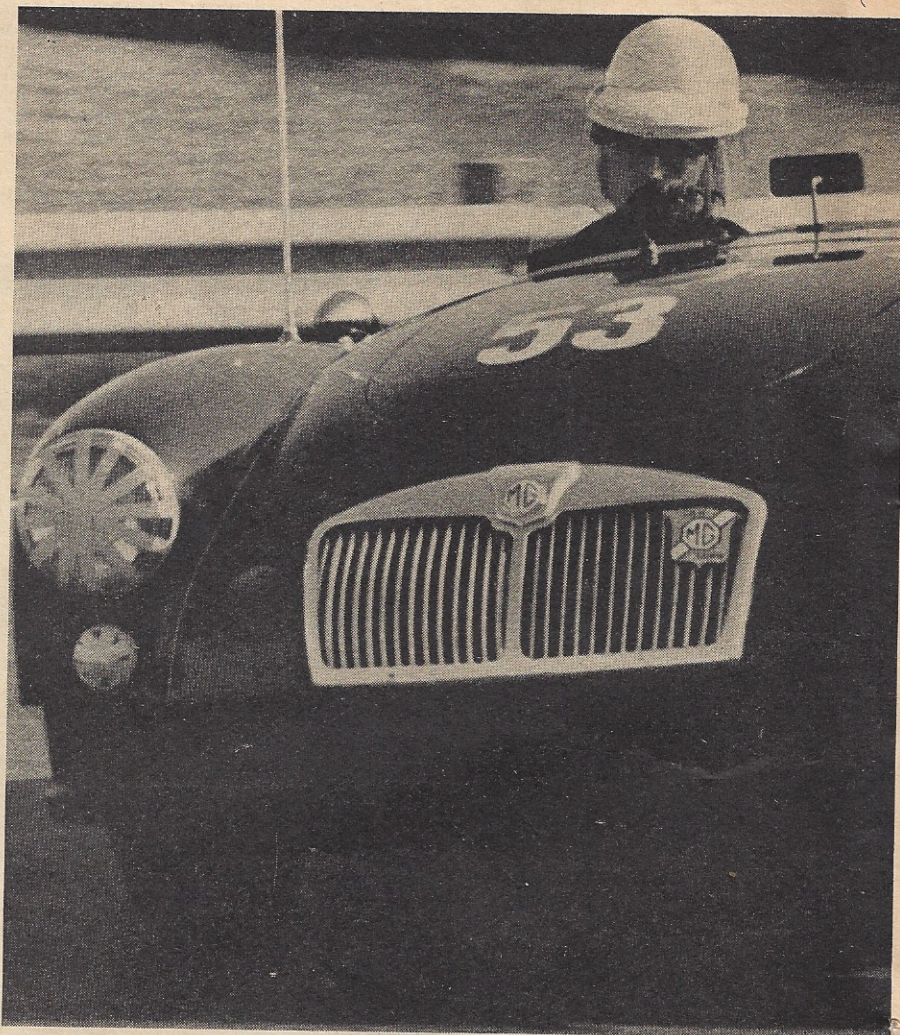


# MAKING AN A GO LIKE A B



**B**ETWEEN the time of its introduction in 1956 and its demise in 1962, the MGA won the distinction of being Australia's most popular sports car. Although it was outsold during one or two years by its less expensive stable-mate, the Sprite, the MGA had the highest sales overall.

While it could not fare well in outright sports car racing, the A came into its own with the inception of production and marque sports car races.

But before discussing the techniques commonly employed in building racing or fast and road-worthy MGAs, we may as well clarify the various changes that took place from year to year. Initially the A had a 1489 cc engine with bore and stroke of 73.425 mm by 89 mm respectively. Based on the BMC B-series unit the first engines developed 68 bhp, with the figure rising to 72 bhp in 1957. Mid-1959 saw the appearance of the short-lived twin-cam model, while late in the same year the pushrod engine's bore was enlarged to 75.38 mm — giving 1588 cc capacity and 79.5 bhp. Disc brakes became standard equipment on the A's front wheels in December 1959. The last engine increase came in 1961 when the bore was taken to 76.2 mm, adding another 34 cc to the displacement. Power rose to 90 bhp.

