NOVEMBER 1968 2/6d

MOTORCYCLE SCOOTER & THREE-WHEELER MECHANICS

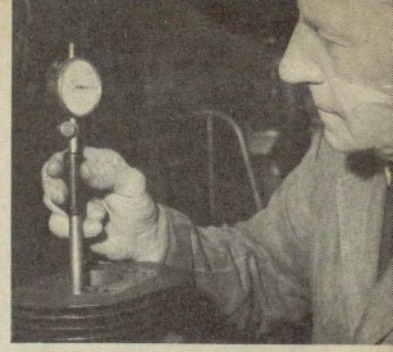
LARGEST SALE

KNOW HOW TO

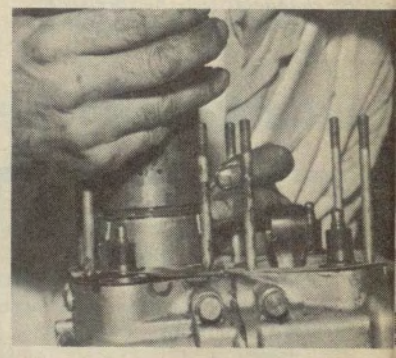
NIGHT RIDE

- PADGETT YAMAHA: ROAD REPORT
- RE 500: TOP-END OVERHAUL
- ELECTRICS: CHARGING CIRCUITS
- HONDA 250: FRONT FORK STRIP
- VELOCETTE: BIG-SINGLE REBUILD
- COLOURED SOUND: FULL TEST

ENFIELD TOP END OVERHAUL



Check bores for wear, preferably using a clock gauge. Most wear occurs at the top of the bore, front and rear. The maximum permissible on the 500 is .006 in.



As the barrels are separate, it is easy to refit them without using a ring clamp. If a clamp is to be used, then it will be necessary to remove the three outer studs

Enfield specialists

Power that tails off just when you need it and an oil-burning motor take all the fun out of big-twin performance.

Top-end wear, tired springs pulling valves on to pitted seats, while pistons rattle in oval bores, really mess up the torque curve and keep the brake horses on a tight rein.

This was the sad story of a Royal Enfield Meteor Minor, but a rebore and top-end overhaul soon put things right again.

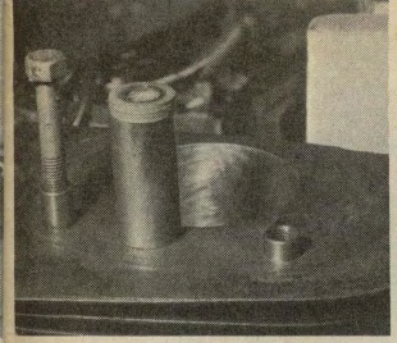
Enfield specialists Gander & Gray of Romford Road, Manor Park, did the work and we watched as they put the power back into this five-hundred twin.

All the Enfield twin engines, five and seven hundreds, are built to the same basic design, so this overhaul applies equally to all models.

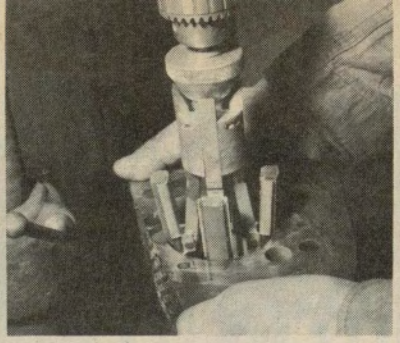
With the top half of the mill stripped, the first question is, do the barrels need reboring? If there's more than six thou wear, they do!

If a rebore is needed then it is a job for a dealer, but you can cut the expense right down if you do the rest of the work yourself.

For a start, the two spigots that locate the cylinder head have to come out. To remove them, put a spacer tube over the spigot, put a bolt with the same size thread as the head studs through the

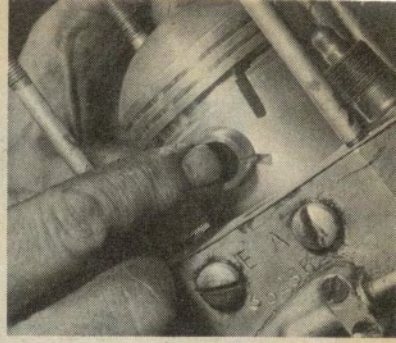


If a rebore is needed, the spigots on the barrels must be removed. This is done with a suitable bolt and spacer. The bolt may be used later to drive the spigot back into barrel



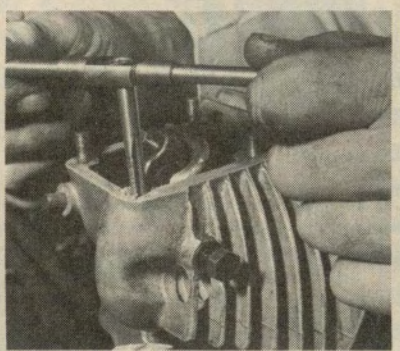
The rebore must obviously be done by a specialist. Price, including new pistons and rings, will be about £8–£9 for a twin. This picture shows the final honing process

