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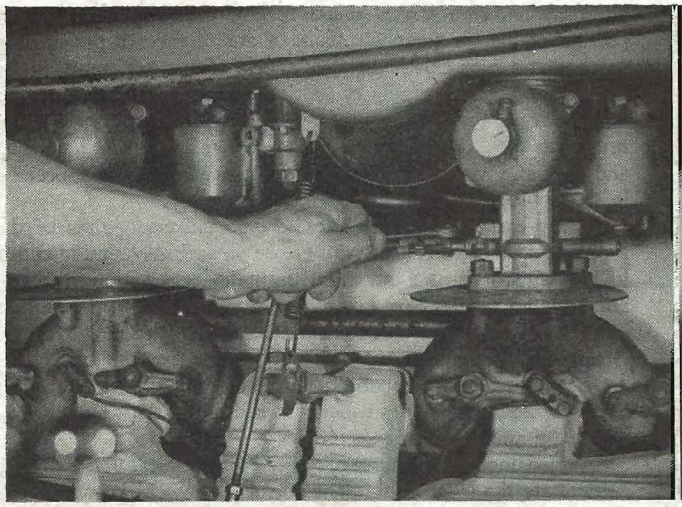
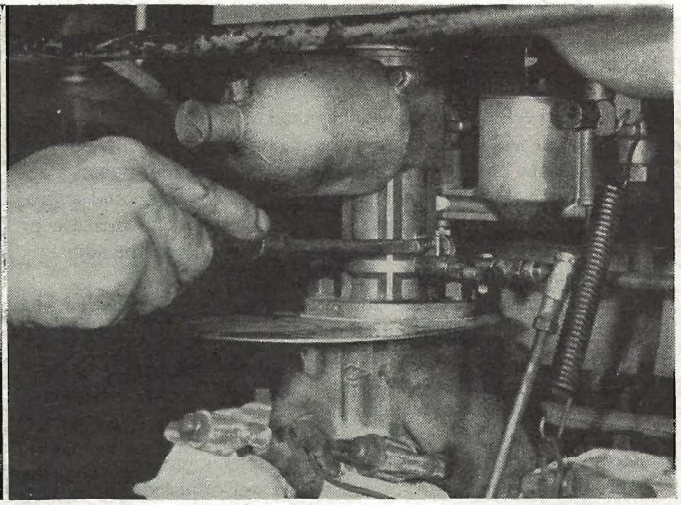


In the case of cars fitted with twin carburetter installations it is first necessary to free the coupling between the two so that they can be adjusted individually.



With the horizontal type carburetters fitted to Wolseley models it is also necessary to slacken the throttle lever stop screws to allow the throttle to close completely before adjusting.

Preventive Maintenance:

THE CARBURETTER: No. 2

ENGINES fitted with twin carburetters employ a slightly different procedure in setting the carburetter mixture from that described in our previous issue, as the two carburetters have to be synchronised, although the basic method of adjustment remains the same.

The jet adjusting nuts have to be screwed down two turns to enrichen the mixture in a similar way to the single carburetter, but in addition the flexible coupling bolts on the coupling shaft connecting the two throttle spindles must be slackened off to permit independent operations of each carburetter.

The engine is then started up and the slow-running adjustment screws on each carburetter adjusted an equal amount until the engine is idling reasonably fast and each carburetter is passing the same amount of air. This can readily be ascertained by placing the ear close to the air intake of each carburetter and noting that the noise or "hiss" made by the intake air is the same for each carburetter. When this condition has been achieved, the two carburetters are synchronised, and the coupling bolts may be re-tightened.

At this stage, the correctness or otherwise of the mixture can be ascertained from an examination of the exhaust.

If the engine is running with the regular periodic rhythm known as "hunting" and is emitting black smoke from the exhaust, it is evidence that the mixture is too rich. One of the jet adjusting nuts should now be screwed upwards, keeping the jet head in contact with it, of course noting if it effects an improvement. If it does, try the same procedure with the other jet, gradually weakening the mixture of both carburetters until the engine runs evenly and at the best possible speed for that setting of the slow-running screws. If, on the other hand, weakening the mixture does not produce an improvement, the adjusting nuts should be returned to their original positions and then screwed downwards alternately, a partial turn at a time, to richen the mixture until even running and the best engine speed is obtained.

