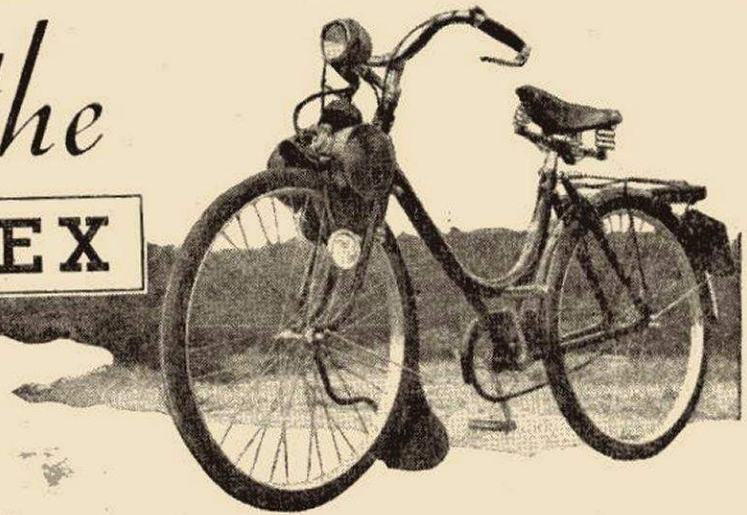


# Servicing the

## VELO-SOLEX

Routine Maintenance for  
a Popular Cyclemotor of  
Continental Design



**B**EFORE starting the overhaul of the Velo-Solex there are four major points worth bearing in mind which will reduce the necessity for overhaul to the minimum. The first and most important of these is the use of the correct grade of oil in the petrol mixture. The Velo-Solex engine is designed to operate on a lubricating oil conforming to the SAE.10 specification, and if such an oil is used, the periods between decarbonisation will be in the neighbourhood of 2,000 to 2,500 miles. An SAE.20 specification oil may be used as a substitute for the lighter oil, but decokes will be needed more often. In no circumstances should an oil of a heavier grade than SAE.20 be used. The correct proportions of oil and petrol for the petrol mixture are: (a) during the "running-in" period of the first 200 miles,  $\frac{3}{4}$  pint of oil to one gallon of petrol, and (b) after this period is completed  $\frac{1}{2}$  pint of oil to one gallon petrol. A funnel with a fine gauze strainer should be used when filling the tank.

### Sparkling Plug

The second point is attention to the spark plug. That fitted to the engine by the makers is the one proved by test to be the most suitable and experimenting with other types frequently causes erratic running. Regular cleaning of the plug and maintaining the gap at the correct adjustment, i.e., .016in. to .020in., ensures easy starting and reliable performance. Thirdly, riding technique has a most important bearing on the performance of the machine. It must be remembered that a cyclemotor is a power-assisted cycle and not a motor cycle. The engine is there to help, not to do all the work all the time. The power from the engine will take its rider along the road, without pedal assistance, on the level and up any average gradient. On a steep hill, however, pedalling should begin early on so that the engine may assist the rider up the gradient. The practice of allowing the little engine to "slog" itself almost to a standstill before help is given by pedalling is to be deprecated; it places undue strains on the bearings resulting in premature wear. Therefore, help the engine when necessary and the engine will help the rider for a very much longer period. The pedalling effort is small, being comparable to an ordinary cycle on the flat.

### Cleanliness of the Engine

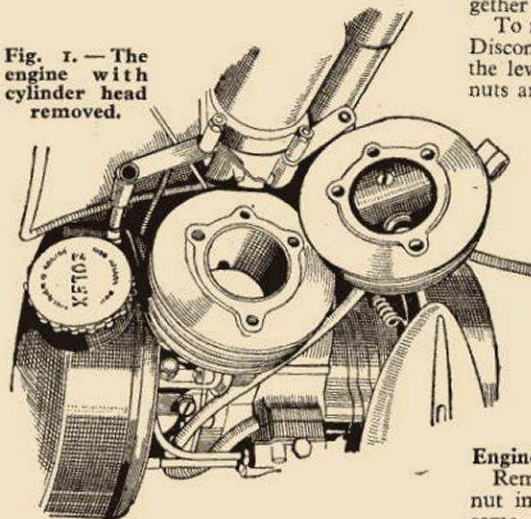
The fourth and final point is cleanliness. A large number of so-called "troubles" may be traced, directly, to dirt on the outside of the machine. If the engine is covered with road dust and oil it is impossible to see whether a nut or bolt has started to work

loose or if a joint or gasket is leaking. Furthermore, dirt on the outside has a habit of finding its way inside *via* the carburetter air intake, petrol tank filler openings and the like. Working on a dirty engine takes very much longer due to the necessity of cleaning down the motor before any adjustments can be carried out. A clean engine is usually an efficient one, so keep the engine clean.

