

► In the engine conversion specialists' book, a *dernier cri* never remains *dernier* for long. Almost before the ink was dry on last summer's announcement of the Austin-Healey six's rerating from 2639 to 2912 cc, with a resulting gain of 7 bhp and 26 pound-feet of torque, British tuners were in quest of further performance bonuses for the hottest edition of BMC's C-series engine. First to yell Eureka, to the best of our knowledge, was K. N. Rudd (Engineers) Ltd., of Worthing, Sussex, England, a firm with a reassuring racing background, e.g., the Rudd Racing Team's 2-liter class win at Le Mans last year with a stock but exquisitely prepared AC Ace. The standard BN7 Austin-Healey 3000, as road-tested in SCI's August, 1959 issue, gives 130 bhp gross at 4750 rpm and 175 pound-feet of torque. With the Ruddspeed condiments added, corresponding figures are 178 bhp at 6000 rpm — a 36.2% power increase — and 192 pound-feet of torque.

VISIBLE CHANGES

There isn't anything startling about the means used to achieve this startling end. It just adds up to the old story of fuller filling plus a hoist in compression ratio that's little more than nominal. Star dish on the menu, which is also the most expensive single item, is conspicuous as soon as

OTHER RUDD OPTIONS

Rudd also markets the makings of certain chassis modifications aimed at improved safety and roadability. These are all listed separately, so you can opt for some and skip the others, or skip the lot if you like. Items under this head are harder front springs and competition shock absorbers, reset rear springs (with the incidental benefit of a slight increase in clearance under the 3000's inconveniently low belly), and a vacuum servo assist for the existing Girling disc brakes on the front wheels. Source of this boost is the Clayton Dewandre Mot-A-Vac unit, which tucks away tidily within the right-side front fender and derives its vacuum from one of the induction balance pipes. The car we tested also had racing front disc pads.

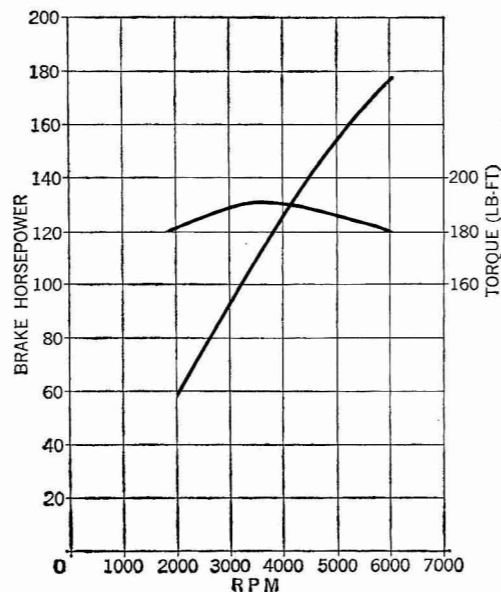
Further Rudd options are two additional dash instruments — ammeter and oil thermometer — and a set of modified brake, clutch and throttle pedal pads. Former are matched, calibrated in white on black dials (which incidentally doesn't match the rest of the instruments, which have black figures on white faces).

Purpose of the pedal modification is twofold: first, to increase the normally-marginal lateral clearance between all three controls; second, to do something to correct an inherent

HOTTEST HEALEY 3000

by Dennis May

You'd think most buyers of the spirited Healey 3000 would be sated by its standard tune, but Ken Rudd supplies a power pack that pumps in 48 extra bhp. Rudd isn't resting here; he has plans for a new version that will endow the 3000 with 200 horses!

