt pad set in the bottom of the ring. Every 3,000—4,000 miles apply a few drops of thin machine oil through the hole at (A) Fig. 21, in the lower edge of the cam ring.

Examine the contact breaker points and if they are burned or blackened, clean the contacts with fine emery cloth or carborundum stone. Before the contact breaker rocker arm can be detached the contact breaker body must be removed from the armature body. Undo the central bolt (C) and grip the central boss firmly with a pair of pliers. A sharp tug will free the body from its taper. Take off the spring washer (B) which retains the contact breaker arm. The rocker can then be pulled from its shaft. Ensure that everything is perfectly clean before re-assembly, and re-set the gap between the points to .015 ins. in the fully open position.

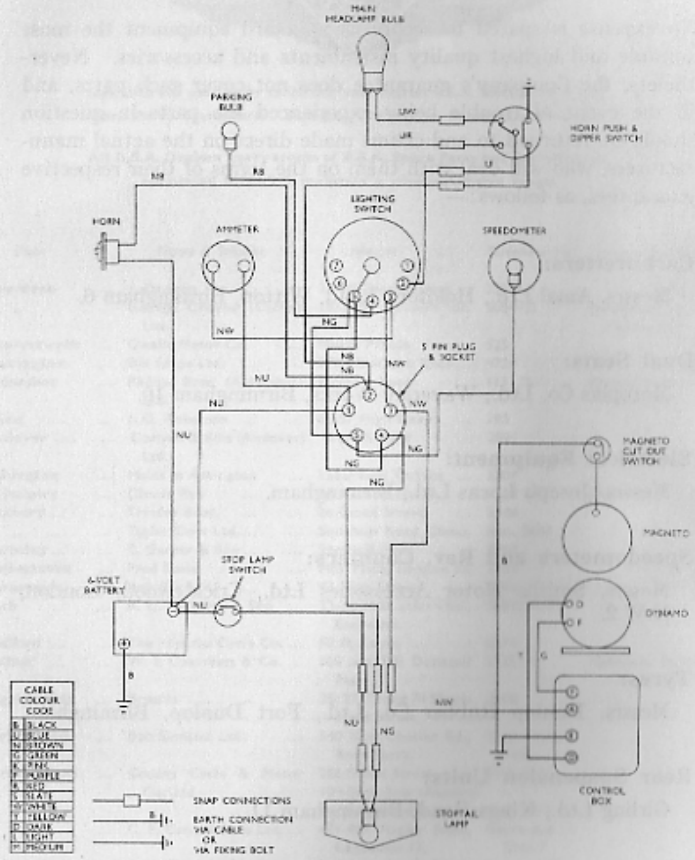


Fig. 22. Wiring Diagram.

PROPRIETARY INSTRUMENTS, FITTINGS AND ACCESSORIES

No expense is spared to secure as standard equipment the most suitable and highest quality instruments and accessories. Nevertheless, the Company's guarantee does not cover such parts, and in the event of trouble being experienced the parts in question should be returned to and claims made direct on the actual manufacturers, who will deal with them on the terms of their respective guarantees, as follows:—

Carburetters:

Messrs. Amal Ltd., Holdford Road, Witton, Birmingham 6.

Dual Seats:

Motoplas Co. Ltd., Waverley Works, Birmingham 10.

Electrical Equipment:

Messrs. Joseph Lucas Ltd., Birmingham.

Speedometers and Rev. Counters:

Messrs. Smiths Motor Accessories Ltd., Cricklewood, London, N.W.2.

Tyres:

Messrs. Dunlop Rubber Co. Ltd., Fort Dunlop, Birmingham.

Rear Suspension Units:

Girling Ltd., Kings Road, Birmingham 11.

SPECIAL NOTE

Claims under guarantee to B.S.A. Motor Cycles Ltd., should be submitted through the B.S.A. Dealer from whom the machine was purchased.

B.S.A. MOTOR CYCLE SPARES STOCKISTS

Save time and postage by contacting your nearest B.S.A. Stockist for B.S.A. Spare Parts, Spare Parts Catalogues, Instruction Books, Transfers, etc.

All B.S.A. Dealers carry stocks of B.S.A. Spare Parts but the following appointed Stockists maintain a comprehensive range.