When you are satisfied that you have obtained the best possible results, final slow-running is obtained by unscrewing the throttle stop screws of both carburetters equally until the slowest possible tick-over is obtained with the engine still firing evenly.

As a check on correct adjustment, the engine may now be set to idle fairly fast, and each carburetter piston lifted in turn with a pencil or similar instrument for about $\frac{1}{32}$ in. This should cause the engine speed to rise slightly without interfering with its even running. If an appreciable speed increase occurs and continues to occur up to a piston opening of $\frac{1}{16}$ in., the mixture on that particular carburetter has been set too rich and the adjusting nut should be screwed upwards until this condition is rectified.

If, on the other hand, raising the piston $\frac{1}{32}$ in. causes the engine to stop, it is an indication that the carburetter is set too weak, and the adjusting nut should be screwed downwards.

The horizontal type S.U. carburetters fitted to certain of the Wolseley cars are equipped with auxiliary starting carburetters, and the main carburetters have no manually operated jet control. The jets, though adjustable, are set for normal running conditions, and the rich mixture required for starting and running when cold is taken care of by the starting carburetters. These carburetters again call for a modified method of adjustment.

Unscrew the throttle lever adjusting screws as far as possible and slacken the pinch bolt securing the universal joint to the front carburetter. Unscrew the brass dome nut on the end of the jet sleeve which protects the adjustable jets, and screw in the jet stops to their full extent so that the jets are set for their weakest delivery.

Now screw in the throttle adjusting screw of the rear carburetter until it just touches its stop, and then give it one full turn. This should provide a fast idling setting for the rear carburetter while leaving the front carburetter out of action, and permit the jet adjusting screw of this carburetter to be adjusted until even firing of the engine is obtained.

Close the throttle of the rear carburetter by unscrewing the throttle adjusting screws as far as possible, and then repeat the above procedure with the front carburetter.

It is now necessary to couple the two carburetters so that they are synchronised, and to achieve this both throttle adjusting screws should be unscrewed as far as possible so that both throttle valves can be fully closed.

Holding both throttles in the fully closed position, the pinch bolts of the universal joint may be tightened up to re-couple the carburetters.

To obtain the final slow-running setting, screw the throttle adjust-

ing screws of both carburetters until they are just making contact with their stops, and then give each screw exactly half a turn from this position. This will set the throttles in a slightly open position and should provide good slow running.

Make a check by noting whether the beat of the engine is even. If it is not, it will be necessary to re-make the adjustment, but this should seldom be required, and in any case no more than one-eighth of a turn of the jet adjusting screw either way should suffice.

Any alterations to the throttle adjusting screws to increase or lower the idling speed must be carried out equally on the adjusting screws of both carburetters.

Careful attention to your driving will, however, enable you to reduce your petrol consumption more than anything else. Rapid acceleration and high speeds are both prolific users of petrol, and the difference in petrol consumption between running at a steady 30 m.p.h. and 50 m.p.h. is much more than is generally appreciated by most owners.

Reference to the accompanying graph, representing actual results obtained on a 10 h.p. car with a well-adjusted carburetter, will clearly show the vastly increased petrol consumption produced by careless use of the throttle and violent acceleration. It will be noted that at full throttle consumptions of little more than 20 m.p.g. are obtained, but at small throttle openings greatly improved petrol consumptions are obtained, particularly at speeds of 30 m.p.h. and under.

Provided, therefore, that you are satisfied with moderate acceleration and equally moderate maximum speeds, you can achieve an appreciable improvement by careful driving alone, without resort to any other means. In fact, more can be achieved by driving technique than by anything else, and minimum petrol consumption can only be attained by good, patient and thoughtful driving.

Nevertheless, proper attention to the mechanical function of the car components will help to achieve maximum results by reducing the rolling resistance to a minimum.

For instance, it is of importance to see that the wheel hubs are well lubricated with the right type of grease, avoiding, at the same time, excessive lubrication. Grease nipples are provided on each wheel hub, access to which is easily obtained by removing the wheel hub disc. Lubrication of the hubs should take place at intervals of 500 miles, and if this attention is given regularly, two strokes of the oilgun at each wheel nipple will suffice.

