

B.S.A. CYCLES LIMITED.

(Proprietors: The Birmingham Small Arms Company Limited.)

SERVICE SHEET No. 20.

"Service," April, 1932.

HOW TO GET THE BEST OUT OF YOUR O.H.V. MODEL.

In order that the best performance may be obtained everything must be in perfect adjustment. All moving parts of the engine, gearbox, and machine must be free. The magdyno, lamps, pillion seat, and extra equipment must be dispensed with if the maximum speed is required.

Remember that the gearbox is fitted for use, and maximum engine revs, short of valve bounce, must be obtained before changing into top gear, particularly if maximum speed is to be obtained over a short distance.

Wind resistance offered by the rider's body must be minimized, and a crouching or stream lined riding position must be adopted.

The high-compression piston must be used without the shim washer.

The piston must be free from high spots.

The piston crown and cylinder head must be free from excessive carbon deposit, and the valve ports polished.

The cylinder barrel must be polished, *i.e.*, lapped out with metal polish or jeweller's rouge. The actual piston rings must be used for this, but not the piston which is to be run in the engine. Clean barrel, etc., carefully with petrol before reassembling.

The throttle and air slides in the carburetter must open to the fullest extent. If the movement of either is restricted examine the controls.

The engine must be run on a mixture of equal parts of Aviation spirit and benzole and a slightly larger jet may be fitted.

The carburetter and petrol filter must be cleaned.

The air vent in the tank filler cap must be free from obstruction.

The crankcase and oil sump must be regularly swilled out with petrol or flushing oil (not paraffin) and one or other of the recommended oils used.

For high-speed touring work the oil control valve must be reset as a means of increasing the oil supply to the engine.

The strongest valve springs must be fitted, but remember that the continued use of these strong springs will necessitate the re-cutting of the valve seats every four or five thousand miles, while the springs will weaken and require replacing periodically.

The rockers must be perfectly free and well lubricated.

The cylinder head joint washer must be replaced if there be any signs of leakage.

There must be not less than .008in. clearance between the butt ends of the piston rings fitted to 3.49 h.p. machines and .016in. on 4.93 h.p. and 4.99 h.p. models.

The rings must be free in their grooves but without up and down play.

The valve stems and necks must be polished.

The valves must be seating properly and without excessive side-play in the guides.

The valve clearances must be set to .002—.003in. when the engine is cold.

The alignment of the piston, connecting-rod, crankpin, and mainshaft must be checked. The gudgeon-pin when fitted to the small end must be parallel to the base on which the cylinder rests.

The big-end must be free but without up-and-down play.

The mainshaft bearings must be free but without play.

The bearing surfaces in the timing gear must be polished if there be any roughness.

The push-rod return springs, if fitted, must be adjusted to give maximum pressure.

A high-duty plug must be used.

The sparking plug washer must be replaced if there be any signs of leakage.

The exhaust pipes and silencers must be reasonably free from excessive carbon deposit.

Engine oil may be used instead of gear oil as gearbox lubricant.

Both chains must be removed, cleaned, and greased, and must be so adjusted that the total up-and-down movement for the tightest portion of the drive is $\frac{1}{8}$ in. for the front and $\frac{1}{4}$ in. for the rear chain.

The engine, gearbox, and rear wheel sprockets must be correctly lined up.

The steering head and steering damper must be carefully adjusted to give neither tightness nor play.

The frame must be checked for alignment by means of a straightedge laid against the wheels.

The hub bearings must be carefully adjusted and lubricated (see instructions in booklet).

The brakes must not be binding when in the off position.

The tyres must be inflated to the correct pressures.

It must be realised that if a machine is consistently driven at high speeds careful and regular attention must be given to the engine if its tune is to be maintained.