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SERVICE SHEETS

BSA SERVICE SHEET No. 404

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C Group Models

ENGINE ADJUSTMENTS WHICH CAN BE CARRIED OUT WITHOUT DISMANTLING

Oil Pressure Valves

As described under 'How the lubrication system works', two ball valves are incorporated in the system, to prevent the transfer of oil from the tank to the crankcase.

The spring loaded valve is located in the delivery passage between the pump and the big end, and lies behind the hexagon-headed plug situated in the side of the crankcase just below the lowest part of the timing cover (see Fig. C4).

Should any foreign matter lodge between the ball and its seating, oil will gradually transfer from the tank when the machine is left standing, and when the engine is started up there will be a heavy discharge of smoke from the exhaust.

To rectify, remove the plug, spring and ball. The simplest way of removing the ball is to hold the hand close to the orifice and gently turn the engine over, when the ball will be forced out by oil pressure.

Clean the ball and seating, and if on replacing there is still a doubt as to whether the ball is seating properly, insert a small punch against the ball and deal it a sharp tap with a light hammer. Finally replace the spring and ball.

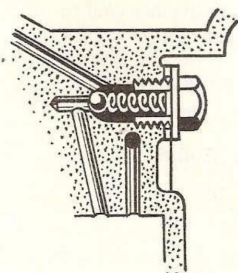


Fig. C4. Ball valve in crankcase.

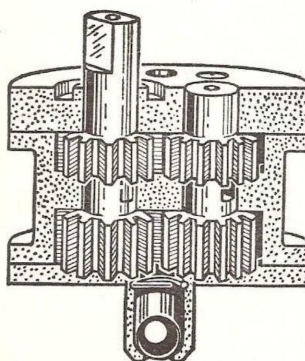


Fig. C5. Ball valve below return pump.

The other ball valve is located beneath the return pump (Fig. C5) and apparent failure of the return pump may be due to this ball having stuck in its seating.

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To rectify, remove the pump cover plate, insert a piece of wire into the orifice and lift the ball off its seating. Should the trouble keep recurring, it may be necessary to fit a new base plate to the pump.

ON NO ACCOUNT REMOVE THE OIL PUMP UNLESS IT IS ABSOLUTELY NECESSARY.

Tappet Adjustment

It is most important that tappet clearances are correctly maintained, and they should be frequently checked and adjusted if necessary, always when the engine is cold.

Before checking, make sure that the cams are in the correct position; otherwise an incorrect measurement may result.

The correct position is arrived at by turning the engine over until the piston is at the top of the compression stroke.

The simplest method is to lift the machine on to its stand and engage any gear. Then remove the compression plug in the cylinder head (on side valve models) or the sparking plug (on O.H.V. models) and with a piece of wire feel the top of the piston while rotating the engine a little in both directions by turning the rear wheel. When the piston is at the top of its stroke with both valves closed, and neither valve is opened by slight backward or forward rotation of the engine, proceed to check the clearances.

S.V. Model

Remove the tappet cover by unscrewing the four securing bolts. Check the clearance between the head of tappet base of valve stem with feeler gauge. This should be .004 in. in the case of the inlet valve and .006 in. in the case of the exhaust valve.

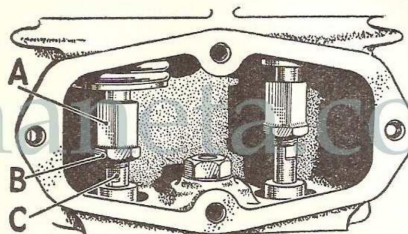


Fig. C6. Tappet adjustment.

If clearances are incorrect hold the tappet head (A, Fig. C6) with a spanner and unscrew the locking nut B. Now hold the stem C, rigid with another spanner, and turn the tappet head to the right to reduce clearance, or left to increase it. When the correct adjustment is obtained, lock B hard against A, and then finally check.

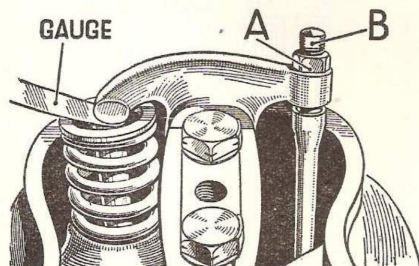


Fig. C7.

incorrect, slacken locknut B and screw adjusting pin A downwards to reduce clearance, and upwards to increase it.

O.H.V. Model

Remove the rocker box cover by unscrewing the central bolt. Check the clearance by inserting a feeler gauge between the end of the rocker and the valve stem (Fig. C7). The correct clearance for both valves is .003 in. when the engine is cold. If the adjustment is

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When correct, tighten the locknut against the rocker, finally check the clearance and replace the rocker cover.

Tappet Adjustment (Ramp Cams)

On C10L Models from Engine No. BC10L.3562 and C11G Models from Engine No. BC11G.10438, ramp cams were fitted, and it is essential to adhere to the following procedure when carrying out tappet adjustment.

To check and adjust exhaust valve clearances, rotate the engine forward until the inlet valve has just closed and set the EXHAUST valve clearance to .015 in. (C10L) or .012 in. (C11G).

To check and adjust inlet valve clearance, rotate engine forward again until exhaust valve clearance is just taken up, but before the valve actually starts to lift. Set the INLET valve clearance to .012 in. (C10L) or .010 in. (C11G).

Ignition Timing (C10 and C11)

If the distributor is removed for any purpose, it will be necessary on replacement to retime the ignition, but before doing this, the contact breaker point gap should be checked.