At the time of writing, 1956 models in good

---

***There is more to hotting an MGA than planing the head. In this article Mike McCarthy discusses ways of giving an A-type the performance and the flexibility of an MGB.***

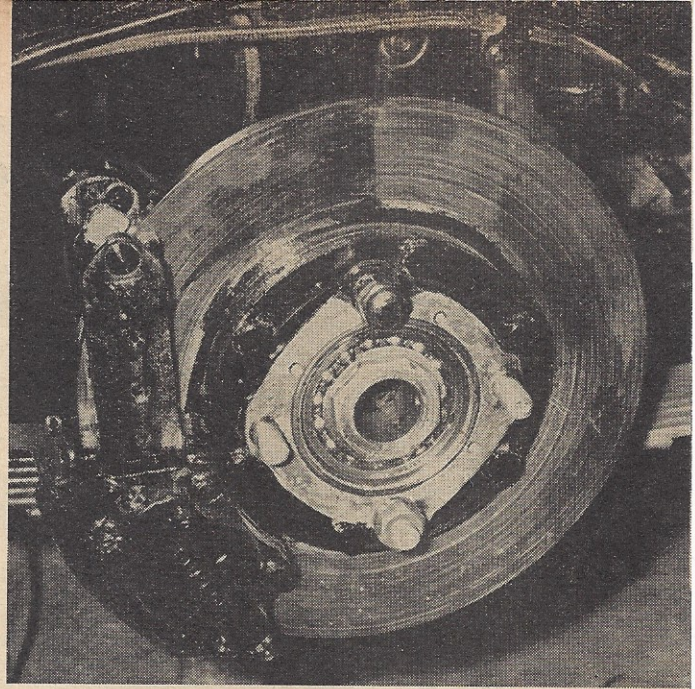
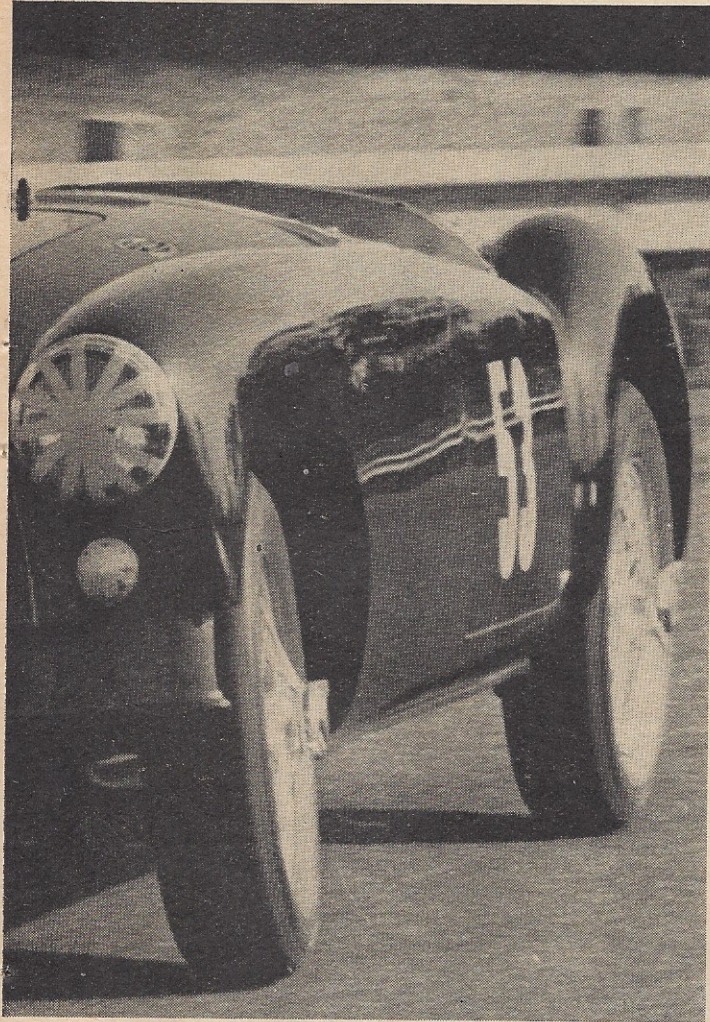
---

condition, were fetching about £600 on the second-hand market. The price of the later models was dearer by about £100 per year — that is to say a 1957 model was at £700, a 1959 model at £800 and so on up to £1200 for last year's car. We estimate it would be possible to build a potential race-winner by buying an early model and spending say £600 on it — maybe less.