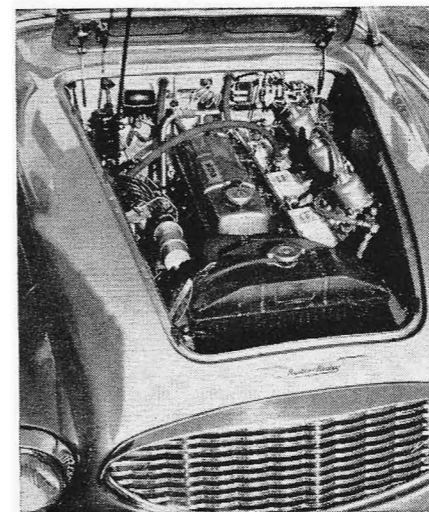


the hood is lifted. This is a completely original intake system with triple HD6 SU carbs mounted on separate semi-down-draft manifolds, cast in aluminum alloy and finned on their upper faces. (The normal setup, of course, is dual HD6's on a common gallery.) Large-diameter copper balance pipes connect the three Rudd manifolds, which, though closely-neighbored to the two exhaust collectors, have no direct-contact hotspots. Lack of space under the adjoining fender precludes the fitting of air filter/silencers, so the SU intakes are left agape. The standard twin-pipe exhaust plumbing is retained, but a shorter system of larger bore, terminating just ahead of the left-side rear wheel, is available to special order.

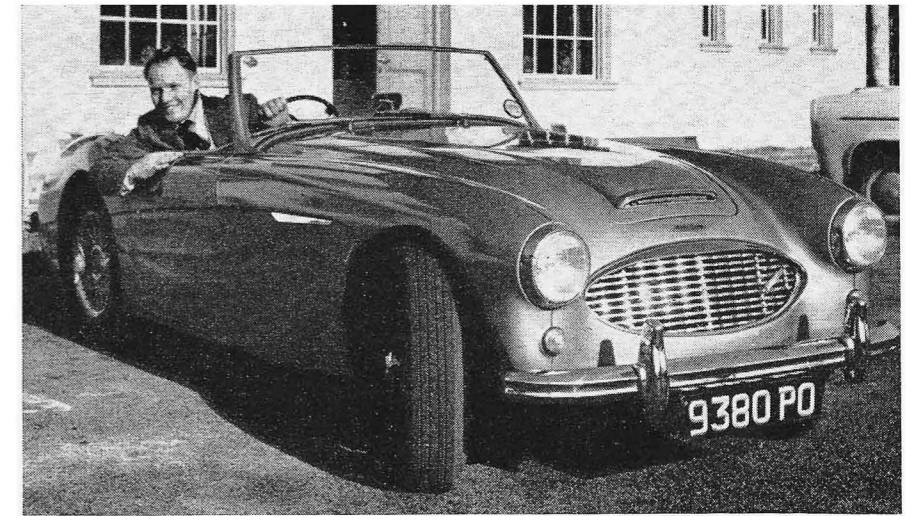
The invisible end of the engine deal comprises a Ruddspeed camshaft, designed for extra power without loss of flexibility, and a reworked cylinder head with matched and polished combustion chambers, enlarged and highly-fettled ports, modified valve seats. Work on the head puts the compression up from 9.03 to 9.7 to 1. Purpose of the valve seat sculpture is to maintain clearance between the valves at full lift and the adjacent edge of the cylinder block.

deficiency in the 3000's range of driving positions. The BN7, of course, lacks a telescopic steering column, and with the seat set far enough back for comfortable arm reach a driver of average build finds himself short on leg length. Incidentally, medium-height drivers can't easily see over the steering wheel, and the seat has no vertical adjustment, only fore-and-aft. Rudd's brake and clutch pedal pads are bolt-on fittings and do their dual job very well, with the reservation that the brake pad still doesn't give a lineup permitting heel-and-toe gear changes. The alteration to the throttle consists of welding an extra section onto the arc of the standard pad; this gives an ampler foothold and also provides a built-in stop at the full-noise position, relieving the linkages of brunts they shouldn't be expected to bear.