Town	*Name of Stockist*	*Address*	*Telephone No.*	*Telegraphic Address*
Aberdeen	J. Dawson	24-26 Thistle Street	25556	
,,	George Cheyne (Cycles) Ltd.	147/149 Holburn St.	50341/2	Motobike, Aberdeen.
Aberystwyth	Gwalia Motor Co.	North Parade	525	
Accrington	Bill Snape Ltd.	379 Blackburn Road	4724	
Aldershot	Phillips Bros. (Aldershot) Ltd.	Birchett Road	1111/2	Phillips Cycles, Aldershot.
Alloa	J. G. Roberson	55-57 High Street	193	
Andover	Corbett & Ellis (Andover) Ltd.	Weyhill Road	2991	
Ashington	Mains of Ashington	Laburnum Terrace	3204	
Aylesbury	Claude Rye	44 Walton Street	3150	Eborn's.
Banbury	Trinder Bros.	2a Broad Street	2546	
,,	Taylor Dow Ltd.	Southam Road, Oxon.	Ban. 2641	
Barnsley	T. Garner & Son	Sheffield Road	2866	
Basingstoke	Fred Slade	May Place, London St.	1338	
Barnstaple	Bob Ray Ltd.	43 High Street	4266	
Bath	R. U. Holoway & Son	32-33-34 St. John's Rd., Bathwick.	5084/64101	
Bedford	The Imperial Cycle Co.	58 St. Loyes	2374	
Belfast	W. J. Chambers & Co.	106 and 108 Donegall Pass.	27253/4	Fastmote, Belfast.
Biggleswade	Bryants	25, 27, 72 and 74 Shortmead Street.	3108	
Birkenhead	Bob Simister Ltd.	540 New Chester Rd., Rock Ferry.	Rock Ferry 1452	
Birmingham	County Cycle & Motor Co. Ltd.	266 Broad Street 104 Bath Row (Repairs) (closed Saturday 1 p.m.)	Mid. 2671 Mid. 2817	
,,	C. E. Cope & Sons Ltd.	481-487 Hagley Road, Edgbaston 17.	Bearwood 2246/7	
,,	Shovelbottom's Ltd.	376 Ladypool Road, Sparkbrook 12.	South 2212	
,,	Aston Auto Motors	177 Aston Road, 6	Aston Cross 3201/2	
Blackburn	S. & G. Motor Cycles (Blackburn) Ltd.	15-17 Great Bolton St.	6678	
Blackpool	J. Hall & Son	102-6 Devonshire Rd.	22130	
Blandford	Badger Garages Ltd.	Salisbury Road	615	
Bolton	Charlie Robinson	119 and 121 Higher Bridge Street.	3931	

B.S.A. Motor Cycle Spares Stockists—*continued*

Town	*Name of Stockist*	*Address*	*Telephone No.*	*Telegraphic Address*
Boscombe, Bournemouth	Craze Bros.	473 and 475 Christchruch Road.	Boscombe 33231/2	
Bradford	C. Sidney Ltd.	107 Manningham Lane	29889	
,, ...	J. K. Hurst	41 Wakefield Road ...	22543	
Bridgwater ...	Anderson & Wall ...	18 St. Mary Street ...	2416	Anderson & Wall Bridgwater.
Brighton	Redhill Motors (Brighton) Ltd.	104 North Road ...	25281	
Bristol	S. J. Fair Motors Ltd. ...	201-3 Cheltenham Rd.	4-6238/4-1015	
Bromsgrove ...	Ralphs	110 Birmingham Road	3228	
Bury St. Edmunds	Barclay Motors	Kings Road Corner ...	2345/9	
Cambridge ...	King & Harper Ltd. ...	Milton Road Corner ...	3201	Motors, Cambridge
Canterbury ...	Hallets of Canterbury ...	St. Dunstan's Street ...	2275/6	
Cardiff	Car Distributors (Cardiff) Ltd.	134-140 City Road ...	30022	
,, ...	Robert Bevan & Son ...	29-35 Castle Street ...	27477/8	
Carlisle	W. T. Tiffen & Son ...	Irishgate Brow ...	25024	Tiffin, Irishgate, Carlisle.
Carmarthen ...	Eddie Stephens (Motors)	22-23 Water Street ...	6233	
Castleford ...	Barrett's Motor Cycles ...	27-35 Aire Street ...	2983	
Chapel-en-le Frith	E. W. Bowers	129 Town End ...	144	
Chatham ...	Grays of Chatham Ltd. ...	11-19 High Street ...	4005	
Chelmsford ...	Hadlers Garage Ltd. ...	New Street	4844/5	Hadlers, Chelmsford.
Cheltenham ...	H. & L. Motors Ltd. ...	Bath Street	2887	
Chester	Davies Bros.	34 Bridge Street ...	25510	
Chesterfield ...	Walter Wragg	95 Lordsmith St., Derby	3622	
Chichester ...	W. Goodridge & Co. Ltd.	East Street	2033	
Clydebank ...	John A. Weddell ...	72 Dumbarton Road ...	1429	
Colchester ...	G.B.R. Motors Ltd. ...	1-2 East Hill	6131/2	
Colne	C. H. Scholfield (Motors) Ltd.	Market Place	859	
Coventry ...	Coventry Motor Mart Ltd.	86 London Road ...	22146/7	Coventry Motor Mart.
Crawley	Lewis Thirkell Ltd. ...	60-62 The Boulevard	Crawley 25507	
Crewe	Cooke's Garages (Crewe Ltd.).	10-20 Nantwich Road	2011	Cookes Motors, Crewe.
Croydon	Godfreys Ltd	228-234 London Road	Croydon 3641/2	Gofrabike, Croydon.
Dagenham, Essex	Reginald Smith	Imperial House, New Road.	Rainham 3284/2786	
Dalton-in-Furness	H. Hume	24/26 Ulveston Road	25	
Darlington ...	The Duplex Motor and Cycle Co. Ltd.	10-16 Grange Road ...	Darlington 2071	Duplex, Darlington
,, ...	White Bros.	201/205-9 Northgate	67757	
Dartford	Schweizo Bros.	177 Lowfield Street ...	4279	
Derby	Ingle's Provincial Garages Ltd.	Walbrook Road ...	45289	
,, ...	D. Tye	Water Lane, Cromford.	Wirksworth 2149	
Doncaster ...	W. Cusworth (Doncaster) Ltd.	7 Hall Gate and 5 Market Street.	4594	