Turn the distributor shaft until the points are fully open and check the gap. This should be .012 in. If the gap differs from this the points should be adjusted. This is carried out by slackening the screws 'B' Fig. C8, moving the contact plate 'C' until the correct gap is obtained, and finally tightening screws 'B'.

Ignition timing can now be carried out. Set the piston at the top of the compression stroke (as explained under Tappet Adjustment) and insert a piece of wire through the sparking plug hole so that it is resting upright on top of the piston.

Now turn the engine backwards until the piston has descended $\frac{1}{8}$ in.

Remove the distributor cover and turn the centre spindle until there is approximately $\frac{3}{8}$ in. between the fibre pad and the start of the lift of the cam. Insert the distributor into its housing with the flat side towards the rear, and push well down on its seating, noting that as the gear meshes with the driving pinion the distributor shaft turns slightly and takes up a new position. Now rotate the distributor body until the points are just opening, and then tighten the locking screw located under the distributor body at the front.

The C Group of machines are fitted with an automatic advance and retard mechanism, which is housed under the contact breaker base. This mechanism requires periodical lubrication. First

remove the distributor top and disconnect the low tension lead at the side, and then unscrew the two bolts 'A' (Fig. C8). The complete contact breaker unit on its base can now be removed and the advance and retard mechanism will be revealed.

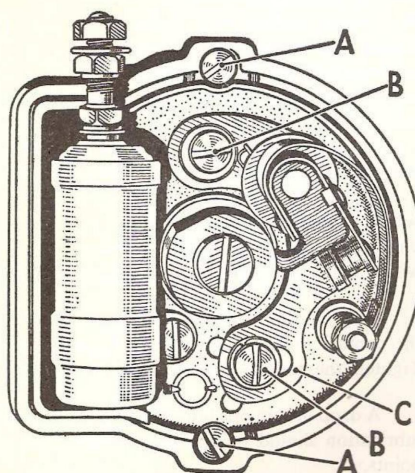


Fig. C8. The distributor.

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Lubricate with thin engine oil but do not overdo it, then replace the contact breaker base, not forgetting the low tension lead. There is also a small lubricator below the main body for lubricating the distributor spindle. Apply a few drops of oil and be sure to close the thimble to exclude dust.

Ignition Timing (C10L and C11G)

The contact breaker mechanism is exposed by undoing the two retaining screws and removing the domed cover A (Fig. C9).

Before inspecting the ignition setting, the contact breaker gap should always be checked. Turn the engine over until the contact breaker gap at B is at its maximum, and then insert a suitable set of feeler gauges between the points. The correct gap is .015 in. and if it differs from this setting, the two screws at D should be slackened slightly and the contact support plate moved until the gap is correct. Tighten the screws and re-check the gap. In no circumstances must the plate be bent to alter the adjustment.

The ignition setting can best be checked in the fully retarded position. Rotate the engine until the piston is at T.D.C. on the compression stroke (as described in Tappet Adjustment).

In the case of the C11G the contact breaker points should just be opening, but when dealing with the C10L insert a piece of thin rod through the plug hole until it rests on the piston crown and rotate the engine backwards (by engaging top gear and turning the rear wheel) until the piston has descended $\frac{1}{2}$ " (12° if using a Timing Disc), the points should now be just opening. This can be checked by inserting a piece of very thin paper between the points, the setting is correct when the paper is only lightly gripped. Make sure when withdrawing the paper that no particles adhere to the contact points.

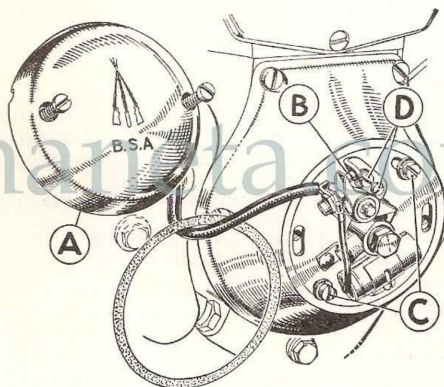


Fig. C.9. Contact Breaker Mechanism

If the ignition timing is not correct, the two screws C (Fig. C9) should be slackened and the contact breaker back plate rotated until the points are just on the point of opening. Tighten the screws and re-check the setting.

A drop of thin oil should be applied occasionally to the felt cam lubricating pad, but over lubrication should be avoided, as the excess oil may be thrown on to the contact breaker points.

Removal of the two screws C, will permit the contact breaker back plate to be withdrawn, to provide access to the advance and retard mechanism, which should receive occasional lubrication with thin oil.

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Sparkign Plug

If satisfactory performance is to be obtained, it is most important that the sparking plug is maintained in good condition. The Champion Sparking Plug supplied with the machine is of the non-detachable type and can only be cleaned satisfactorily by using the sand blast type of cleaner which is standard equipment at most garages. All traces of deposit should be cleaned off the points and the inside of the plug to prevent internal shorting.

Re-set the sparking plug points gap to .018—.020 in. by bending the side contact. In no circumstances should the centre electrode be moved as this will crack the insulation. Ensure that the copper sealing washer is in good condition before replacing the plug, and make sure that the thread and plug seat in the head are clean and free from grit. When the plug has been replaced, wipe the outside of the insulation with a piece of clean rag to prevent external shorting.

If it is found that the plug requires frequent attention then the carburettor settings should be checked to ensure that the mixture is correct (See Service Sheet No. 708).