And now to making it *Safety Faster!*

Tyres are the first consideration, with Dunlop Roadspeed covers being the most popular for both fast touring and racing. If the car is to be used exclusively for racing the expense of fitting Dunlop R5s may be justified — but they are too costly to be considered practical for day-to-day driving. The same reasoning applies to Goodyear's

By Mike McCarthy



*Gibson has fitted disc brakes to the rear to cope with stopping problems.*

*Fred Gibson's MGA is probably one of the fastest in Australia. It is fitted with alloy cross-flow head fed by two twin-choke Weber carburettors.*

Sports Car Special tyres — available in 5.50/5.90 x 15 to suit the MGA — for they are specifically intended for competition. Michelin and Pirelli covers, although best suited to fast touring, are sometimes used at those circuits which do not allow maximum speed to be maintained over extended distances.

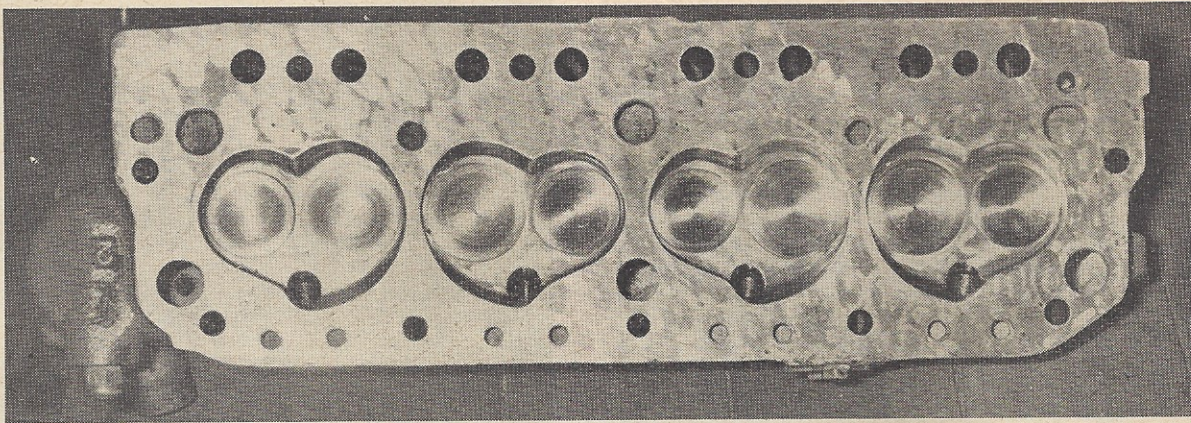
Whichever tyres are fitted, the roadholding and cornering will benefit if the standard 4.0 in wide wheel rims are replaced with rims measuring 5.0 in. When wide-based rims are employed there is less tendency for the tyres to roll on their walls and therefore cornering power is greatly increased. The conversion costs about £10 a wheel. The addition of an anti-roll, or stabiliser bar to the front suspension also makes for better handling. Installing torque-rods between the rear axle and chassis helps overcome spring wind-up and axle hop when accelerating, braking and cornering. A stabiliser bar and a pair of torque-rods cost in the vicinity of £13 — plus fitting.

If serious competition work is intended it is advisable to have the shock absorber settings altered so the dampers have firmer action. Under these circumstances it is quite common practice to lower the car approximately one inch by compressing the front coil springs and by fitting one-inch blocks between the rear springs and axle.

Even though they have disc front brakes, some of the hottest MGAs have braking problems. Sydney's Fred Gibson, for example, has fitted discs at the rear also to help solve anchoring problems on the faster circuits. This is, of course, an extreme example, for Fred's A is probably the fastest of its kind in the country. Generally speaking the later models are unlikely to experience braking problems except under abnormal conditions. The obvious thing to do with the drum-braked MG-As is to fit discs at the front. If this is impractical for some reason the only solution would seem to lie with installing heavy duty linings and power-assistance.

