a small amount of oil into the cylinder bore, then repeating the test. If the pressure recorded is significantly increased, the piston, piston rings or cylinder barrel are at fault; if the pressure remains unchanged, the head gasket or valves are faulty.

Oil pressure testing is described in Section 12 of Chapter 2. If either test reveals excessive wear, follow the instructions given in the relevant Sections of Chapter 1 to rectify the problem.

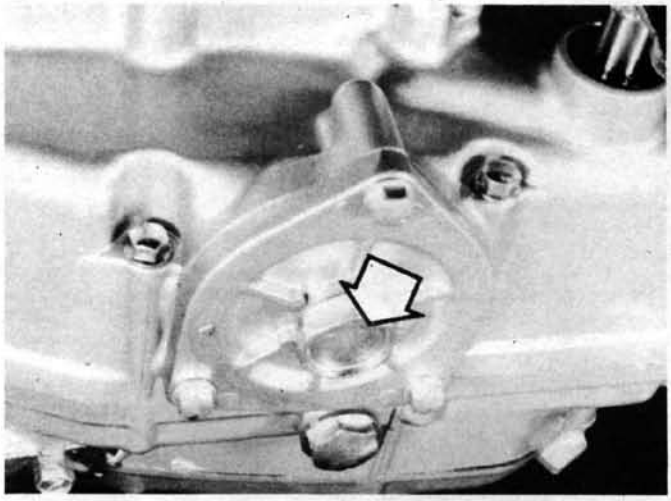
2 *Change the engine/transmission oil and oil filter element*

Oil changing is much easier and more efficient if the engine is fully warmed up so that the oil is thin and flows freely. Place the machine on its stand so that it is upright on level ground. A maximum of 1300 cc (2.3 pint) of oil is contained in the engine; place a suitable container under the drain plug, then remove both drain and filler plugs and allow the oil to drain. Note that the drain plug is situated in the middle of a separate triangular plate bolted to the crankcase underside; do not disturb the smaller hexagon-headed plug beside it (see accompanying photograph).

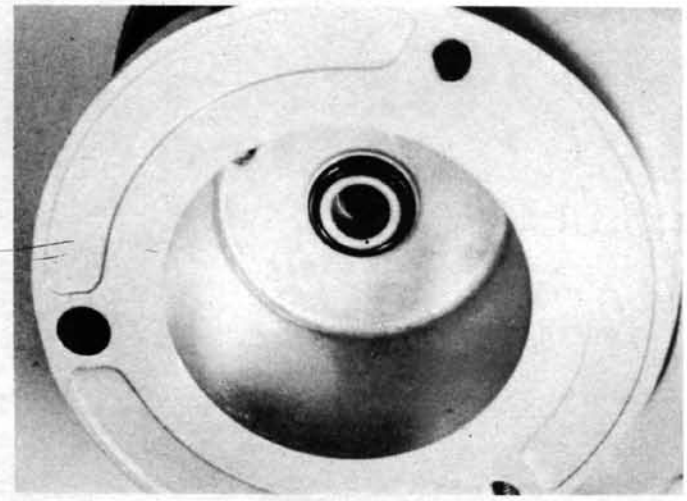
While the oil is draining, remove the three screws or nuts which fasten the oil filter chamber cap to the crankcase right-hand cover, then withdraw the chamber cap with its sealing O-ring, the coil spring, the filter element, and the second O-ring. Discard the used filter element. Examine the two O-rings; ideally these should be renewed whenever they are disturbed, and should be renewed always if damaged or worn. In practice, if undamaged, they can be re-used a maximum of three times (three filter changes) before renewal is essential. Wipe away all surplus oil from the filter chamber, then refit the small O-ring around the boss at the rear of the chamber. Fit the new filter element, ensuring that the aperture in one end fits over the chamber boss so that the filter blank end faces outwards. Refit the larger O-ring to the chamber cap, using a smear of grease to stick it in place, position the coil spring over the boss in the centre of the cap, then refit the cap, tightening securely the three retaining screws or nuts.

When the oil has finished draining, examine the condition of the drain plug sealing washer, renewing it if necessary, then refit the drain plug, tightening it to a torque setting of 1.8-2.0 kgf m (13-14.5 lbf ft). Refill the crankcase with 950 cc (1.7 pint) of good quality SAE 10W/40 SE or SF engine oil and refit the filler plug.

