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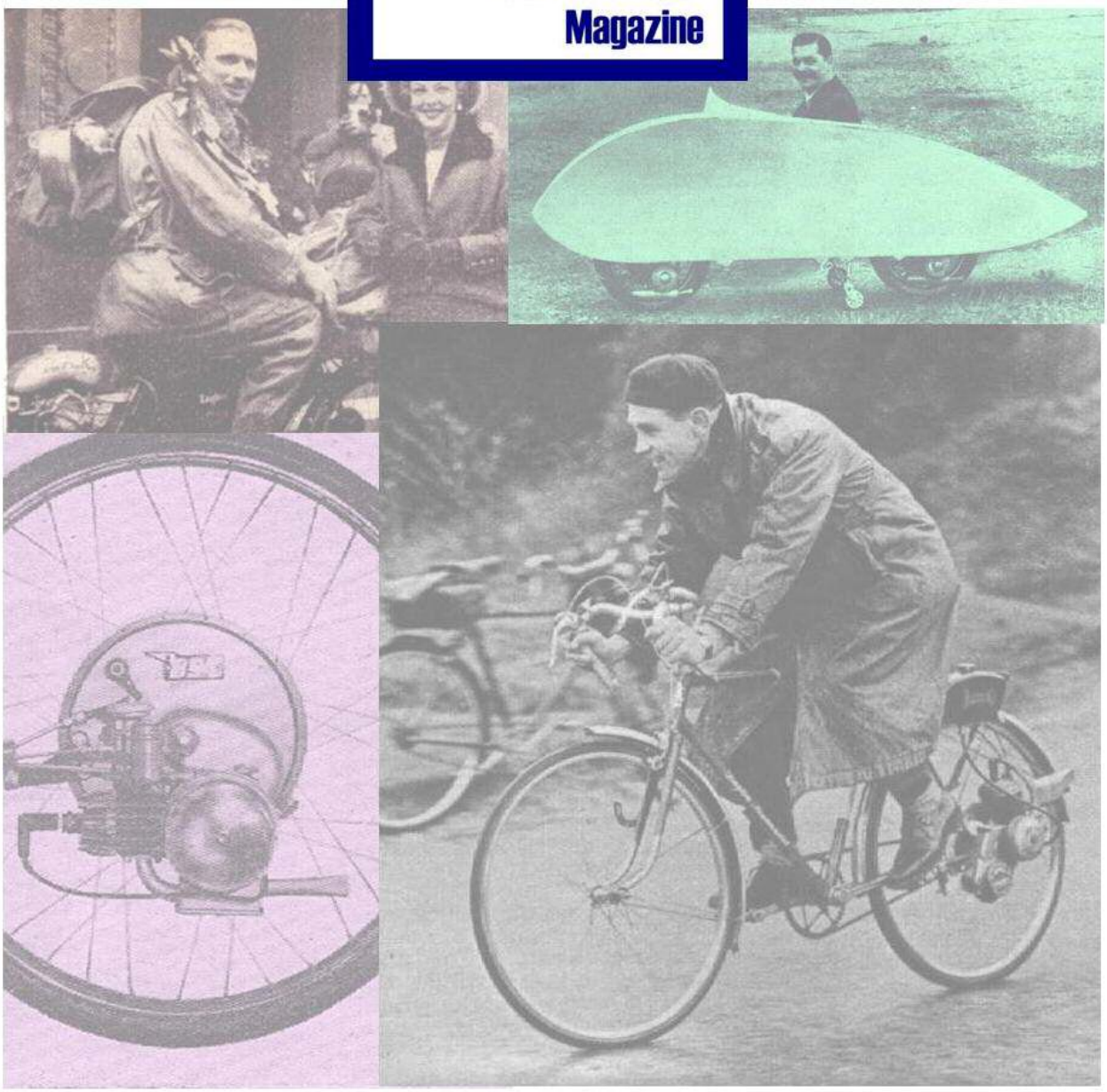