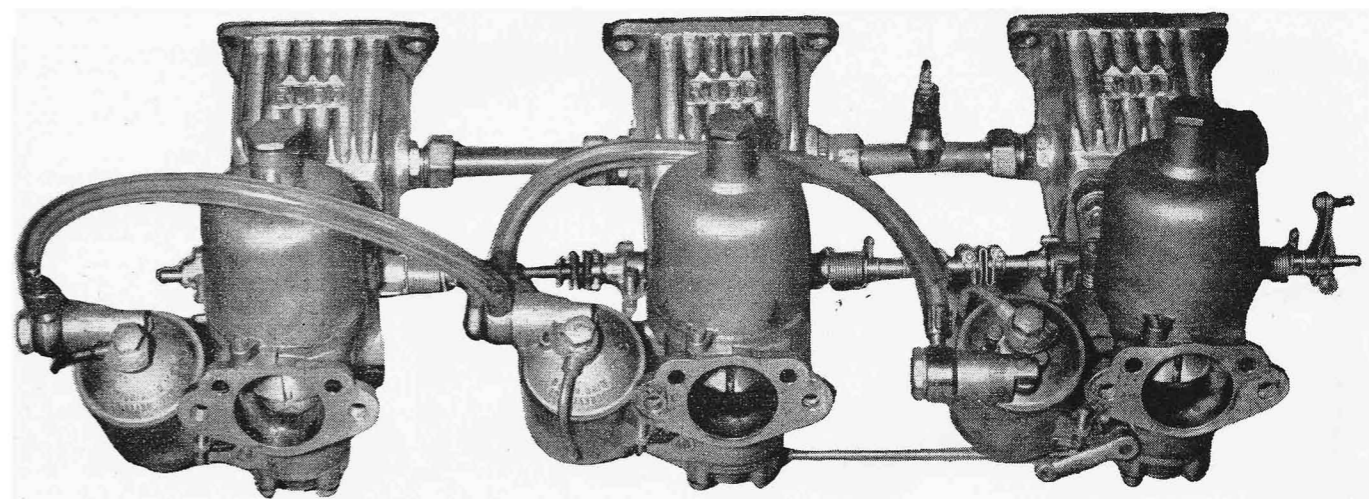
In upping the output of the C-series engine from 130 to nearly 180 bhp — in fact an actual 180 if the shorter, freer and doubtlessly ruder exhaust system is specified — the Ruddspeeders might be supposed to have turned over a new leaf to end new leaves. But this, says Ken Rudd, is not necessarily so. On paper, or maybe only in their heads, they have conceived further tuning stages, mainly matters



Rudd-converted Healey sports third SU carburetor and special finned aluminum manifold.



The Managing Director of K. N. Rudd Engineering smiles his satisfaction after a trial run in a Rudd-prepared A-H 3000. His back-room boys have increased horsepower from a stock 130 to 178.



Three SU HD6 carburetors are mounted on separate stub manifolds machined from aluminum casting. Copper tubing joins all three stubs to balance intake. All three SUs are run sans silencers and filters due to lack of room under fender. Author May reports, however, that they are not terribly noisy.

of cam form, conservatively calculated to lift the bhp ceiling above two centuries. This becomes more feasible than it sounds when we add that the current Rudd camshaft gives no increase in valve lift. But it's emphasized that the reliability factor at upwards of 180 horsepower would be conjectural, and the requisite practical development work has not yet been essayed and won't be in the foreseeable future.