Having made the vehicle as roadworthy as possible, it is then time to attend to the engine. Before tackling this, it is important that the owner understands how far the modifications should be taken to obtain the desired results. It is a waste of time and money being too ambitious if the car is not to be raced. Nor is there much point in going racing these days with a car that is only mildly warmed. A line has to be drawn somewhere! Thus the owner who wants a flexible, but fast, road-and-race car must be content with slightly poorer performance than the fellow who modifies solely for racing.

Over-boring — to increase the engine's capacity — is probably the easiest means of improving the A's power and torque. This is particularly true with the smaller engines, but unfortunately they are least suited to this technique. To obtain 1622 cc capacity their cylinders must be bored to three inches — an increase of one-eighth inch from standard. This is over three times more than the factory-recommended maximum rebore of .040! The operation demands extreme care if the water jacket is not to be broken into. The only means of guarding against such an occurrence is to select a block in which the cylinders are cast exactly where they should have been. More often than not, however, the blocks have the cylinder walls off-set due to the mould having shifted slightly during the casting process. Therefore unless the small block is found to be satisfactory in that respect — and the owner con-



siders that three-inch bores are as large as he requires — it is better to obtain a big block in the first place and over-bore that instead. Big blocks have the same factory-advised maximum rebore limit of .040, but if the casting is precise an over-bore of one-eighth inch is feasible. This will take the capacity to 1760 cc and give a significant improvement in power. Yet it is not the absolute maximum for we know of several MG-A engines that have been bored to 3 3/16 in resulting in 1830 cc!

Naturally if either the small or big blocks are bored beyond the manufacturer's specifications special pistons and rings are required. Similarly a big block could be bored to 80.26 mm and MG-B pistons fitted. The capacity in that case would be the same as a B-type — 1798 cc.

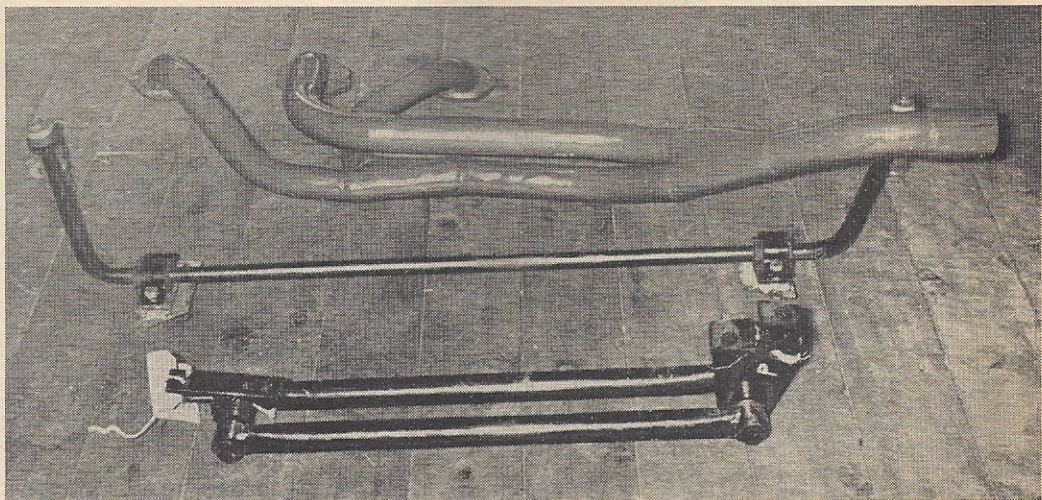
Apart from over-boring there is little else that need be done to the block assembly. It is advisable, of course, to have the crankshaft, flywheel and clutch assemblies dynamically balanced after they have been modified. The pistons and connecting rods should also be balanced, against each other, so that all weigh the same. When larger-than-standard pistons are fitted it is important that their weight be kept as close as possible to that of the original pistons to avoid excessive out-of-balance forces. The crankshaft and connecting rods should be fracture tested while the engine is stripped. Assuming they are in good condition they can be buffed and polished to guard against future cracking. It is best to fit connecting rods from the Twin-Cam model if facing is intended. These are much more rugged than the originals and, together with gudgeon

*Gas-flow experts can do wonders to the standard MGA head. As well as the porting and polishing larger intake and exhaust valves are a must.*

pins, cost about £40 a set. If they are used, even with standard-bore engines, new pistons must be made up because the Twin-Cam gudgeons have larger diameter than those in the pushrod engine.