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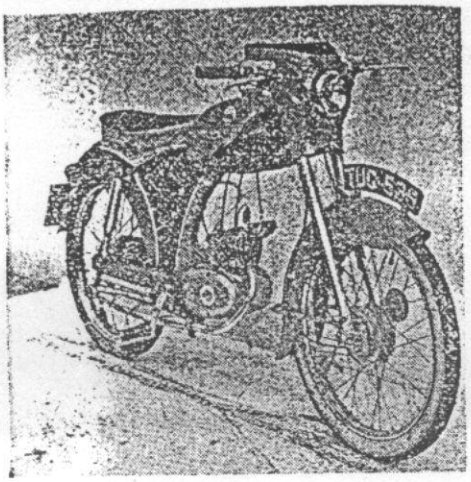
MAINTAINING THE H.M.W. ENGINE

Decarbonizing a powerful Austrian 2-stroke



The H.M.W. Supersport moped.

SMOOTH and sleek of line, powerful on the road, the H.M.W. two-stroke engine is also highly reliable, and when maintenance work is necessary it is remarkably easy to work upon. In Britain, it is best-known as the power unit of the H.M.W. and Centro ranges of mopeds, and in the course of a few years it has built up for itself a solid following of enthusiastic adherents, who fully appreciate its sterling qualities.

As with all machines, the first step in decarbonizing is thoroughly to clean the whole exterior of the engine. Some form of grease solvent like Gunk or Jizer, washed off with water, will prove most effective, though a wash down with hot water and household detergent, followed by a thorough swilling with cold water, will usually clear even the most tenacious dirt.

When the unit is clean and dry, the necessary dismantling can commence. First, however, make sure that you have all the necessary tools—a 10 mm. box spanner; pliers; a 9 mm. open-ender; a good screwdriver and a C-spanner—and a complete set of new gaskets.

The first step is to remove the exhaust pipe. This is held by a large slotted ring, which screws into the exhaust port. The C-spanner will loosen it, and when it is undone you can release the silencer and exhaust pipe from the frame fixings, and place the entire assembly on one side for later attention.

Next it's the turn of the carburetter. Undoing the single screw atop the mixing chamber will enable the throttle slide and needle assembly to be pulled clear, and looped safely to the frame. The petroil pipe can be pulled off at the banjo, and then the two 9 mm. holding bolts are undone, and the instrument lifted off.

Detach the sparking plug lead, and then use a pair of thin-nosed pliers to remove the split pin which holds the decompressor anchor plate to its pivot pin in the head fins. The pivot can then be pushed out, and the decompressor cable nipple freed from its housing on the head.

Removing the Head

Four 10 mm. nuts hold the cylinder head in place, and you'll need a box spanner to remove them. Once they are off, the head can be lifted away from its studs, and then the cylinder barrel can be taken off also. Be careful to support the piston as it comes clear of the bore.

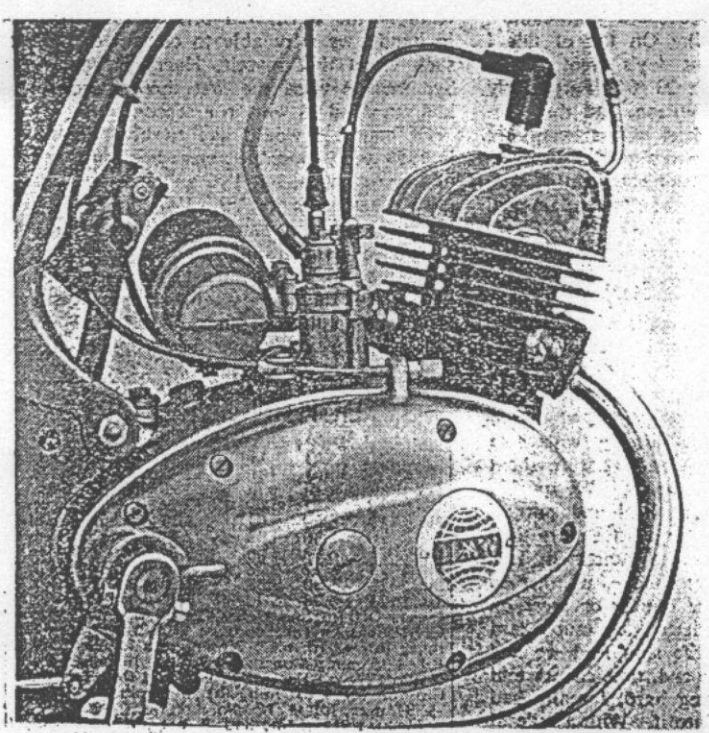
All carbon can next be scraped from the piston crown and the cylinder head. If leakage past the decompressor valve is suspected the small spring clip fitted in the groove atop the valve stem should be eased from its housing, and the valve ground-in with fine paste until the seating surfaces are a uniform matt grey in colour.