### Decarbonising Procedure

Many users like to decarbonise their engine themselves. On the Velo-Solex this is a simple matter. It should be remembered that with all two-stroke engines cleanliness and freedom from carbon in the exhaust system is every bit as important as the removal of carbon deposit from the piston crown and combustion chamber. The following procedure should be adopted: Remove the H.T. lead from the spark plug, unscrew the plug; remove the three cylinder head bolts taking care not to lose any washers on these bolts; slide out from between the fins of the cylinder head the two arms holding the carburetter; remove the cylinder head. The appearance of the engine will then be as shown in Fig. 1. Next, remove the decompressor valve from the cylinder head. With a small blunt screwdriver scrape away all carbon deposit from the piston crown and the inside of the cylinder head. Remove the old cylinder head gasket and clean the faces of the cylinder top and head on which the gasket bears. Clean all carbon from the decompressor valve. With a piece of soft iron wire clean out any carbon from the decompressor valve guide. Lightly grind-in

Fig. 1.—The engine with cylinder head removed.



the valve on its seating, using a fine grinding paste, wash away all traces of the grinding compound and reassemble the valve in the cylinder head, making quite sure that the recessed side of the valve spring cup faces upwards so as to retain the small cotter pin in position.

### Manifold Cleaning

Having cleaned the cylinder head and piston crown turn the engine, by hand, until the piston is at its lowest point in the cylinder barrel. This will expose the exhaust port in the cylinder wall. (This port is visible, just above the piston, in Fig. 1.) Examine this port and if there is any carbon formation

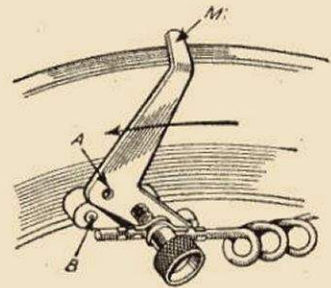


Fig. 2.—Back casing of flywheel magneto.

present, however slight, it should be removed. Should the carbon deposit around the exhaust port appear to be considerable, this may be taken as a sign that the manifold pipe leading from this port to the silencer is, also, partially choked with carbon and that it, together with the silencer, requires cleaning out.

To remove the manifold proceed as follows: Disconnect the throttle control rod from the lever on the handlebar, remove the two nuts and spring washers holding the manifold flange to the cylinder. Pull the carburetter, which is mounted on the manifold, away from the cylinder. (The ball and socket joint at the lower end of the manifold allows the carburetter and manifold to hinge back.) Withdraw the carburetter and manifold from the ball joint connecting the manifold to the silencer intake pipe. Using a piece of stiff wire, such as an old wheel spoke, scrape all carbon from the inside of the manifold pipe, particularly from around the bend at the upper end of the manifold.

### Engine Reassembly

Remove the silencer cover by undoing the nut in the centre of the cover. Using the same piece of wire as was employed for

cleaning the manifold, clean out all carbon from the silencer intake pipe. Scrape all carbon away from the inside of the silencer, the baffle plate in the silencer and from both portions of the ball and socket joint in the exhaust pipe tract. Replace the silencer cover, using a new gasket. Fit a new gasket over the two studs in the cylinder to which the manifold is attached. Insert the ball on the lower end of the manifold into the socket on the upper end of the silencer intake pipe. Push the manifold flange on to the two studs on the cylinder and replace the two spring washers and nuts, drawing the latter up evenly and tightly. Refit the throttle control rod in the handlebar lever. No jointing compound is required for the silencer cover and manifold flange gaskets, they are fitted "dry."

Fit a new gasket to the cylinder, making sure that it encircles the ring at the top of the cylinder barrel and that it lies evenly round this ring. This gasket is fitted "dry," no jointing compound being required. Replace the cylinder head. Fit the three

to its fullest extent. This causes the decompressor operating rod to move downwards. The clearance between the decompressor valve operating bar and the top of the valve stem should be  $3/32$  in. If this is not the case, proceed as follows: press down with a finger on the end of the operating bar over the decompressor valve. Insert a screwdriver into the slotted head of the adjusting nut. Screw this nut downwards to increase the clearance and upwards to decrease. When all is correctly adjusted, release the pressure with the finger when the channel section of the operating bar will lock the adjusting nut in position.