B.S.A. Motor Cycle Spares Stockists—*continued*

Town	*Name of Stockist*	*Address*	*Telephone No.*	*Telegraphic Address*
Douglas, I.O.M.	Gilbert Harding	18 Duke Street ...	Douglas 170	
Dudley	Chas. E. Cope & Sons Ltd.	193 High Street ...	Dudley 3464/5/6	
Dundee	George McLean Ltd. ...	Ward Road, Riverside Drive.	5087	Vehicles, Dundee.
Dunstable ...	B. G. England (Dunstable) Ltd.	Half Moon Hill, London Road.	843/4	
Eastbourne ...	Jempsons Ltd.	118 Seaside	756	Jempsons, Eastbourne.
Edinburgh ...	J. R. Alexander & Co. Ltd.	10-14 Lothian Road ...	4455	Motorcycles, Edinburgh.
Elgin, (Morayshire)	Farquharsons	55-57 High Street ...	7188	Elgin 7188
Enfield	D. J. Shepherd & Co. (Enfield) Ltd.	434-6 Hertford Road, Enfield Highway.	Howard 1631	
Exeter	P. Pike & Co. Ltd. ...	Alphington Street ...	58241	Piko, Exeter.
Frome	J. Difazio	25 Catherine Street ...	2913	
Gateshead, 8 ...	O. Carmichael & Son ...	75, 83 and 87 High Street West.	71815	
Glasgow, C.3 ...	Bell Bros. (H.P.) Ltd. ...	223 St. George Road ...	Douglas 6414	Douglas 6414 Glasgow.
,, C.4 ...	J. R. Alexander & Co. Ltd.	264-280 Great Western Road.	Douglas 3802/3/4	Alex Moto, Glasgow.
Gloucester ...	Harpers of Gloucester ...	23a Worcester Street	23187	Gloucester 23187
Grimsby	H. J. Gresswell & Sons Ltd.	13-15 Osborne Street	2202	
Guernsey ...	Millard & Co. Ltd. ...	Victoria Road ...	777	Millard Motors, Guernsey.
Guildford ...	E. Pascall (Guildford) Ltd.	11-12 Woodbridge Rd.	Guildford 2274/5/6	
Harrogate ...	H. Aclam (Prop. H. Baynes)	11 Bower Road ...	5125	
Harrow	Pinks of Harrow	Station Road	0044/5 Spares 3328	Pink, Harrow.
Hatfield	W. Waters & Sons Ltd. ...	32 Gt. North Road ...	3255	
Hereford ...	A. Kear & Co.	52b Commercial St.	2239	Kear, Hereford.
Holbeach ...	G. Woodman Ltd. ...	34 Fleet Street ...	3221	
Hornchurch ...	T. W. Kirby Ltd. ...	10 Roneo Corner ...	8785	
Hounslow ...	Stanley's Motors	46-8 Lampton Road ...	Hounslow 1949	
Huddersfield ...	Earnshaw	Manchester Road ...	1232	
Hull	Browns (Witham) Ltd. ...	47-49 Witham ...	29802/33990	
Huntingdon ...	Hallens	10-20 Germain Street	1051-2	
,, ...	Jordans of Hull	Story Street	16131	Gumpt on, Hull.
Ilford	J. J. Double	1 Mildmay Parade, Cranbrook Road.	Valantine 0191	
Ilkeston, Derbyshire	Ray Gamble	Station Road	873	
Ipswich	Revetts Ltd.	Clarkson Street ...	53726/7	
Jersey	Colebrooks (J. O. Poingestre).	22½ New St. John's Road, St. Helier.	Central 642	Colebrooks, Jersey.
Kendal	Tom O'Loughlin	66 Stricklandgate ...	315	
Kings Lynn ...	Peter Guest Ltd.	123,5 Wooton Road ...	4129	
Kirkcaldy ...	County Motors (Kirkcaldy) Ltd.	Junction Road ...	Dysart 5631	
Lancaster ...	Pye Motors Ltd.	Parliament Street ...	3553	
Lancs.	A. Taylor	192 Manchester St., Oldham.	Main 4456	