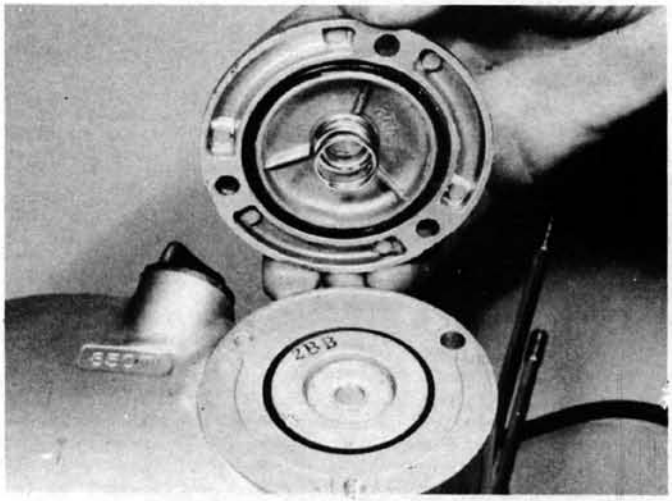
Start the engine and allow it to idle for one or two minutes, then stop it and wait a further few minutes while the oil level settles. With the machine standing upright on its wheels on level ground, the oil level visible through the sight glass set in the crankcase right-hand cover must be between the 'F' and 'L' marks. Add (or remove) oil as necessary; the engine should never be run with the level above the 'F' mark or below the 'L' mark. Check that the filler plug is securely tightened, remove all traces of surplus oil, and check for any oil leaks which may appear subsequently.



Engine oil drain plug (arrowed) – do not disturb the smaller plug



Small O-ring fits around filter chamber boss – do not omit



Refit filter element as shown – note position of coil spring and large O-ring

3 *Check and adjust valve clearances*

The valve clearances must be checked with the engine cold. Remove the sidepanels, the seat, the fuel tank, the spark plug, the inspection caps from the cylinder head cover and from the top of the crankcase left-hand cover, and the circular cap from the side of the crankcase left-hand cover. Apply a spanner to the alternator rotor retaining nut via the aperture in the side of the crankcase cover and rotate the crankshaft anti-clockwise until the piston is at top dead centre (TDC) on the compression stroke. This is achieved when the timing index mark (a straight line with the letter 'T' or 'O' adjacent) stamped on the rotor rim and visible via the aperture in the top of the crankcase cover is aligned exactly with the cast arrow on the crankcase (all GS125 models) or is exactly in the centre of the aperture (DR125 S model), and there is free play at the adjuster ends of both valve rockers.

The valve clearance is measured by sliding feeler gauges between the top of the valve stem and the tip of the adjuster. If the clearance is correct, a feeler gauge of 0.08-0.13 mm (0.003-0.005 in) will be a tight sliding fit between the two, for both inlet and exhaust valves.

To adjust the clearances, slacken the adjuster locknut and use a suitable screwdriver to rotate as necessary the adjuster screw. Tighten securely the locknut, but do not overtighten it since this will distort the threads and make future adjustment very difficult. Recheck the clearance and repeat the operation on the other valve.

Refit all inspection caps, checking that their sealing washers or O-rings are in good condition. Use a close-fitting ring spanner only on the valve inspection caps, and do not overtighten them since they are easily damaged.

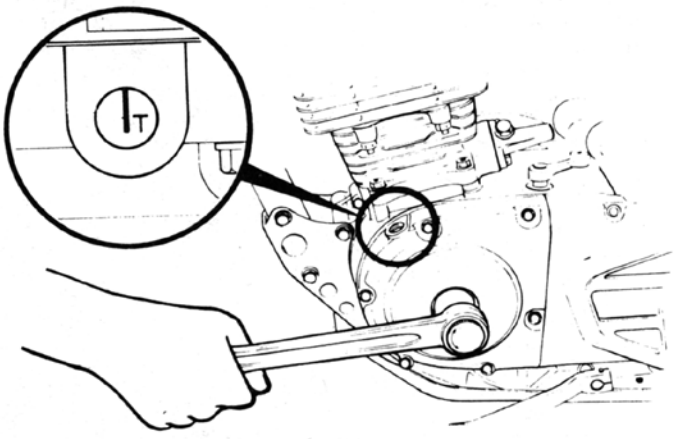
4 Clean the spark plug

Detach the spark plug cap, and using the correct spanner remove the spark plug. Clean the electrodes using a wire brush followed by a strip of fine emery cloth or paper. Check the plug gap with a feeler gauge, adjusting it if necessary to within the range of 0.6-0.7 mm (0.024-0.028 in). Make adjustments by bending the outer electrode, never the inner (central) electrode. Before fitting the spark plug smear the threads with a graphited grease; this will aid subsequent removal. Refit the spark plug by hand only, screwing it down until the sealing washer is firmly seated, then tighten it by a further $\frac{1}{4}$ of a turn with the plug spanner.

