

With the MG-B still the most popular sports car on the road, Ian Fraser looks at ways of giving the marque more sting. Part one of this story looks at engine mods.

DON'T read another line if you think this is going to be the magic guide to performance-tuning an MG-B at next-to-no cost. It always costs money to buy extra speed.

To prove the point: a simple head job, plus tuning and fitting, costs about \$100, depending on who does the job.

The best and most worthwhile initial move is to have the head ported and polished. This costs between \$40 and \$50 and is commonly called the Stage One head. The rough edges are cleaned out of the chambers, the ports slightly enlarged and the insides polished.

Additionally, most places remove about .040 in. from the head face to compensate for the removal of the metal from the chambers. This keeps the compression ratio at about 9.5 to 1.

Taking the head off, refitting it and dyno-tuning the car costs around \$45-\$50 in labor. The result is noticeably more acceleration without any loss of tractability or economy.

This is a sound start toward better performance. However, the standard aircleaners on MG-Bs are quite restrictive. A pair of low impedance aircleaners cost around \$11.

Because more air is being admitted to the carburetors, it leans the mixture. It is quite often necessary to go to the next richest needle, the Number Six.

This conversion should provide between six and 10 additional brake horsepower if the job is well done and the final tuning professional.

While the cylinder heads can be bought on an exchange basis and fitted in the backyard on a

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Saturday afternoon, getting the tune "just right" may defeat the do-it-yourselfer.

The head job leads to improved carburetion. Weber or SU.

A Weber DCOE 45 costs \$93.50, plus \$24.50 for a Lynx manifold, plus \$9.50 for a Ram-flo and another \$2 for linkages. Costly, but worthwhile: the long stroke MG engine responds very well to the Weber which gives a marked increase in performance with little or no loss in economy. It also means about another 10 horsepower over the Stage One head.

Reputable performance equipment shops will pre-jet Webers for no cost but dyno tuning is the best final answer.

For just on \$130 an MG-B can be completely Weber-ised. There can be a saving, though. Most places will trade the standard HS4 1½ in. SUs and manifold for \$40 to \$45, thus getting the change-over price down to \$85.

The SU alternative can be pretty satisfactory too, since a pair of 1½ in. carbies will bolt straight on to the standard manifold. However, the manifold will have to be opened out to make full use of the larger carbies — simple enough since there is ample metal to do this.

There is a stumbling block, of course. To start with, the trade-in value of the 1½ in. SUs will be a lot less because there is no manifold involved. This means that the unit won't bolt direct on to an Austin 1800 any more.

And then there is the cost of 1½ in. SUs — a cool \$64.90 each. That's \$129.80, plus the opening up of the manifold less the trade-in value of the old SUs.

Twin SU 1½ in. carburettors or a Weber outfit will also boost the B's performance. Normally, the Weber conversion is cheaper than the SU.

But some enterprising concerns — Lynx among them — have imported direct some redundant 1½ in. SUs from the big car makers in England. With a bowl change to make them adaptable to MG-Bs, they work out at about \$32 each. But don't expect too much in the way of a trade-in. Nevertheless, low-cost SUs will not last forever. Maybe it is better to work it on the basis of straight retail costs.

Better inhaling deserves better exhausting. A Sonic extractor costs \$37.30, makes the exhaust a little noisier but clears the gases very quickly. And that is about as far as you can go for bolt-on simplicity.

Next step is a Stage Two head which has more enthusiastically reworked internals, oversize inlet valves and austenitic exhaust valves, all stellite-tipped.