B.S.A. Motor Cycle Spares Stockists—*continued*

Town	Name of Stockist	Address	Telephone No.	Telegrapic Addres
Launceston ...	J. Wooldridge & Son ...	Western Road ...	21	Wooldridge, Launceston.
Leeds	Watson-Cairns & Co. Ltd.	157/8 Lower Briggate	33024/5	Watson-Cairns, Briggate, Leeds.
Leicester ...	E. W. Campion & Son Ltd.	Welford Place ...	58054	
Lincoln	Wests (Lincoln) Ltd. ...	116 High Street ...	21262	
Liverpool, 3 ...	Cundles (Liverpool) Ltd.	41 and 61 Byrom Street	Central 4148	Cundles, Central 4148.
Llawhaden ...	James Bowen & Sons ...	Llawhaden, near Narberth, Pem.	Llawhaden 6	
London, E.6 ...	Godfrey's Ltd.	220 Barking Road, East Ham.	Grangewood 8088	Gofrabike, Forgate.
,, **E.6** ...	Glanfield Lawrence (Highbery) Ltd.	28-32 Highbury Corner	North 2791	
,, **E.7** ...	Godfrey's Ltd.	418 Romford Road, Forest Gate.	Grangewood 1234-5	Gofrabike, Forgate.
,, **E.8** ...	Eleanor Motors	265/7/9 Mare Street, Hackney.	Amherst 5134-3923	
,, **E.18** ...	Longstaff	88 High Rd., Woodford	BUC 6367 & 6757	
,, **N.5** ...	Glanfield Lawrence (Highbury) Ltd.	25 Highbury Corner ...	North 2791	
,, **N.12** ...	George Grose Ltd. ...	834 High Rd., Finchley	Hillside 2149	
,, **N.12** ...	Glanfield Lawrence ...	407 High Rd., Finchley	Finchley 0091	Glanfin, Norphone.
,, **N.15** ...	Godfrey's Ltd.	94-96 High Road, South Tottenham.	STA 9960	Gofrabike, London.
,, **N.W.1**	J. Grose Ltd.	379-381 Euston Road	Euston 5231	
,, **N.W.10**	Slocombes Ltd.	269 Neasden Lane, Neasden.	Gladstone 3355	
,, **S.E.11** ...	Writers Ltd.	161-5 Kennington Lane	Reliance 1362	
,, **S.E.13** ...	F. Parks & Son Ltd. ...	404 High St., Lewisham	Lea Green 0535	
,, **S.E.15** ...	West End Motors Ltd. ...	171 High St., Peckham	Newcross 2589	
,, **S.E.18** ...	Cleare & Co. Ltd. ...	1 High Street ...	Woolwich 0174	
,, **S.W.6** ...	Claude Rye	897-921 Fulham Road, Fulham.	Renown 6174	Ryebikes, Walgreen, London
,, **S.W.9** ...	Pride & Clarke Ltd. ...	158 Stockwell Road ...	Brixton 6251	
,, **S.W.11**	Owen Bros.	19 Battersea Rise, Clapham Junction.	Battersea 7816/7	
,, **S.W.17**	Elite Motors (Tooting) Ltd.	951-961 Garratt Lane, Tooting Broadway.	Balham 1200	Elite Motor Toot, London.
,, **W.1** ...	Godfrey's Ltd.	208 Gt. Portland St.	Euston 4632/4	Gofrabike, London.
,, **W.3** ...	Whitby's of Acton Ltd. ...	273 The Valve, Acton	Sh. Bush 5355/6	
,, **W.5** ...	Kay of Ealing Ltd. ...	8-10 Bond Street ...	Ealing 2387	Sparesokay, Eulux, London.
,, **W.12** ...	Turners Stores	81-83 Goldhawk Road, Shepherd's Bush.	Sh. Bush 2436	
Lowestoft ...	R. Wright	67-69 London Rd., Sth.	645	
Macclesfield ...	A. Watling	49 Buxton Road ...	3592	
Maidstone ...	Redhill Motors (Maidstone) Ltd.	The Broadway ...	3096	