The exhaust port is decarbonized by scraping in the usual way, but a feature which is decidedly out of the ordinary is that provision is made for easy cleaning of the transfer ports. Each port has an in-built deflector secured, externally, by a pair of screws. If these screws are undone each deflector may be withdrawn, and the ports and the deflectors themselves easily cleaned.

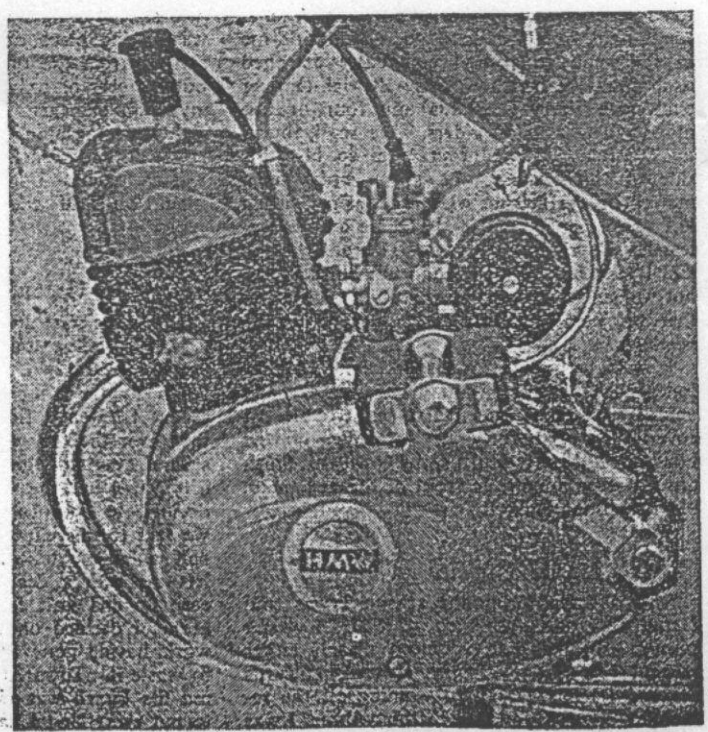
Before re-assembly begins, make sure that all parts are quite clean. There is no need to use jointing compound on the gaskets, but each should be smeared with a thin coat of grease to ensure a gas-tight fit when the nuts are tightened up, and oil should also be smeared around the piston walls before it is fed into the barrel

Check that the exhaust system is free from heavy carbon deposit, cleaning it thoroughly if necessary, and then refit it to the machine, not forgetting that it will be necessary to use a new copper ring in the exhaust port to replace the old one.

It should be stressed that where the decompressor valve has been ground in, the head and the valve must be well washed with pure petrol before the parts are re-assembled. Grinding paste in the cylinder could have very expensive results!



H.M.W. Supersport engine.



H.M.W. Luxus engine.

FINISHING THE H.M.W.

Pointers for Maintenance Work on the Carburetter, Magneto and Cycle Parts

TWO different types of magneto are fitted to H.M.W. machines. Some have German equipment — made by Bosch — while others use Swedish instruments, manufactured by Steffa. So far as routine adjustment goes, however, there are no vital differences. Both types of magneto have the points mounted in the same place — the lower front side of the back-plate — and both have similar adjustment mechanism.