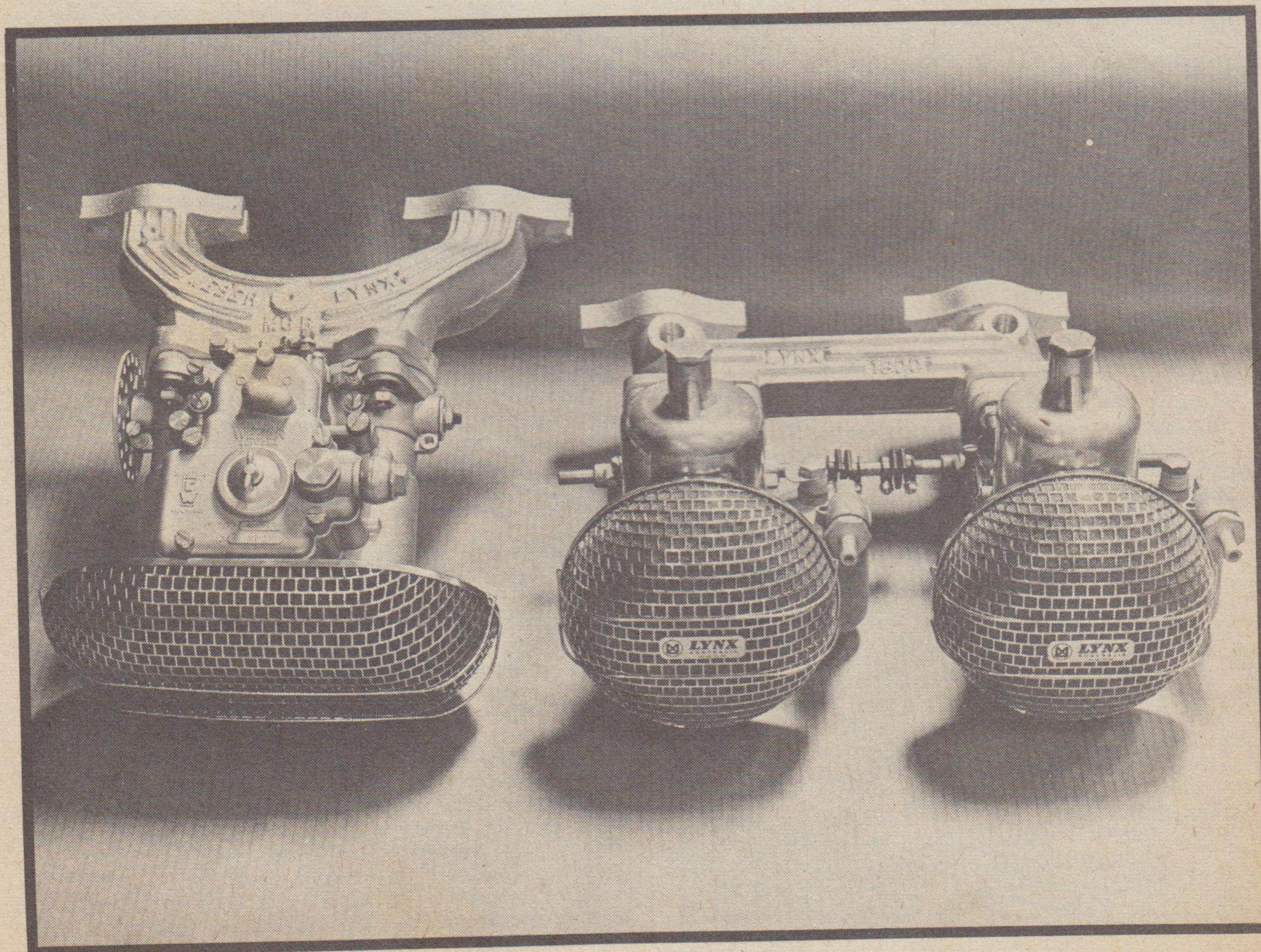
This stage also slightly raises the compression by taking .050 in. off the face. Cost is \$54.

