

How to make a BLUE STREAK MISSILE

Want to make your Freeway or Wolseley into a really quick car? Here are the details of the BMC recommendations for tuning the Blue Streak.



So far only a couple of Austin Freeways has appeared in competition. This one, leading two Holdens, is being driven by Charlie Smith.

BY MIKE McCARTHY

ALTHOUGH it was introduced only recently, BMC's six cylinder Blue Streak engine has already proved its suitability for hotting-up.

Much of this is due to it being the equivalent of one and a half B-series engines. And the B-series is as well established as any contemporary powerplant.

Generally speaking many factors that apply to the B-series engines also apply to the Blue Streak. Like the 1600 cc Morris and Austin engines, the BMC six will accept some components from the MG-A Mark Two, and will also respond to the techniques developed for the sports car engine.

The best place to start when hotting a Freeway or Wolseley 24/80, is with the carburetion. There are several carburettor kits available, most of them employing two or three Zenith or SU carburettors.

BMC itself has taken an unprecedented step for a major motor manufacturer in this country of offering through its dealers, a triple SU carburettor kit.

In its finalised form the strictly bolt-on kit pushes the Blue Streak's power up to 97 bhp at 4500 rpm (an increase of 27 percent over stock) and torque is raised to 132 ft/lb at 2750 rpm (or 7.3 percent better than standard).

Those figures, incidentally, come from dynamometer tests, not estimates!

This installation comprises of three 1½ in SU carburettors, three chromed pancake air cleaners, an alloy inlet manifold, plus all the necessary fuel lines and linkages. The complete kit costs about £67 — a price which compares very favorably with that of similar arrangements from proprietary firms.

PROJECT PERFORMANCE



The four speed gearbox and remote control from the Morris Major can be adapted to fit the Freeway, but care is needed in its use.

Apart from being attractive price-wise, BMC's kit also benefits buyers in that a new Freeway's or Wolseley's normal warranty is not nullified when it is dealer fitted — provided that is the car's only deviation from standard.

Naturally the vehicle's acceleration throughout the entire range is substantially improved with the three carburettors fitted and maximum speed goes to the high side of 90 mph!

This is as far as BMC will go for Freeway and Wolseley owners, but there are many means of increasing the output. Packing 120 bhp under the bonnet shouldn't be too difficult, nor should it impose too great a strain on the internals if the modifications are compatible with the engine's construction and specification. As with any engine, reliability and durability will suffer progressively with each succeeding stage of hotting-up.

With that in mind we shall describe the methods best suited to engine used for road driving.

A port and polish job will promote better breathing (and better performance) without greatly influencing the engine's durability. Full benefit of this operation will be gained if the engine has been fitted with three carburettors. For most purposes, satisfactory results can be obtained by using a flexible grinder to remove sharp edges and burrs from the combustion chambers and ports. Neither the chamber nor the ports require material alteration to their shape. After eliminating any roughness from the chambers and ports, they should be polished with grinding stones.

Particular attention should be paid to aligning the ports in the cylinder head with those in the inlet and exhaust manifolds. Steps in these parts will cause significant restriction and loss of efficiency.

If done professionally, reworking the cylinder head usually costs between £30 and £60, depending on the extent and quality of the operation.

MG-A valves can be fitted. These (1.5 in inlet and 1.28 in exhaust) are larger than the standard 1.37 in inlet and 1.18 in exhaust valves. The stems in each case are identical, so the conversion involves only enlarging the valve seats.

Stronger valve springs can also be supplied by MG

dealers. A pair of MG-A springs (inner and outer) exert 155 lb pressure when the valve is open and allow up to 6000 rpm without valve float. Even greater pressure can be obtained by fitting MG-A inner springs with the original outers. Because the latter are stronger than MG-A outers, the compressed spring tension is 180 lb.