Drag in the transmission will also affect the petrol consumption adversely and you should therefore give the components of this portion of the car their fair share of attention. Oil drag in the gearbox and back axle is the chief source of waste of power in the transmission, but a supply of lubricant is essential to the proper functioning of these components. The problem therefore resolves itself into the draining, refilling and replenishing of the gearbox and back axle with the correct grade of oil at the intervals specified in the appropriate manual.

On the earlier models the needle type universal joints of the propeller shaft were packed with grease on assembly, and intended to last without further attention until the next major overhaul, but the latest models have lubricating nipples which need attention with the grease gun filled with Duckham's "Adcol" H.P.G. Grease, at intervals of 500 miles, to ensure freedom of action.

On both types of propeller shaft it is, of course, essential to lubricate the sliding joint at the front end of the shaft by applying the grease gun to the nipple provided.

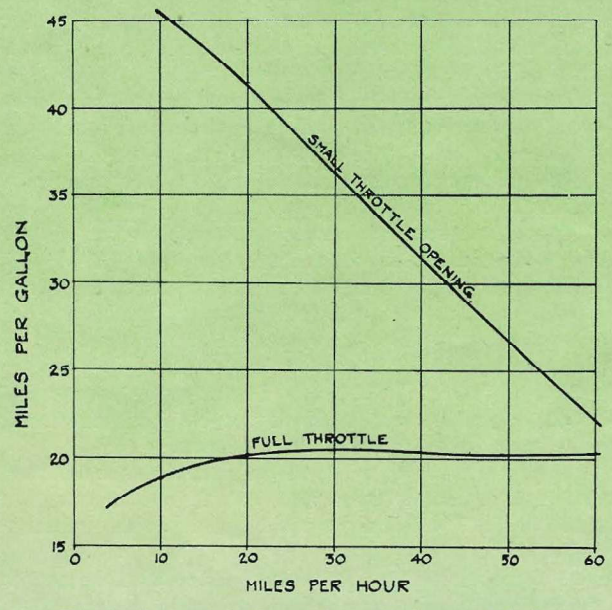
An often unexpected source of drag is misalignment of the wheels, particularly the front ones. The correct alignment is so that the front wheels toe-in slightly towards the front, and the amount generally required is $\frac{1}{8}$ in., but it is advisable to check this in the operation manual, as it varies with the geometry of the wheel mounting and steering linkage. If the toe-in is not correct, the tyre is partly dragged along the road instead of being allowed to roll, and the rolling resistance is increased unnecessarily, quite apart from increased tyre wear.

Tyre pressures also affect the rolling resistance, and it becomes increasingly important to maintain the tyres at their correct pressure. If there is any departure from the recommended pressure, it is better that it should be on the high side rather than on the low.

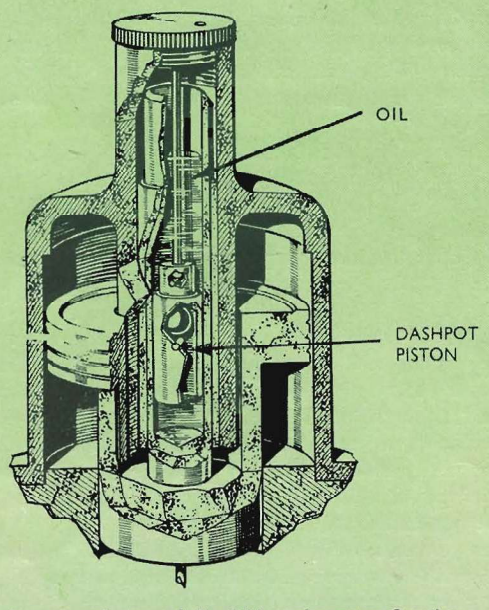
Another source of rolling resistance is rubbing of the brake-shoes on their drums, due to over-zealous adjustment in an effort to obtain maximum braking efficiency. While it is essential that the shoes should be as close to the drums as possible when in the off position, it is equally essential that an adequate clearance should exist between the two, or useful work will be dissipated in friction and heat, leading to increased consumption.

Enough has been said to indicate that the attainment of maximum petrol consumption is not a simple matter or one of easy solution, but that it entails keeping the entire vehicle in first-class mechanical condition, and its careful use on the road.

A. F. Houlberg



This graph clearly indicates the vastly increased fuel consumption at large throttle openings.



A sectional view of the S.U. carburetter fitted to Nuffield products, showing the oil dashpot piston.