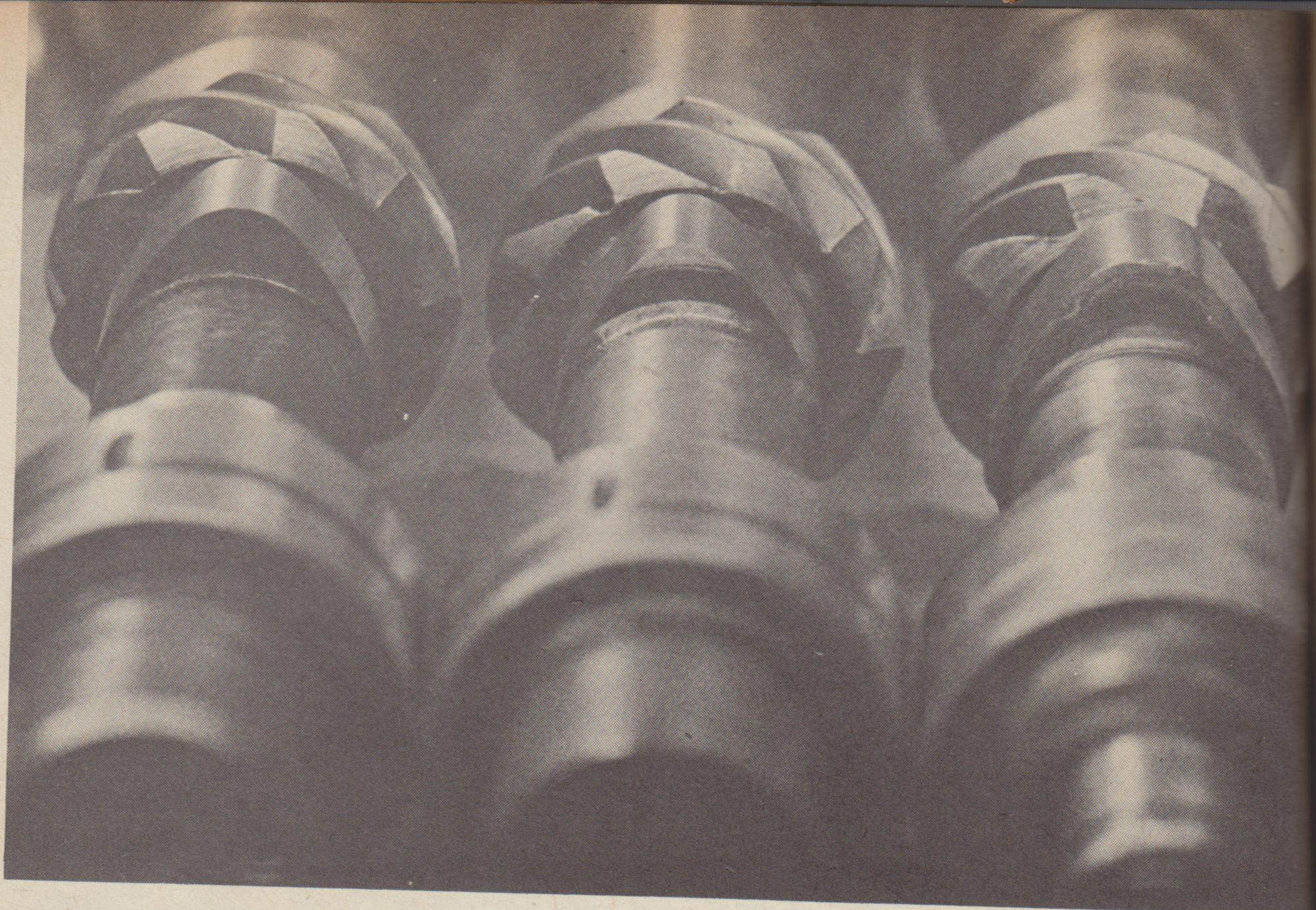
Stage Three is not too different really, except that a lot more detail work goes into the combustion chambers and .055 in. comes off.

Stage Four is the chop-line for road use. It basically comprises highly detailed and modified combustion chambers, maximum oversize inlet and exhaust valves and .060 in. off the head. At \$85 this is not a particularly cheap job, but is highly suitable for an MG driver who wants to really stir things along.

This is not a racing head, though. And, if it were, it would be unsuitable for road use.

While the standard camshaft will still do a reasonable job, the engine will operate much better with new camshaft timing. A Stage Four head responds very well indeed to the "works" camshaft, part number 714. To buy it as a spare part costs \$70, but its timing — 24/64/69/29 — can easily be worked into the standard camshaft for a mere \$16. After that it must be hardened,





Three camshaft grinds for the MG-B. Left, full "works". The other two are milder grinds. Note differences in lift and dwell angles.

the Tufftride chemical process costing only \$7.50.