Clearance at the piston skirt must be .004 in. in all positions. The ring gaps should be checked and new rings should be inspected in the bore for flat spots (see text)

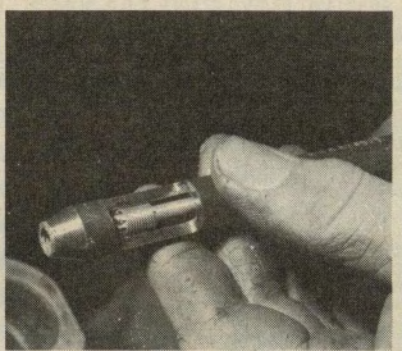


To fit the pistons, put the inner gudgeon pin circlip in position, warm the piston and locate it on the con-rod. Push the gudgeon pin home. Note stud has been removed

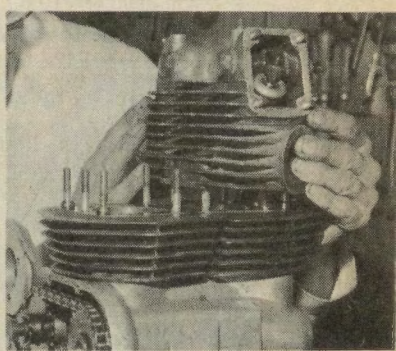
Two paper gaskets are used on the cylinder base joint. Put one on barrel and one on crankcase. The push-rods must be replaced with the shallow cupped end uppermost



There are 13 threaded holes cut into each alloy head and stripped threads are quite common. Helicoils provide a cheap answer to this problem, first the . . .



. . . hole is tapped out to take the Helicoil and then the right size coil (they come in various lengths and diameters) is screwed in with this tool to provide a new thread



Fit gasket and bolt head down in sequence. There should be no end-wise movement on inlet rocker after adjustment, but on the exhaust it should just move end-wise

Gander & Gray revitalise this 500 twin—and turn it into a roadburner

spacer and screw it into the spigot.

Tighten the bolt down and the spigot should be drawn out. Stubborn ones may need a little encouragement—a drift and a hammer—from underneath.

To put the spigot back afterwards, screw the bolt in half-a-dozen turns and tap it back into its hole.

Now all you have to do is present your dealer with the barrels and he will rebore them, supply you with a new set of pistons and rings and charge you something in the region of £8 to £9.

Meanwhile, back at the workshop, you can carry on with the top-end overhaul, which is simply a decoke.

Everybody should know the importance of decoking at regular intervals and it's not merely to scrape off the carbon.

The valves should be ground in, the seats recut if necessary, the guides checked for wear and the springs renewed every 10,000 miles, or sometimes sooner.

At this stage the motor is ready to be rebuilt, but before putting it back together, it's as well to check the big-end bearings. There should be no up-and-down movement at the con-rod and it should not rock from side to side.

Be careful not to confuse the rocking movement with end play, as these engines have a fair amount of permissible movement at the big-end.

Before fitting the pistons, remove the three studs on either side of the crankcase, as this allows better access when fitting the gudgeon pins and also allows the use of a piston ring clamp.

The ring gaps should already have been checked—it is not critical but they should be at least .010 in.

New rings should also be checked for flat spots around the circumference. To do this, push the ring into the bore with the skirt of the piston, to ensure that it is square in the bore, then hold the barrel up to the light and check that there are no gaps between the wall of the bore and the ring.

The gudgeon pins will be fitted from the "outside", so put the inner gudgeon pin circlips in position, warm the piston until it is just bearable to touch and locate it on the con-rod in the tdc position. When the piston is warm, the gudgeon pin is an easy push fit, but don't forget to put some oil on the small-end bearing first.

At the cylinder base, two paper gaskets are used; put one on the barrel and the other on the crankcase. It is advisable to use a small amount of non-setting jointing compound here.

Now slide the barrels into position. It's simpler if you use a ring clamp but as the barrels are separate units it can be managed fairly easily without.

Replace the missing studs and drop the push-rods on to the cam followers with a spot of engine oil in the cups.

The push-rods are all identical, but the cups at either end are different. They must be fitted with the deep cup at the bottom on the cam follower and the shallow cup at the top.

There are two sizes of head gasket available, giving different compression ratios. The difference is more noticeable on the long-stroke seven hundreds, and it is optional which one you fit.

Seat the heads in position, making sure that the push-rods engage properly with the rocker arms and tighten down the nuts on the studs.

These should be tightened down evenly and diagonally from one to the next, to avoid distorting the head and consequent blowing of the gasket.

All that remains now is to set the tappets. With the engine cold, the inlet should just be held tight and the exhaust should be set so the rocker arm can just move sideways. For high-speed work, set the tappets: inlet—nil, exhaust—.005 in. Finally, refit the oil feed pipes to the rockers, the carburettor(s) and the exhaust pipes.

The oil pipes are placed under less stress if the lower connection is tightened up first. Leave one banjo connection loose until the motor is started up—this will confirm that the oil is circulating properly.