For general motoring the standard camshaft can be retained, but if downpower is desired the shaft can be re-ground, or replaced, to ordinary B-series specifications — inlet opens 5 degrees before TDC and closes 45 degrees after BDC, exhaust opens 40 degrees before BDC and closes 10 degrees after TDC. Valve lift is 5/16ths of an inch. The B-series timing is milder than the MG-A's 16/56, 51/21, but it has the effect of improving flexibility — particularly at low to medium rpm. On racing engines the choice of valve timing and lift is best left to a camshaft specialist. The remainder of the valve train is quite straightforward. Lightweight cam followers, pushrods and valve caps may be fitted to promote reliability at higher rpm and more precise valve actuation. Special racing valve springs may be obtained through MG dealers and speed equipment suppliers. One of the most popular methods of raising the valve bounce limit is simply to fit B series outer springs in conjunction with the MG-A inners. An MG-A outer spring has a tension of 105 pounds whereas the B-series is compressed to 130 pounds. This, together with the 50-pound MG inner, gives 180 pounds pressure when the valve is open — against 155 pounds for the standard combination. However, the higher pres-

*Leading accessory suppliers such as John R. Malcolm Motors sell and fit extractors, anti-sway bars and torque rods.*



sure should be employed only on competition engines as it appreciably shortens the life of the valve train.

If you do not have the skill or knowledge the head would best be done by a specialist — and there are many who undertake work of this nature and guarantee good results. In most instances the firms can supply a series of stages ranging from a mild port and polish, and progressing through to extensively reshaped combustion chambers, enlarged ports and bigger valves. Costs start at about £20 and rise proportionally according to the extent of modifications. In most advanced stages the head is fitted with large valves. Standard valve head diameters are 1.5 in for the inlet and 1.28 in for the exhaust. In racing engines the valves are often enlarged by an eighth of an inch — to 1.625 and 1.405 in respectively — a better quality exhaust valve being fitted to guard against failure.

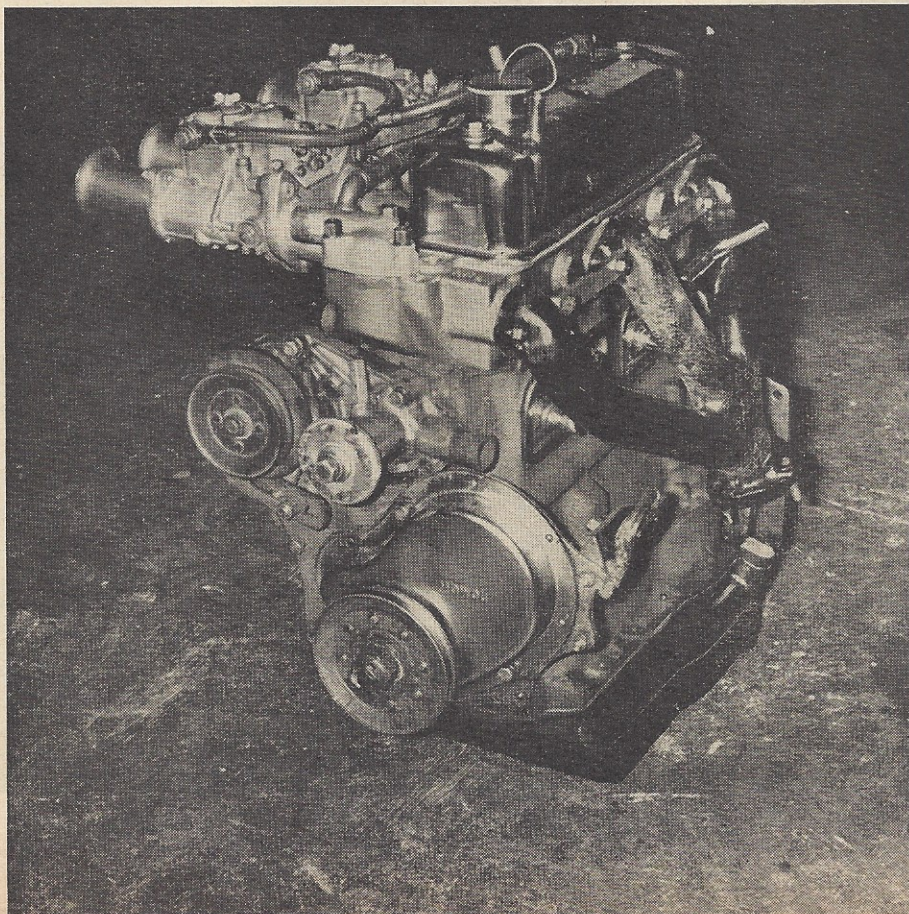
As an alternative to the original cast iron head the owner may prefer the Alexander cross-flow head which sells for about £145 locally. There are four separate inlets but BMC's three-port exhaust design is retained so the original exhaust manifold can be fitted if desired. The Alexander head comes complete with valves, guides and springs and utilises the original rocker assembly.