Replace the spark plug. Start the engine and allow it to run for a few minutes. Stop the engine and, while it is still warm, try each of the cylinder head nuts, with a spanner, for tightness. It will be found possible to tighten them all by a slight amount. To prevent the possibility of rain running down the H.T. lead to the plug and entering the magneto the slack in the lead should be tucked down behind the fuel pipes leading from the pump, as shown in the illustration of the engine (Fig. 5.).

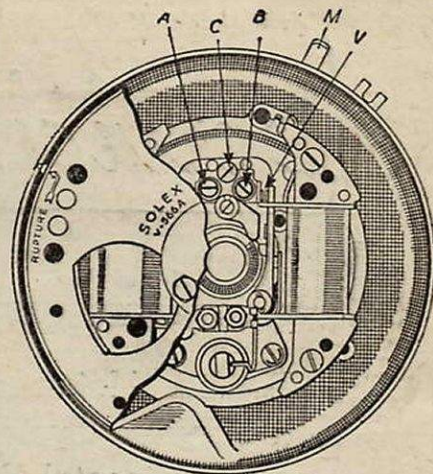


Fig. 3.—The flywheel magneto.

#### Flywheel Magneto

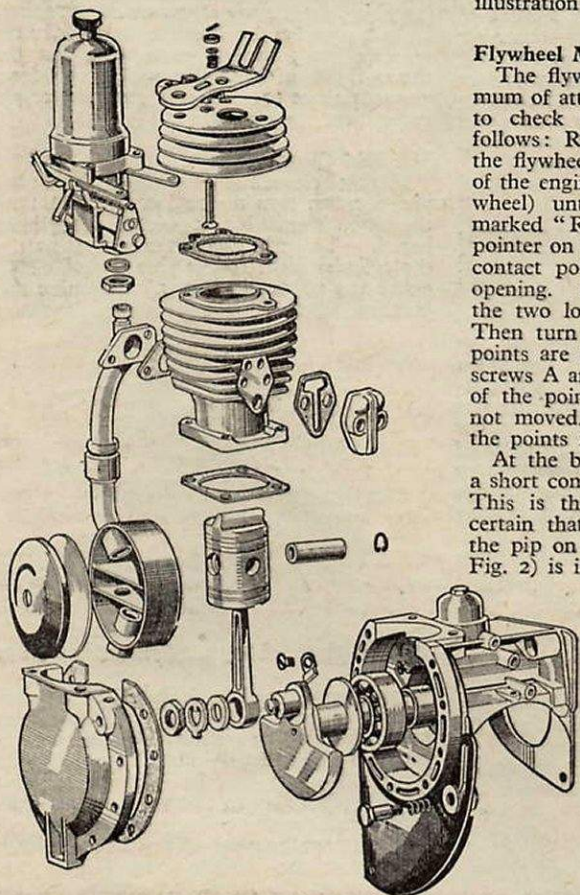
The flywheel magneto requires the minimum of attention, but should it be necessary to check the ignition setting proceed as follows: Remove the flywheel cover. Turn the flywheel in the direction of the rotation of the engine (clockwise when facing the flywheel) until the arrow on the flywheel, marked "Rupture," coincides with the fixed pointer on the back casing (see Fig. 3). The contact points (see Fig. 3) should just be opening. If they are not, loosen slightly the two locking screws A and B (Fig. 3). Then turn the eccentric screw C until the points are just beginning to open. Tighten screws A and B and then check the opening of the points to make sure the setting has not moved. The size of the gap between the points is immaterial.

At the back of the magneto will be seen a short contact bar (M in Fig. 2 and Fig. 3). This is the lighting contact lever. Make certain that this lever is positioned so that the pip on the rear end of the lever (A in Fig. 2) is in contact with the recess on the

the inlet pipe inside the tank. Pull out the gauze filter, wash in clean petrol, and replace, screwing-in the drain plug afterwards. To clean the pump filters unscrew the pump cover nut and remove the cover. In some pumps the filter consists of three copper gauze screens covered by a rubber washer. Remove this washer, unscrew the stud holding the screens in position, remove the screens and wash in petrol. When replacing the screen assembly the shorter threaded end of the stud should be screwed into the pump body. If the longer end is screwed into the body the delivery ball-valve will be displaced and the pump put out of action. Other pumps are fitted with a single plastic screen in place of the rubber washer and the copper-gauze screens. This plastic screen can be lifted off the centre stud without the necessity of unscrewing the latter.