B.S.A. Motor Cycle Spares Stockists—*continued*

Town	Name of Stockist	Address	Telephone No.	Telegraphic Address
Manchester, 3 ...	Tom Davies (Motors) Ltd.	2-3 Deansgate ...	Blackfriars 0681	
,, ...	Fred Fearnley Ltd. ...	692-4 Ashton Old Road	East 1445/6	Fernbike, Manchester.
,, ...	Alex Parker	31/33 Palatine Road, Northenden.	Wythenshaw 2062	
Mansfield ...	Henstocks	128 Chesterfield Rd. ...	329	Henstock 329, Mansfield.
Middlesbrough ...	J. T. Dickinson (Middlesbrough) Ltd.	150-162 Lindthorpe Rd. & 17 Lindthorpe Rd.	3861	Payacob, Middlesbrough.
Neath	Fred Rist	16 Windsor Road ...	Neath 780	
Newcastle-on-Tyne	Dene (Newcastle) Motor Co. Ltd.	Haymarket	2-9165/6	Ened, Newcastle-on-Tyne.
Newton Abbot	J. E. Green & Co. ...	87 Queen Street ...	653	
Newport, Mon.	R. J. Ware & Sons ...	69 Commercial Street	66206	
Northampton ...	G. Lawrence	40-44 Wellingborough Road	1272	
Norwich	Chapmans (Norwich) Ltd.	38-42 Duke Street ...	24727	
Nottingham ...	E. W. Campion & Son Ltd.	Arkwright Street and Queen's Road.	83444	
Oldbury	Bromford Garage ...	Bromford	BRO 2225	
Oldham	Alan Taylor(Northern)Ltd	192 Manchester St. ...	Main 4456	
Oswestry ...	Roy Evans	Willow Street ...	1144/5	
Oxford	H. F. Temple	69 St. Thomas Street	2485	
,, ...	John Avery	228/230 Banbury Road	57362/3	
,, ...	Faulkner & Son	12 Cardigan Street ...	57279	
Parkstone ...	Bob Foster	472-6 Ashley Road ...	3500	
Perth	M. Shaw & Sons	143 High Street ...	483	
Peterborough ...	Burrows Bros.	55-57 Westgate ...	2154	
Plymouth ...	P. Pike & Co. Ltd. ...	Millbay Road	Plymouth 63018	Piko, Plymouth.
Pontardulais, Glam.	T. Griffiths	Forest Garage ...	Pontardulais 323	
Portsmouth ...	Jenkins & Purser Ltd. ...	277-281 Copnor Road	2339	
,, ...	Glanfield Lawrence ...	147-157 Fratton Road	74331	
Preston	Loxham's Garages Ltd. ...	Central Garage, Charnley St., Fishergate.	Sales Dept. 4242 Service Dept. 4243	Loxham's, Preston
Pulborough ...	Gray & Rowsell	Bury Gate	Bury 4	
Radcliffe	Will Lord	115 Blackburn Street	2002	
Reading	Phillips and Bloomfield Motors Ltd.	10-14 South Street ...	2635	
,, ...	Stocker & Shepherd Ltd.	129/131 Oxford Road	2212-2983	
,, ...	Fortesque	West Street	Reading 54143	
Redhill	The Redhill Motor and Cycle Works Ltd.	50/54 Brighton Road	327	
Ripton	T. Ellis	2 High Skellgate, Yorks.	1079	
Rotherham ...	Ernest Cross	55-59 Drummond St.	Rotherham	3937
Salisbury ...	Pankhurst (Weymouth) Ltd.	78-79 Exeter Street ...	Salisbury 5222/3	
Scarborough ...	E. Andrew	149 Victoria Road ...	Scarborough	1857
Sevenoaks ...	Angus Motor Cycles ...	Station Parade ...	3338	
Sheffield, 1 ...	Walter Wragg Ltd. ...	Stanley Works, Wellington Street.	26098	26098 Sheffield.
Shrewsbury ...	J. R. Meredith	Coleham Head ...	6529	
Sittingbourne ...	Scoones' Garage	9 West Street ...	66	Scoones, Sittingbourne.