The 1.5 in SU carburettors fitted as standard equipment are satisfactory for most hack purposes, but should be replaced by 1.75 in units for racing. Alternatively, one twin-choke Weber may be fitted to the iron head and either one or two of these instruments may be installed on the Alexander unit. The latter can also have the same SU carburetion as an iron head if the owner so desires.

Fulfilling most requirements satisfactorily — particularly if carefully aligned with the ports — the standard exhaust manifold need only be replaced by an extractor system when maximum power is sought. Even with the existing manifold, though, a significant increase can be obtained by fitting a free-flow exhaust pipe and muffler.

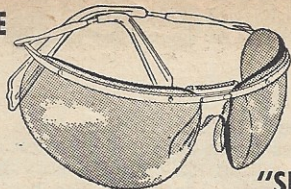
*(Continued on page 66)*

*At any race meeting this is a common scene: oily-overalled enthusiasts working feverishly on an A.*



*Bored to 1830 cc Gibson's motor uses an HRG head (the same as the Alexander and Derrington conversions).*

**EXCLUSIVE**



**"SPORTSMEN"**

A new concept in sunglasses. Sportsmen wrap-around. For Driving, Beach, Riding, Hunting, Golf, etc. Are fully adjustable. Out in the sun your best friend is a "Sportsmen" wrap-around sunglass.

They're exclusive. to:

"Sportsmen" 22-23 Waruda St., Kirribilli, N.S.W. 60/-

(COLOURS SMOKE ONLY)

NAME.....

ADDRESS.....

STATE..... SCW 11

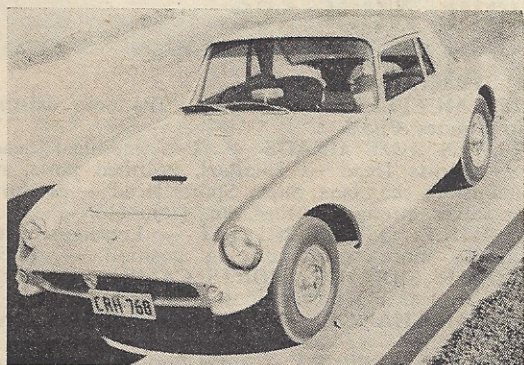
**STOP  
dry start wear**

with....



Obtainable from service stations  
Distribs.: Healing Sales. W.A.: Coventry Motors.

# HUNTER



**THE HUNTER** Australia's most distinctive fibreglass car body can be yours for as little as £170. Available as a body and chassis kit, or body only, the HUNTER gives you all the grace and style of an expensive Continental model. Call in today and view our wide range of fibreglass bodies and hardtops.