#### Carburettor Check

To check the flow of petrol, remove the flexible overflow fuel pipe, rotate the engine by hand and note whether fuel flows freely from the end of the overflow. The carburettor has no float or other moving parts. The only attention required being periodical cleaning of the air cleaner element. This is enclosed inside the cover (Fig. 5) and may be reached by unscrewing the knurled nut on the top of the cover when the latter may be lifted up to expose the element. The petrol jet (Fig. 5) may be unscrewed for cleaning out should it become choked. To clean the jet blow through it either with the mouth or with compressed air. Do not use a pin or other sharp instrument.



Left: Fig. 4.—Exploded view of the Velo-Solex engine. Right: Fig. 5.—Fuel supply diagram. The pump at the top of the engine is fitted to units before No. 238,100 and the other to engines having a higher serial number.

cylinder head bolts and washers, not forgetting to thread the rear two through the holes in the ends of the two arms attached to the carburettor. Screw up each bolt finger-tight. Then go round the bolts in turn giving them one turn each with a spanner until all three are drawn up tight. When replacing the cylinder head do not forget to insert the adjusting nut, on the top of the decompressor valve operating wire, into the hole at the end of the lever which bears on the decompressor valve stem. This rod is connected, at its lower end, to the triangular plate on the throttle barrel.

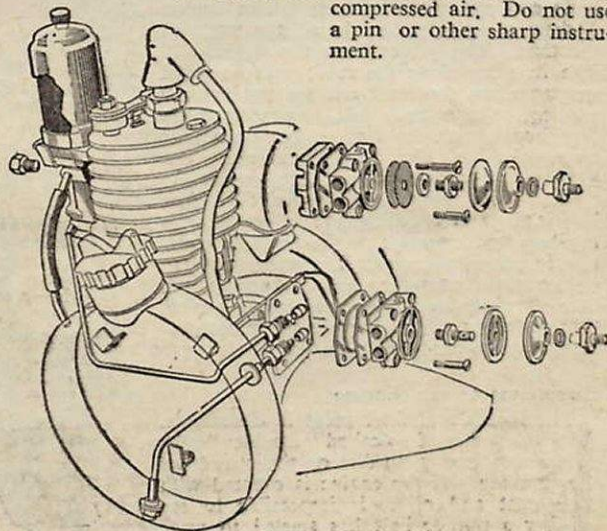
#### Checking the Decompressor

Next, carefully adjust the clearance on the decompressor valve. Move the handlebar lever inwards so as to open the throttle

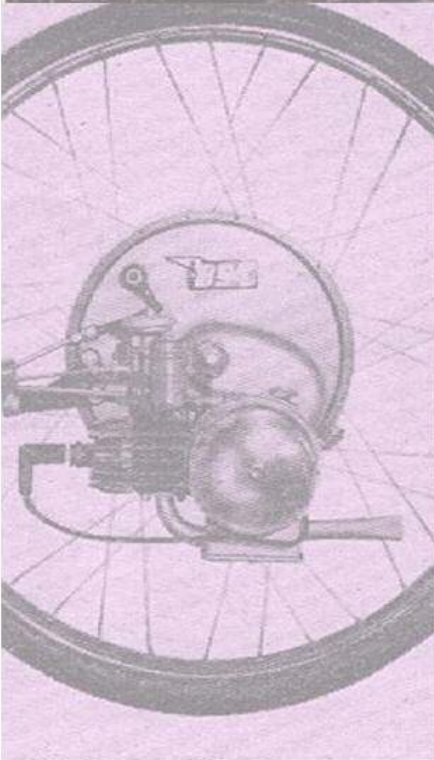
base (B in Fig. 2). With the lever in this position the circuit from the lighting coil in the flywheel magneto is completed to the headlamp switch.

#### Fuel Supply

The fuel supply system (Fig. 5) requires no attention beyond the cleaning of the filters. There are two of these, one in the tank at the base of the inlet pipe to the pump and one in the pump itself. To clean the former, remove the tank drain plug. The tubular filter will be found fitted over the end of



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