This consists of the familiar screwdriver slot and abutments, which enable the position of the fixed point to be varied relative to the point on the moving arm, once a locking screw has been loosened. A gap of between .012 and .015-in. with the points fully open is correct, and this should be checked before any adjustment is made, during adjustment, and again afterwards. A small variation of the gap beyond the stated limits will, almost undoubtedly, have an adverse effect upon the machine's performance.

To reach the magneto is a job which is easy, but requires just that extra "know-how." You will see that the left engine casing carries the arm to which are attached the gear control cables — a single cable in the case of a two-speed model; twin cables on the three-speeder. Connected to this arm, and located in the casing itself, is a selector fork, which engages with pegs on the end of the gear-operating rod, this being concentric with the main shaft in the gearbox. Hence, once the two screws holding the case have been removed, the case is still held by the selector, and cannot be pulled straight off the machine. Instead, it must be eased forward and outwards until the pegs disengage, when it can easily be lifted away from the magneto, and allowed to hang down on its cables while the job of checking the points is carried out. Manipulation of the gear control will help to free the pegs if they prove "difficult."

Replacing Magneto

Similarly, when replacing the cover after working on the magneto the selector mechanism *must* be engaged before the case will fit. First, it is necessary to pull the selector shaft as far out as it will go. To do so, exert a gentle pressure upon the selector boss with one hand, while rocking the rear wheel gently back and forth with the other. This will enable the selectors inside the gearbox to disengage cleanly, and ease the task.

When the selector shaft is fully extended, slide the case backwards towards it until the selector fork is engaged with the pegs, and then simply press the cover back into place on the engine, and secure the two screws again. Points adjustment is a job which should be carried through every 1,200 miles.

Gear adjustment, too, will have to be done from time to time. On the two-speed machine, it is a simple matter of keeping barely perceptible play in the single control cable, using the adjuster provided beneath the twist grip. On the three-speed machine, there are two such cables, each with its own adjuster. You should check that the mark on the rotating part of the grip lines up with the gear mark on the fixed drum in the neutral position, and that when this is so each cable has no more than the minimum of play. There should be no perceptible up-and-down movement, but each cable should be free to revolve in its seating. Once you have the correct adjustment set — it is reached by racking out one adjuster and racking in the other until the marks coincide — all gears should engage perfectly.

From time to time — every 600 miles is the maker's recommendation — it will be necessary to check the gearbox for oil. To do this, first take a screwdriver and loosen the clamp which holds the air filter to the carburetter. Remove the filter, and you will then be able to reach the large 17-mm. plug, painted red, which is located atop the gearbox. Then, with the machine on its stand and as level as you can get it, use a screwdriver to remove the red-painted level screw at the rear of the right-hand engine cover. Oil should then seep from the level hole. If it fails to do so, top up until a flow commences, using S.A.E. 20 oil.

Every 1,800 miles it is necessary to drain the oil from the gearbox, flush the box, and top up with clean oil. Remove the air filter and gearbox plug as already described but, in addition, take out the 17-mm. drain plug which you will find underneath the crankcase, and allow all the oil to drain away. Then replace the drain plug, and pour 20 c.c. of fresh oil into the box. Loosely screw the filler plug back into place, slip on the air filter, start the engine, and run it for 10 to 15 minutes. Then remove the filter, and both plugs. Any sediment in the box will have been taken up by this flush-out, and will pour with the oil.

Lock the drain plug back into place, remove the level plug, and fill up with your fresh oil. All told, you'll need three-quarters of a pint.

While the air filter is off, take the chance of cleaning it — a job which should, in any case, be undertaken every 600 miles. Once the filter has been removed, the whole body can be cleaned, but for periodic inspection it is necessary to remove only the bakelite cap, which is held by a single screw. Inside, you will find the filter element, which can be gently lifted out of its seating (take care not to damage the cork seating washer which is behind it), washed in petrol, immersed for a quarter of an hour in thin oil, and then drained. Refit it, and then put back the cap, making certain that the three-armed seating inside it, which is loose, is replaced the right way round, with the arms pointing towards the filter element, not away from it.