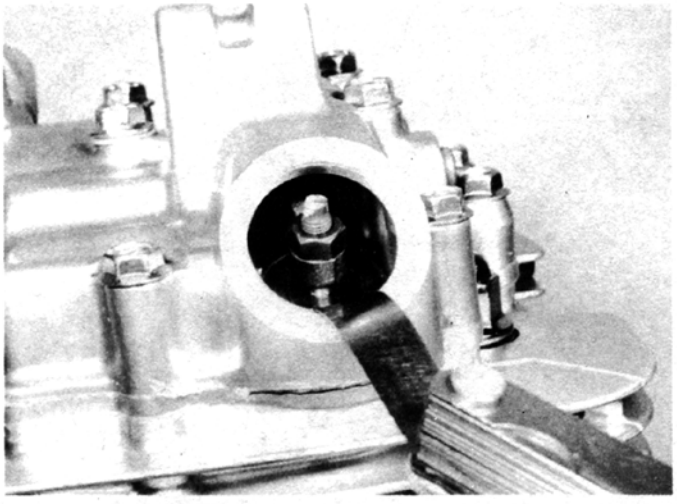
5 Check the carburettor, throttle cable and fuel line

If rough running of the engine has developed, some adjustment of the carburettor pilot setting and tick-over speed may be required. If this is the case refer to Chapter 2, Section 8 for details. Do not make these adjustments unless they are obviously required, there is little to be gained by unwarranted attention to the carburettor.

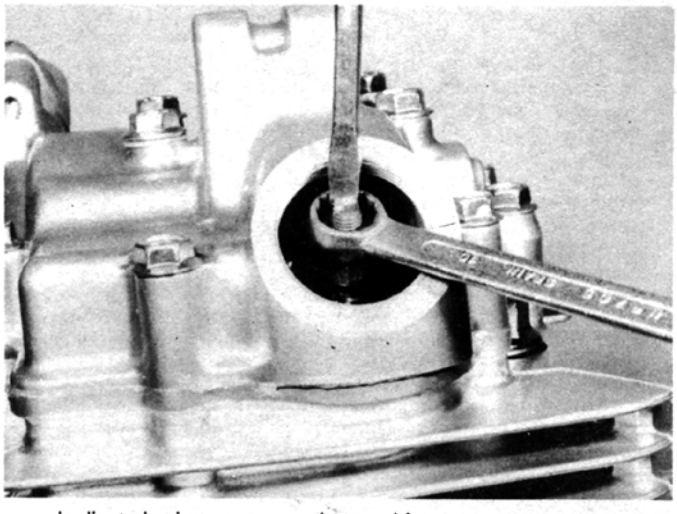
The throttle cable must have 0.5-1.0 mm (0.02-0.04 in) of free play, measured at the in-line cable adjuster just under the twistgrip. Adjustment should be made firstly with the cable adjuster on the carburettor top (slide carburettor) or throttle pulley (CV carburettor), then fine adjustment can be made with the in-line adjuster at the cable's upper end. Check that the cable is smooth in operation and apply a few drops of oil to the inner cable at both adjusters, pulling the outer cable carefully away from the adjuster to gain access.



Alternator flywheel mark denoting TDC



Valve clearances are checked with feeler gauges ...



... and adjusted using spanner and screwdriver

Complete carburettor maintenance by slackening the drain screw on the float chamber, turning the petrol on, and allowing a small amount of fuel to drain through, thus flushing any water or dirt from the carburettor. Tighten the drain screw again.

Give the pipe which connects the fuel tap and carburettor a close visual examination, checking for cracks or any signs of leakage. In time, the synthetic rubber pipe will tend to deteriorate, and will eventually leak. Apart from the obvious fire risk, the evaporating fuel will affect fuel economy. If the pipe is to be renewed, always use the correct replacement type to ensure a good leak-proof fit. Never use natural tubing because this will tend to break up when in contact with petrol and will obstruct the carburettor jets.

6 Check the clutch adjustment

While the clutch can be adjusted at two points, at the operating mechanism and at the cable itself, it will suffice for the purposes of Routine Maintenance to regard the operating mechanism as set and to make all normal adjustments using the cable length adjusters. The clutch is adjusted correctly when there is 4 mm (0.16 in) of free play in the cable, the free play being measured between the butt end of the clutch handlebar lever and its handlebar clamp.

Reset the cable free play, if necessary, using the adjusters provided. Use first the lower cable adjuster, reserving the handlebar adjuster for minor alterations.

In the event that adjustment is no longer possible with the cable adjusters, the crankcase right-hand cover must be removed as described in Section 9 of Chapter 1 and the operating mechanism reset as described in Section 37 of the same Chapter. Screw in fully the cable adjusters to achieve the maximum free play in the cable before the mechanism setting is altered.

Complete clutch maintenance by applying a few drops of oil to the lever pivots, to the adjuster threads, and to all exposed lengths of inner cable.

7 Check the battery

It is essential that the battery is maintained in excellent condition to prolong its life. In addition to the check of the electrolyte level, the condition of the terminals should be examined. The exposed terminals employed on the battery fitted to these machines are prone to corroding, producing a variety of faults in the electrical system if allowed to go unchecked. Clean away all traces of dirt and corrosion, scraping the terminals and connections with a knife and using emery