This camshaft is the ideal for road use, giving enough tractability but plenty of poke at the top end. However, if the car is never going to be driven in thick traffic (is that possible these days?) a 35/70/70/35 grind is marginally okay. Don't be talked into the "full works" racing camshaft timing of 50/70/75/45. It is absolutely unsuitable for the road.

Besides, cam grinding is a one-way trip. If you decide the timing is too wild, you cannot grind it back again, so you are then up for the cost of a new camshaft.

The 24/64/69/29 grind will allow plenty of revs so the cam followers must be thoroughly checked and refaced, or replaced if necessary.

Also, the valve springs need to be stronger if bounce and possible engine damage are to be avoided. Either triple Terry springs and BMC triples will do the job for about the same price. It's a good idea to replace the valve springs even at Stage One, since they lose tension after a time.

When triple valve springs are used the strain on the rocker shaft is considerable. To ensure no breakage occurs, there is a factory-made spacer and diagonal strengthening part available to beef up the shaft.

It is, of course, impossible to contemplate high revs without the engine being balanced. Expensive though it can be in terms of labor, it is an insurance policy in long-term reliability.

The actual balancing is cheap, costing only \$24 for the crankshaft assembly, including the clutch and flywheel, the pistons and conrods. The real expense comes in pulling the engine out, dismantling and re-assembly. This can cost between \$90 and \$120.

While the engine is apart, eight to 10 lb can be safely milled and turned off the flywheel for about \$13.

At the same time, the clutch should be beefed up. A competition clutch lining is not necessary, even for hard road use. Besides, it tends to be harsh. The best alternative is to replace the pressure plate, diaphragm spring and so on from the factory replacement kit. The only driver-differ-

ence will be higher pedal pressure. Cost is \$32.40.

In any dismantling or assembling, don't overlook the need to use competition head gaskets, which cost \$5.30 each, worth every cent for reliability.

Balancing, strong valve springs, Stage Four head, camshaft and improved induction should allow engine speeds of at least 7500 rpm with reliability, providing the work is expertly done.

MG-Bs don't encounter connecting rod or crankshaft troubles at high revs, but the older three main-bearing engine needs to have a steel centre-main cap replacement.

A properly worked over engine with, say, a Stage Three head, camshaft and Weber carburettor should give in the vicinity of 125 brake horsepower reliably.

Although the B does not have any significant cooling problems, high revs will over-speed the generator and cause it to disintegrate. Lynx makes a lightweight alloy, fully balanced, large diameter pulley to replace the standard one and keep the generator speed under control. It costs \$11.50.

Despite the oil cooler, fitted to MG-Bs as standard, continued thrashing in hot conditions can overheat the oil. This is not likely to happen when there is a good flow of air going through the grille, but it is possible if the car is using a lot of engine revs for not much road speed — on twisting mountain roads, for instance.

For this operation there is a larger capacity oil cooler available as an MG spare, but at \$53 it is not notably cheap.

What does help in the general lubrication of the engine is a high-volume oil pump to really push the oil through the system. It does not increase the pressure, only the volume. It is an Austin Freeway pump and costs \$12.

In late model Bs, high revs will build up excessive pressure in the crankcase and blow oil out through the rear main on to the clutch. To