Minor adjustments include the maintaining of no more than a quarter of an inch of play between the clutch lever and the handlebar, by means of the adjuster halfway along the cable; keeping a check on the chain, which is adjusted by means of hand-operated snail cams, so that up and down play halfway along the bottom run never exceeds three-quarters of an inch; and odd greasing jobs.

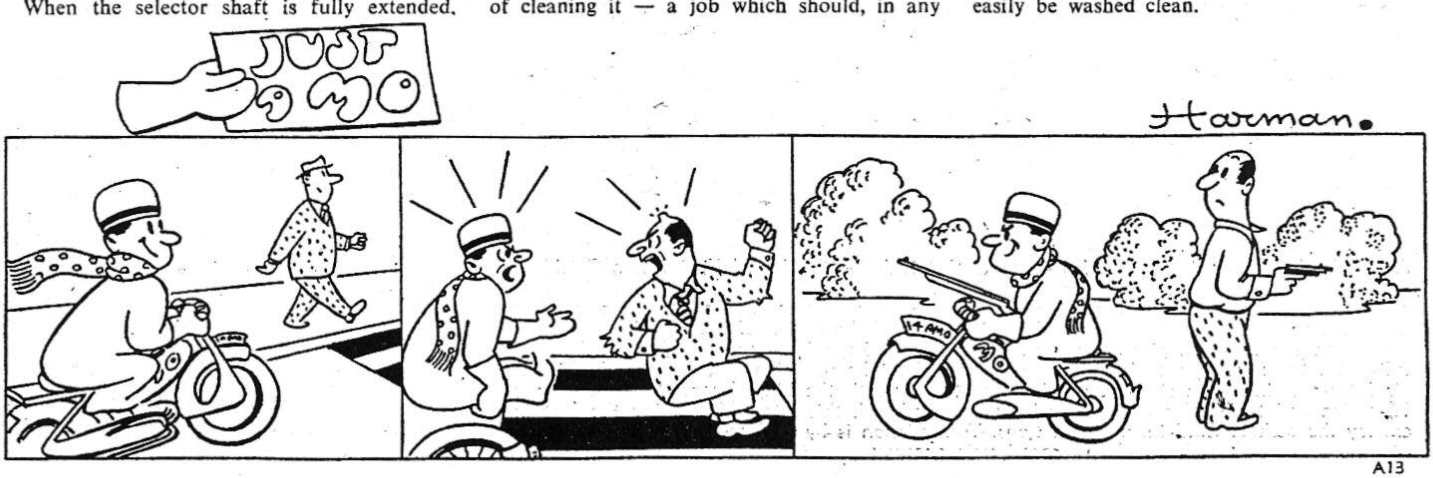
Several of these are very important. The fork legs should be kept well lubricated, by means of the grease nipples located behind them, and a shot of grease into the speedometer gearbox every 300 miles will help to ensure against failure of this rather delicate mechanism.

Brake Checking

Brakes, of course, should be checked every week, using the cable adjusters to take up the play, and once every couple of months it is as well to ensure that no play has developed in the wheel bearings. These are of normal cup-and-cone design; should they require adjustment they should be removed (17-mm. spindle nuts), and the 17-mm. lock nuts loosened. Then the cones should be screwed in by hand until they are tight, subsequently being let out half a turn. Lock up the lock nuts again, and the bearing adjustment will be correct.

Play in the steering head can be rectified by taking up the adjustment by means of the knurled ring provided, once the lock nut has been loosened. First, remove the handlebar fairing (held by two 14-mm. bolts); the rest is straightforward, but remember that an over-tightened head is as disastrous as a loose one.

Finally, spare a thought for the fuel filters. There are two of these. One is located in the banjo connection on the float chamber, and should be periodically cleaned. The other is incorporated in the petrol tap and should never require attention. If blockage is suspected, however, you should first drain the petrol, and then use a 19-mm. spanner to remove the petrol tap, when the filter can easily be washed clean.



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