DELIVERY AND PRICES

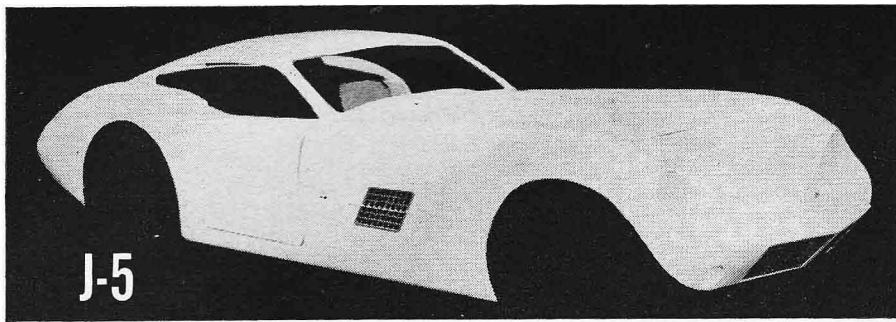
As far as the U.S. market is concerned, Rudd has two types of customers in view. If for instance you're planning to buy a new 3000 through normal trade channels, you can specify the Ruddspeed treatments — as many or as few as you please — when placing your order. When this is received at BMC, the car is built to stock specification, turned over to Rudd's firm for modification, returned to BMC, finally shipped to your U.S. dealer. In such a case there is no direct transaction between you and Rudd, though he does pride himself — and this can be important — on dealing scrupulously and punctually with epistolic queries from users of his products in all parts of the world.

If on the other hand you already own a 3000 and aspire to extra poop, you write directly to K. N. Rudd (Engineers) Ltd., High Street, Worthing, Sussex, England, state your exact requirements and solicit quotations. Distances from port of entry to ultimate destination introduce a considerable variable, so it's difficult to simplify the cost factor adequately. As a rough guide, though, the basic price of the three special intake manifolds, one additional SU to supplement an existing pair of carbs, and all the necessary control apparatus, is approximately \$105.00; Rudd camshaft, \$50.00; hard front springs and shocks to match, \$58.00; Mot-A-Vac brake servo unit and pipework, around \$40.00. If you buy the camshaft or the gasworks set, something that comes for free is a drawing and a detailed sheet of instructions for modifying the head and porting to Rudd's recipe.

WHAT IT WILL DO

In road performance language, the improvement wrought by the protraction of the Ruddspeed Healey's power curve is what you'd expect. When you hit the throttle at anything above about 3000 rpm, things really happen. The

(Continued on page 82)



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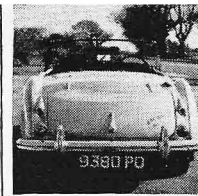
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HOTTEST HEALEY 3000

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demonstration car we borrowed had the same 3.91 to 1 axle ratio as the standard model SCI tested last year, the only discrepancy being in the overdrive ratios — 0.778 to 1 on the Ruddspeeder, 0.822 in the other case. Acceleration comparisons are therefore legitimate, though it's probable the stock sample had had a better break-in; Rudd's engine had done 21 hours on the bench and practically nothing on the road when we took his car over.

Here, then, are some specimen acceleration times, taken on surfaces that were perceptibly damp after recent rains but of inherently good traction properties (figures in brackets are from SCI's regular road test report): 0 to 50 mph, 6.2 seconds (7.3); 0 to 60, 9.3 (10.9); 0 to 70, 11.9 (14.2); 0 to 80, 15.4 (19.2); 0 to 100, 25.8 (not recorded for the standard car by SCI but a respected British contemporary made it 32.8 seconds); standing quarter-mile, 17.0 (17.8).

More accustomed to the car, as he is, Ken Rudd claims he can get down to 16-and-small-decimals for the standing quarter any time he likes on a dry road, and was only prevented from demonstrating this ability by the fact the available roads were never dry while the car was at our disposal. In equivalently expert hands, and under fully dehydrated conditions, it follows that probably all the acceleration figures quoted above would take a shave. As tested, with two persons aboard, the car weighed 2786 pounds.

STARTS AND TOP SPEED

Unlike the engine, the converted A-H's transmission had a reasonable road mileage on it when we borrowed the car, but nevertheless the low-to-second shift was still a bit stiff. So to evaluate acceleration in terms that would be unaffected by this, we clocked her over these gaps in normal top, giving 20 mph per thousand rpm: 50 to 80 mph, 9.5 seconds; 60 to 80, 6.0 seconds. A standard 3000 takes 2.4 seconds longer through the latter band.