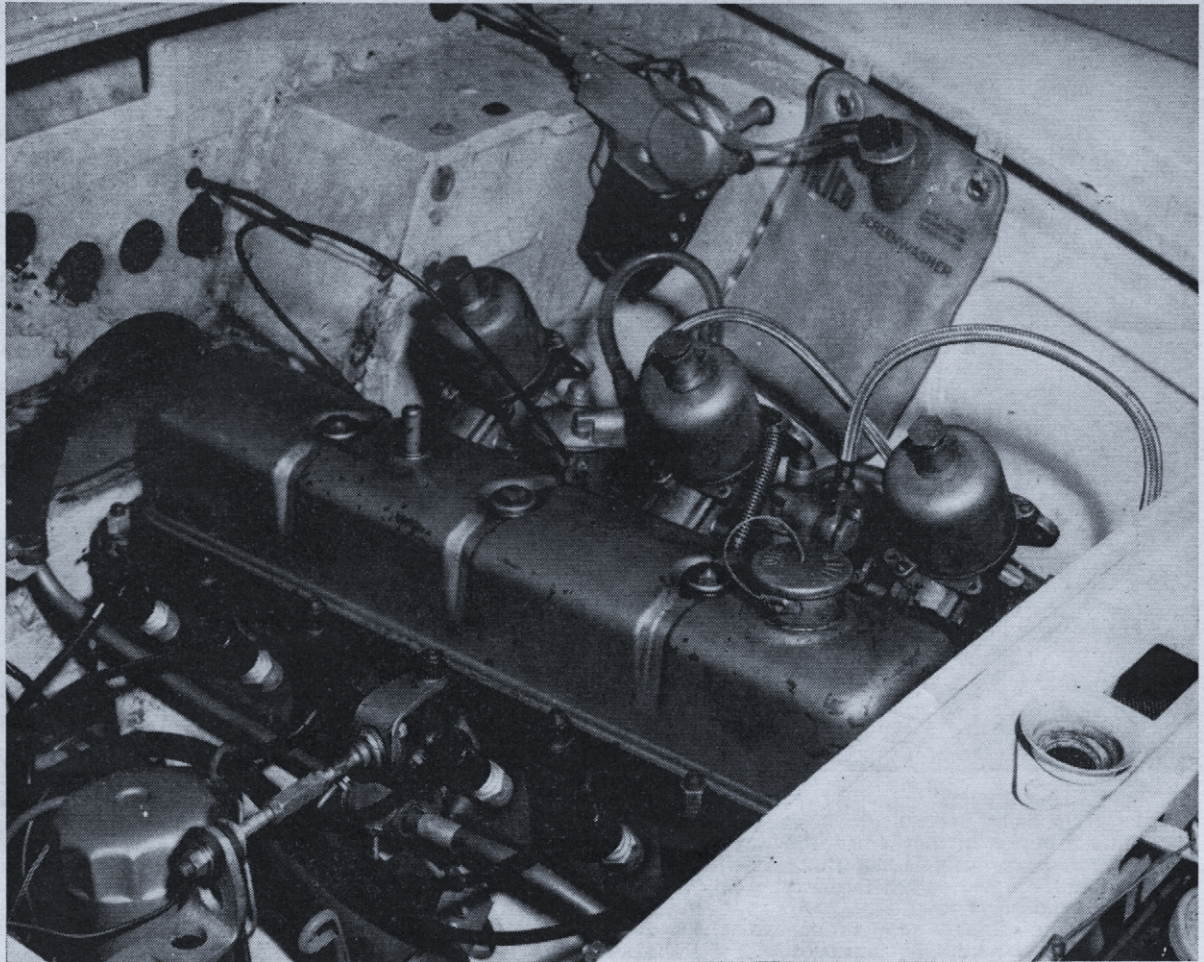
To date the only improvement that can be made to the exhaust system (with over-the-counter equipment) is by fitting a sports muffler — such as the Lukey, costing approximately £5.5.0. It is probable, however, that local speed equipment manufacturers will eventually produce efficient exhaust manifolds and dual exhaust systems for the Freeway and Wolseley. On the other hand, it is possible to have special manifolds and pipes fabricated to order by many of the hot-up firms.

