AJS - Ajs_1928_AJS_Instruction_Manual_K7_K10_OHC

Okay, here's the translated and formatted version of the motorcycle manual text, preserving technical specifications and the original language style:

A.J.S. Overhead Chain-Driven Camshaft Engine

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Illustration I

[Description of Illustration I referencing specific parts, not included here as the illustration itself is missing.]

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Illustration II. THE A.J.S. OVERHEAD CAMSHAFT ENGINE.

The A.J.S. Overhead Chain-driven Camshaft Engine is the only successful example of this form of drive on the market, and after exhaustive tests has proved to be the simplest, most efficient, reliable and silent form of drive for this type of engine.

To ensure the camshaft running steadily, notwithstanding the action of the cams, a patent tensioner consisting of a flat, flexible steel blade "A" (see illustration I.) which presses against the back of the chain, is fitted. Attached to this steel blade is a reaction damper "B."

The chain drive tensioner and reaction damper should not need the slightest attention; but so that the rider can assure himself that the tensioner is functioning properly, a detachable plug "C" is fitted at the side of the chain cover. After (say) a few thousand miles have been covered, take out this plug; and with the engine running, push a lead pencil or piece of wire through the hole until the tensioner is felt; then whilst the engine is running, if the tensioner is still or gently vibrating, everything is O.K., but if the tensioner jerks violently, then the oil pipes from the oil pump must be disconnected, the front cover taken away, and pin "D" screwed down (say) a couple of turns, so that more pressure is put on the damper. Unless the tensioner does jerk violently, on no account disturb pin "D"; even should it be necessary to totally dismantle the engine, do not disturb this pin "D." To take away the long steel tensioner "A," simply draw it forward from its peg.

Lubrication. The lubrication is on the dry sump principle and a special double acting pump is fitted of the revolving and reciprocating plunger type. This has no loose valves or springs.

The plunger "I" (see illustration II.) is caused to revolve by the driving worm "2," and is reciprocated by means of a pin "3" which engages with a cam groove cut on the plunger.

Dealing first with the top end of the plunger, slots cut on the plunger register alternately with inlet passage "4" (on the suction stroke), and outlet passages "5" and "6" (on the pressure stroke).

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LUBRICATIONcontinued.

Oil delivered at "6" goes to the big end, while that delivered at "5" goes up to the cam box.

The bottom end of the plunger also has a slot, which registers alternately with inlet "7" and outlet "8," and is responsible for returning the oil from the sump to the tank. It is of greater capacity than the supply pump.

To dismantle the pump, proceed as follows:

1. Remove all pipes from the pump.
2. Remove pump from engine.
3. Remove the two nuts "A" and the pin "3" from the pump.
4. Gently push the plunger out of the pump body in the direction of the arrow "C" on the drawing.

To re-assemble, the reverse sequence of these operations is, of course, followed.

Should it be required to remove the worm "2," the brass bush "D" which screws into the body with a R.H. thread, must be removed first.

It is of the utmost importance that the nut "A" always makes an air-tight joint with the body; and should there be no oil returning to the tank at any time, check this joint immediately.

Occasionally go over all the oil pipe unions and nuts to see that everything is tight. Should one of the unions come loose, especially on the inlet side of the pump, of course, the whole system of lubrication fails. As will be seen from the illustration, the oil pump itself is very simple. There are only two moving parts, and it is most unlikely that anything in this pump will get out of order. Should the oil not be circulating and running back to the tank, be quite sure that there is plenty of oil in the tank and that the filters are clean, before dismantling the pump.

Should it be necessary to take the oil pump from the engine, make certain that the short piece of square tube which drives the pump spindle from the engine is replaced.

The pump delivers oil to the big end via holes drilled down the driving side of the crankcase, then through holes in the main shaft, up web of flywheel, and through the crank pin into the big end. Oil is also taken to the cam box. A portion of the cam box projects inside the chaincasethe end of this projection is open; the oil from the cam box falls on to the vertical chainfrom there it falls through holes in the crankcase into the sump, and is returned to the oil tank. The piston and little end of connecting rod are lubricated in the ordinary way by splash from the big end, but we have found it necessary for continued high speeds on track or in road race, above (say) 60 m.p.h. average, to take an extra supply of oil direct to the cylinder walls.