Reverting to standing starts, two comments are relevant. First, the enlarged clutch (up from 9 to 10 inches in diameter) introduced concurrently with last year's bigger engine, showed no sign whatever of fatigue or resentment when subjected to a series of fairly brutal takeoffs. Second, the Rudd-modified rear springs had an unmistakably beneficial effect under these conditions; you just couldn't produce axle dance or related misconduct at the back end.

Circumstances made it impossible to confirm, by timing, Rudd's claim that this 178 bhp Healey is good for approximately 130 mph. On Britain's one and only motorway, the much-publicized M1, full-stick in overdrive top produced a fast and rather noisy rush to the equivalent of an indicated 126 mph on a speedometer that was actually calibrated to only 120. M1 being designed as a series of gently merging curves rather than linked straights, and our fellow

travelers being seemingly in concerted rebellion against lane discipline, we never did hold the pedal against the floor until the needle's movement finally desisted.

Leaving out bottom and overdrive top gears, the mathematical equivalents to 6000 rpm on the remaining four ratios are 64 mph in second, 92 in third, 119 in overdrive third, 123 in normal top, and we repeatedly ran her up to the 6000 mark on each of these gears. If the C-series engine suffered any pain in the course of these exertions, it didn't let on, except maybe once, when we inadvertently went a shade past 6000 in second and floating valves yammered a word of warning. This particular engine, Mr. Rudd told us, had been run at 5500 rpm for three hours in a row on the bench, with no resulting valve stretch or other measurable ill effect.

SMOOTH UNDER THE HOOD

In what might be considered the problematical sector of the rpm range, between 5250 (where the tach is redlined on standard 3000's) and 6000 per minute, this engine isn't a degree less smooth than at more habitual turnovers. Whizzing around at its Ruddspeed peak, it merely produces more din from two sources, exhaust and fan. The latter, we were told, is dispensable under virtually any conditions except stop-start running in city traffic and summer temperatures.

With the top up — which is how we had it all the time, to keep the English Winter out and in the belief it would cut drag — noise from the twin-pipe exhaust system seemed moderate up to 4000 or so and thereafter increasingly immoderate. To bystanding ears, immoderacy sets in earlier.

MILEAGE IN A MALE CAR

We used two different fuels, both of them putatively 100 octane, in the A-H; on one of them the engine knocked moderately but distinctly without much provocation, on the other it never did. Average consumption, excluding the acceleration timings but otherwise missing few opportunities for using the full performance, was 15.4 miles per U.S. gallon. The oil thermometer, one of Rudd's two instrument options, is graduated to 230° F and redlined at 212. The highest reading we saw, right after the acceleration timings, was around 180 degrees.

The test car had the suspension and brake modifications listed earlier, and if we were buying a 3000 there isn't one we'd voluntarily forego. Good as the braking is on the standard car, the servo improves it, cutting pedal pressures wholesale without any loss of sensitivity.

On good surfaces, the balance and feel of the car didn't appear to be altered one way or the other by the non-standard suspension features. The overall effect of the competition dampers at the front and modified spring rates at both ends was to subdue cornering roll very markedly. Naturally, a fairly considerable loss of riding comfort is involved, particularly at low speeds and on bad surfaces, and in time, we suspect, this might have an indirect payoff by breeding body rattles and creaks. But Rudd is advisedly catering for a clientele that's male in the wider sense of the word, and specially for males who rate the delights of competition and really fast highway travel above self-featherbedding.

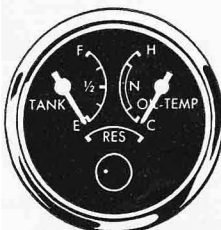
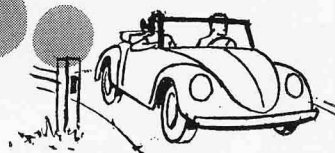
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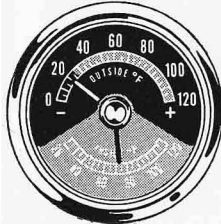


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