**J. & S. FIBREGLASS  
(SALES) PTY. LTD.**

**530 PARRAMATTA ROAD  
ASHFIELD. 71 5258**

## MAKING AN A GO LIKE A B

(Continued from page 23)

Another two items required for the hot MG-A engine — a distributor with a different advance curve, and an oil cooler. Both are available from MG dealers, but in the case of the distributor it is less expensive to have the existing unit modified than buy a new one.

If the engine's power is increased significantly the standard clutch may tend to slip under hard driving. Heavier springs can be fitted to the existing pressure plate or, in extreme cases, a Twin-Cam assembly may be installed. And finally, there are close-ratio gears and a wide range of alternative final drive ratios, the latter (embracing the standard ratios for various models) being 3.9 to 1, 4.1 to 1, 4.3 to 1, 4.55 to 1 with additional B-series ratios of 3.7 to 1, 4.22 to 1 and 4.87 to 1.

The fuel system also comes into the category of tuning for performance, for the pump's supply rate should be checked when the engine is modified. Ascertaining the supply rate is quite a simple procedure. Assuming SU carburettors are fitted, the two float-chamber tops are removed complete with fuel lines. The main fuel line from the pump is then unclipped so the float-chamber tops (with their needles and levers) can be held over a gallon container. To be considered satisfactory the pump should deliver at least nine gallons per hour, or one gallon in six minutes, forty seconds. If the container is filled within, or before, this time limit the pump has adequate delivery. Should it take longer than that to fill the container, the pump must be overhauled or replaced with one which supplies the required amount. #

### HIGH PERFORMANCE AND SPORTS CAR PRICES

| MAKE OF VEHICLE                   | SPORTS CARS |         |
|-----------------------------------|-------------|---------|
|                                   | BHP         | PRICE £ |
| Aston Martin DB4 .....            | 240         | 5850    |
| Austin Healey 3000 MK II .....    | 130         | POA     |
| Austin Healey Sprite MK IIA ..... | 55          | 997     |
| Daimler SP 250 .....              | 140         | 1995    |
| Jaguar E Type Roadster .....      | 265         | 3213    |
| Jaguar E Type Coupe .....         | 265         | 3380    |
| Lancia Flaminia Coupe .....       | 110         | 4343    |
| Lotus Super Seven 1500 .....      | 65          | 1400    |
| Maserati 3500 GT .....            | 235         | POA     |
| MGB .....                         | 94          | 1365    |
| Porsche 1600 .....                | 60          | 2565    |
| Porsche 75 .....                  | 75          | 2715    |
| Porsche 90 .....                  | 90          | 2975    |
| Triumph TR4 .....                 | 100         | 1627    |
| Spitfire .....                    | 63          | 1070    |
| Volvo P 1800 .....                | 100         | 2655    |

### MAKE OF VEHICLE HIGH PERFORMANCE SEDANS

| MAKE OF VEHICLE                  | HIGH PERFORMANCE SEDANS |         |
|----------------------------------|-------------------------|---------|
|                                  | BHP                     | PRICE £ |
| Chrysler Valiant .....           | 145                     | 1255    |
| Fiat 1500 .....                  | 80                      | 1295    |
| Fiat 2300 .....                  | 117                     | 1697    |
| Jaguar 2.4 O/D .....             | 120                     | 2498    |
| Jaguar 3.4 O/D .....             | 210                     | 2834    |
| Jaguar 3.8 O/D .....             | 220                     | 2995    |
| Mercedes 220SE Sedan .....       | 134                     | 3108    |
| Mercedes 220SE Coupe .....       | 134                     | 5084    |
| Mercedes 220SE Convertible ..... | 134                     | 5474    |
| Morris Mini-Cooper .....         | 55                      | 950     |
| Peugeot 404 .....                | 72                      | 1450    |
| Renault Floride S .....          | 42                      | 1695    |
| Renault Gordini .....            | 40                      | 970     |
| Rover 3 Litre Coupe .....        | 134                     | 2724    |
| Skoda Felicia .....              | 55                      | 979     |
| Sunbeam Rapier IIIA .....        | 75                      | 1477    |
| Vauxhall VX4/90 .....            | 81                      | 1330    |
| Volvo 122 B18 .....              | 90                      | 1675    |