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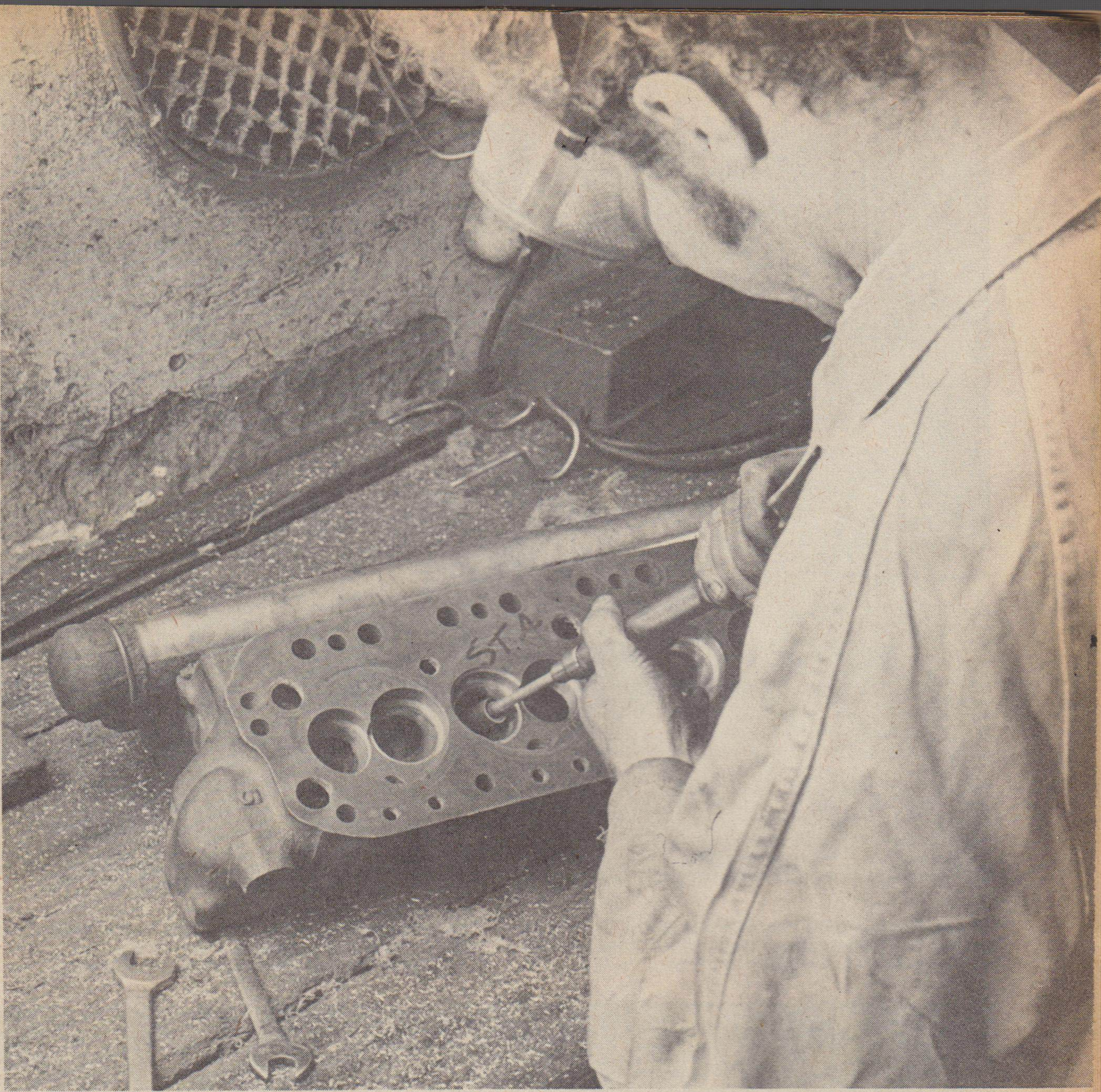
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This picture shows a stage three head with and without valves. This head gives the B a substantial boost and costs around \$60.

The standard MG-B head leaves lots of room for improvement, including bigger valves and high compression combustion chambers.

overcome this, fit the side plates from the Morris Major. These have breathers to stop oil blowing out.

Either modify the existing rocker cover by building a breather pipe into it or use a cover from a Morris Major.

One final thing can be done to the engine: the use of factory parts which enable the engine to be bored out to give displacement of 1905 cc instead of the standard 1798 cc.

The \$130 kit consists of .080 in. oversize pistons with rings and gudgeons.

A fairly costly conversion as it involves \$130 for parts, \$18 for the boring of the block and \$90 to \$120 to remove, strip, reassemble and re-install the engine.

On the road this conversion should give a considerable increase in torque if either the Weber or the 1½ in. SU carburetors is used in conjunction with an extractor and a big-valve head.

Ear-mark \$450 for the job in round terms. #
(Next month: Transmission, handling, brakes.)