The standard ignition is quite satisfactory for all but racing engines. No modifications are necessary.

The same applies to the Blue Streak's camshaft. This gives valve timing and lift identical to the four-cylinder B-series engines — 5,45; 40,10. While providing optimum power through the low to mid rev range, this timing is excellent for even relatively hot engines. Should more power be required in the upper rev range. The stock camshaft may be re-ground to MG-A timing — 16,56; 51,21. Naturally this grind will not give its best unless the engine has been brought as close as possible to the MG-A's general specifications with reworked cylinder head, multiple carburetion, free-flow exhaust, etc.

BMC does not recommend machining the cylinder head to increase the compression ratio (this applies to the whole BMC range). Instead, the ratio is upped by fitting alternative pistons. Special pistons can be supplied to order from firms such as CME and Repco. A worthwhile increase can also be achieved by fitting stock MG-A 1600 Mark Two pistons. These give 8.3 to 1 (7.7 to 1 is standard for the Blue Streak) which is about the highest practical ratio with our premium grade petrol.

The six cylinder engine's crankshaft has larger diameter main bearing journals than the four's, but the connecting rod journals are the same for both versions. This permits, if the engine's hotting-up war-



An engine stay to help locate the power plant can be seen in the lower left hand side of the picture.

ranted the expense, MG-A connecting rods to be fitted.

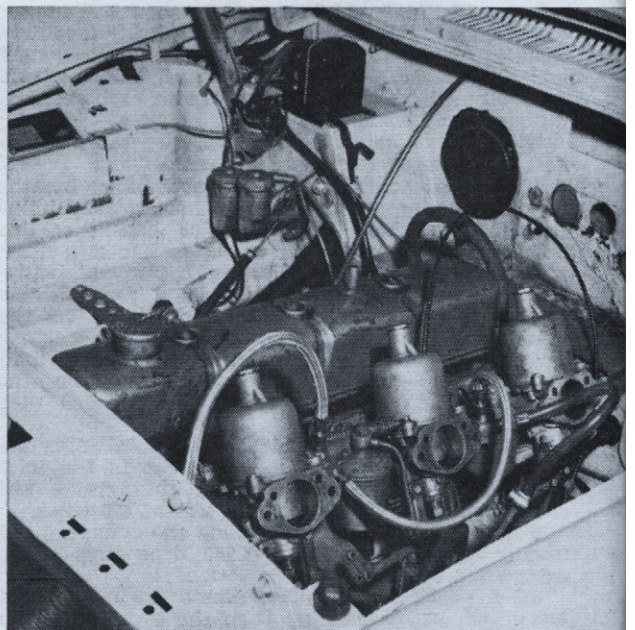
Dynamic balancing is another factor that should be taken into account for any modified engine. The theory that six cylinder engines require less dynamic balancing than fours is wrong. Since an inline six cylinder engine is inherently smoother than a four, out-of-balance vibrations tend to be overlooked.

Once the Blue Streak's output is taken beyond 100 bhp it is advisable to replace the original diaphragm type clutch with the conventional type from the MG-A 1600.

On the subject of transmission, it is possible to fit a B-series four speed gearbox in place of the existing three speed unit. The gearbox (part number AYH 3067) costs about £90 and will bolt straight onto the Blue Streak, but the original diaphragm type clutch has to be replaced by an MG-A assembly. The existing clutch is too great in diameter to fit within the four speed box's clutch housing. The housing must not be machined to provide clearance for the original clutch.

This set-up normally provides a floor mounted gear shift, but column shift could probably be arranged by utilising Austin A55 or A60 linkages.

It must be realised that the four speed transmission was designed for less torque than a hot Freeway will develop. Because of this, the unit's life—particularly first gear — may be reduced if full use is made of the power in the lower ratios.



Triple carburettor conversion is straightforward bolt on kit. It substantially boosts performance without any other modifications.