B.S.A. Motor Cycle Spares Stockists—*continued*

Town	*Name of Stockist*	*Address*	*Telephone No.*	*Telegraphic Address*
Slough	Sid Moram	Wexham Corner, High Street.	Slough 23767	
Southampton ...	Alec Bennett Ltd. ...	152 Portswood Rd. ...	54081/2/3	
Southport ...	H. F. Brockbank	62 King Street ...	5054	
Southsea	Percy Kiln	65-67 Elmgrove ...	P'mouth 23734	
St. Albans ...	Clarkes Ltd.	164 London Road ...	53153	
St. Helens, Lancs.	Geoff. Duke Ltd. ...	Greenfield Rd., Garage	3918	
Stockport ...	Theobald & Coppack ...	6 Chestergate ...	2843	Theobald, Coppack Stockport.
Stockton-on-Tees	T. Cowie Ltd.	49-50 Brunswick St. ...	67534	
Stoke-on-Trent	J. & N. Bassett	Howards Place, Shelton	2890	
Stourbridge ...	Pearson's Cycle Depot ...	31 Market Street ...	5677	
Sunderland ...	Dunns Garage (Sunderland) Ltd.	Wheatsheaf Corner, North Bridge St.	57666	
,, ...	T. Cowie	49/50 Brunswick St., Stockton-on-Tees.		
,, ...	Cowies	1 Matamba Terrace, St. Maries		
,, ...	Glanfield Lawrence ...	13-14 Fisher Street ...		
Taunton	W. P. Edwards (Motors) Ltd.	Station Road	2943	Edwards, Motor Cycles, Taunton.
Thames Ditton	Comerfords Ltd.... ...	Oxford House, Portsmouth Road.	Emberbrook 5531	
Torquay	P. H. Sharam Ltd. ...	244-6 Union Street ...	4184 & 7255	
Troon, Ayrshire	Cooper Bros.	125-129 Templehill ...	925	
Truro, Cornwall	W. H. Collins	Kenwyn Mews ...	Truro 2168	
Tunbridge Wells	G. E. Tunbridge Ltd. ...	21 London Road ...	416	Motors, Tunbridge Wells
Twickenham ...	C. A. Blay	192-9 Heath Road ...	Popesgrave 2103 & 1435	
Uxbridge ...	J. H. Miles Ltd.	60 High Street ...	Uxbridge 6000	
Wakefield ...	Parkinsons (Wakefield) Ltd.	38-40 Ings Road ...	2087	
Walsall	The Motor Cycle Mart (Walsall) Ltd.	12 Ablewell Street ...	3363	
Warrington ...	Jack Frodsham Ltd. ...	37a Winwick Street ...	34713	
Watford	Lloyd Cooper & Co. ...	61 Queen's Road ...	2125	Lloyd Cooper, Watford.
Westcliff-on-Sea	J. Costin & Sons	233-5-7 London Rd. ...	Southend 42215	
Weston-super-Mare	Wyvern's of Weston Ltd.	3 Locking Road ...	524	Wyvern's Weston-super-Mare.
Weybridge ...	W. L. Lewis & Sons ...	51 Church Street ...	2210	
Weymouth ...	Tilleys	9 Frederick Place ...	72	
Whitehaven, Cumberland	Mark Taylor	21 King's Street ...	252	
Wellington ...	Bill Doran & Matt. Wright	Park St. Garage, Shrops.		
Wolverhampton	C. E. Cope & Sons Ltd. ...	168-9 Stafford Street	24605/6	
Worcester ...	W. J. Bladder & Son ...	52 Sidbury	2438	Bladder, Sidbury, Worcester.
Worksop ...	Ezra Sugden Ltd. ...	109 Gateford Road ...	3053	
Yeovil	The Yeovil Motor Mart ...	Hendford	267	Motor Mart, Yeovil
York	C. S. Russell (York) Ltd.	Lawrence Street ...	23793	Russell, Lawrence Street, York.