On the driving side of the crankcase (see illustration III.) there will be found a screw-down needle valve which controls

the oil supply to the cylinder foot only. This is entirely independent of the supply to the big end and other working parts of the engine. This needle valve controls the passage communicating with a groove encircling the cylinder foot, in which 6 small holes are drilled round its circumference to supply oil to this part.

Illustration III.

[Description of Illustration III referencing specific parts, not included here as the illustration itself is missing.]

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LUBRICATIONcontinued.

When the machine leaves the factory, this needle valve is set so that sufficient oil passes to the piston for touring work, even for fast touring up to 60 m.p.h.; but for heavy, sustained high speed work, such as a road or track race, more oil should be given by unscrewing the needle valve, say, another turn. The best setting for this will be easily ascertained. If the engine is sharply accelerated in low or middle gear and a puff of smoke issues from the exhaust, this indicates that the piston is properly lubricated. Should the engine smoke heavily, screw the needle valve clockwise, half a turn at a time, until the correct setting is obtained. This is the only control the rider has over the lubricating system, as excepting for this lead to the cylinder walls, the lubrication is absolutely automatic.

To see that the oil is circulating properly, set the engine running quietly. Take off the oil filler cap from the oil tank, and just inside the filler spout will be seen the end of the return oil pipe. If oil is flowing back through this pipe, then the pump, etc., is functioning properly. Replenish the oil in this tank as required; also, every time the engine is dismantled empty the oil tank completely and fill with fresh oil. Clean the filter in the oil tank; also take out and clean the filter in the sump in the bottom of the crankcase. With this dry sump system of lubrication, at speeds of approximately 40 m.p.h., about 2 gallons of oil are taken through the big end every hour.

Oils to use. For ordinary touring work, the following oils are quite suitable:Wakefield "Castrol C," Price's "Motorine B. de Luxe," "Gargoyle" Mobiloil "B" Summer, "T.T." Winter, but for racing work use, if possible, "Castrol R." No other brand or grade of oil will successfully mix with "Castrol R," so care should be taken to empty the oil tank and crankcase if any other brand or grade of oil is used.

Special Pistons. Two pistons are supplied with each machine; the piston fitted to the engine on delivery gives a standard compression ratio of **6.25**, and this piston should always be employed for ordinary touring or for long distance races; and petrol or a 50% petrol-benzol mixture can be used.

The other piston which is supplied separately, with the machine, has a taller dome and gives a higher compression ratio than racing standard, namely **7.5**, and should be used for speed events or hill climbs up to (say) three-quarters of a mile; and half petrol and benzol should be used. If an alcoholic fuel can be obtained, such as "Discol P.M.S.2." this high compression piston may be used for long distance races, but when using alcoholic fuel it is necessary to alter the carburettor to suit, by fitting larger jets.

When setting jets for racing, either with petrol-benzol mixture or alcoholic fuel, first set the pilot jet to give proper starting

and slow running, then fit the main jet of such a size that "all-out" the mixture is slightly on the rich side. If possible, run the machine for (say) a quarter of a mile full throttle and full air. Then take out the sparking plug, and if the plug and points, instead of being absolutely black are at all tinged with white, it is an indication that a larger jet must be fitted. If the mixture is on the weak side when the machine is driven all-out, it is highly probable that the piston and valves will be burnt out. It is not necessary to have the mixture too richif the mixture is very rich, then of course, the machine will eight-stroke; but as mentioned above, arrange a jet of such a size that the mixture is slightly on the rich side.

The exhaust and inlet valves, which are inter-changeable and made from similar steel, are very sturdy and should give no trouble; but if the machine has been used a good deal for touring purposes, and the rider wishes to enter a long distance race, it is advisable to fit new valves. New valves should be carefully ground inin the usual way. If the valves are not renewed it is advisable to take the valves from the guides, clean away any burnt oil, well polish the stem, regrind the seats with finest flour emery paste, and replaceafter carefully cleaning away all traces of emery paste.

It is also advisable to change the valve springs if the engine is used often for speed events. After a few hours of continual high speeds, the valve springs are likely to lose their tension. If the engine will not keep up its speed, or misses fire at high speedslook to the valve springs. If there is the least doubt about the springs not being strong enough, put in new.