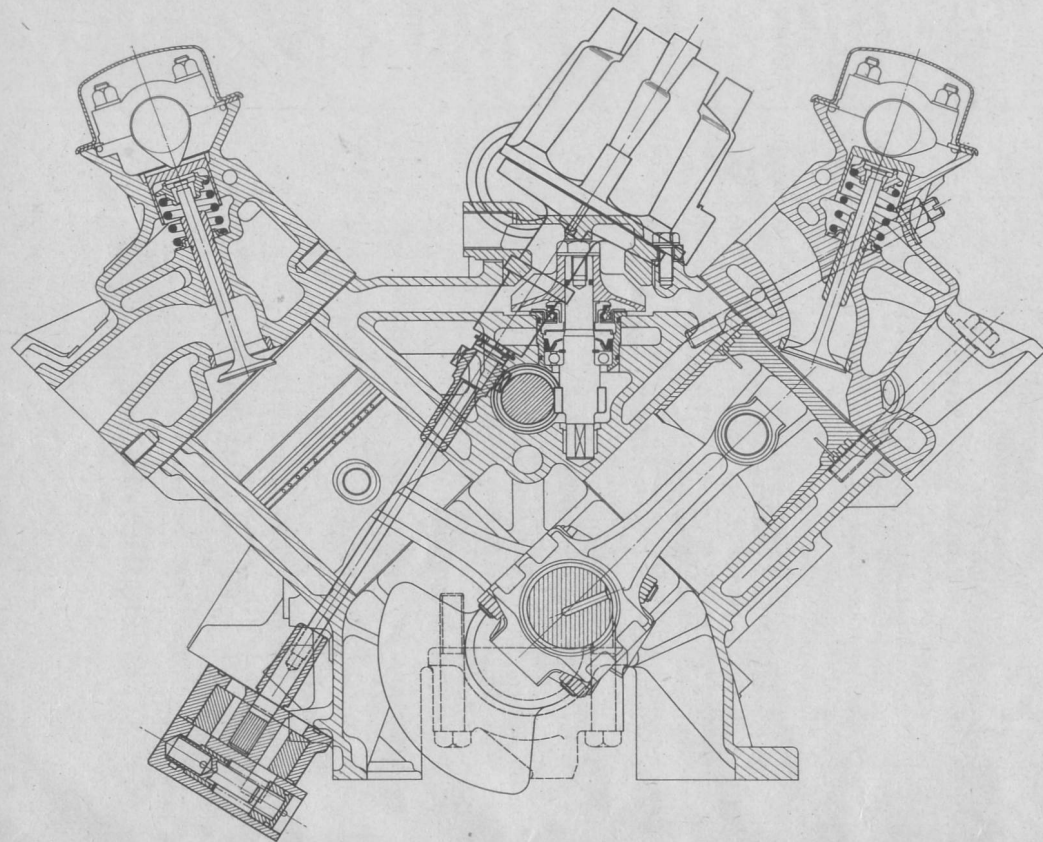


TRIUMPH STAG

Vee-8 power and a sporting image

By Jeffrey Daniels

"Why the Stag?" is not an easy question to answer. It is not a replacement for anything, and falls in the middle of a range already well-endowed with sporting vehicles. If anything, it is a classic gap-filler in the Triumph tradition, without any direct competition.



THE Stag had its origins four years ago (in other words, well before British Leyland came into being). Michelotti, who had done most of Triumph's styling under contract for a long time, was asked to produce a design study for a sports coupé using the existing Triumph 2000 floor pan and mechanical units.

This original study was progressively developed, with one major mechanical change when the in-line engine was abandoned in favour of the new vee-8 unit, and several changes in the body concept, including a shortening of the wheelbase. A new nose and tail treatment was devised, which was thought so successful that it was adapted to the 2000 saloon when it emerged in Mark 2 form. It is interesting to note, when looking at the undoubted family resemblance between the Stag and the saloons, that the Stag was first on the drawing board.

Engine

The vee-8 engine is of course the real centre of interest in the Stag. It is by no means entirely new, for Saab have been using half of it in the 99 for some time. It was a simple matter (in mind from the earliest days of the design) to take two of the 45deg canted, single overhead cam Saab engines and make a vee of them.

The Stag engine is not, however, twice the capacity. When siamesing two four-cylinder engines in this way, one runs into trouble with balance weights fouling pistons unless the stroke is shortened. Originally, indeed, the vee-8 had a capacity of 2.5 litres, but was stretched to three litres rather more than a year ago. It now has a slightly larger bore than the Saab unit, but a much shorter stroke, giving a bore/stroke ratio of 1.33. There is still a little stretch potential left in the engine, but not a great deal.

The large bore makes it possible to achieve very respectable valve sizes within the limits of the in-line layout, and the combustion chamber shape is an efficient wedge, reminiscent of that used by Fiat in the highly successful 128 engine. Power output is modest at 145bhp (net), but tuning at the moment is for flexibility, as the 8.8 compression ratio and 16-56-56-16 timing bear witness. Even so, there is more power here than comes from the 2.5PI in-line unit, and rather more torque as well.

Chrome-iron is used for the block, and aluminium alloy for the heads (and inlet manifold). The installed weight of the engine comes very close to that of the smaller 2.5PI. The head design itself is ingenious. The use of slanted bolts to secure it, allows the camshafts to be taken off without disturbing anything else.

This is just one aspect of the design which shows how much thought has gone into making the whole unit easy to service. The camshafts are chain-driven, and the drive sprockets can be undone and left *in situ* while the camshafts are removed, avoiding the necessity to reset the timing afterwards. Incidentally, the choice of chain drive was taken quite deliberately, despite the availability of toothed belts, in the interests of reduced engine length and better oil-tightness.

Another neat feature is the ease with which the entire inlet manifold assembly can be removed. The two Strombergs sit facing towards one another, in the manner of the SUs in the Rover 3500. Their good anti-pollution characteristics mean that the 1971 California regulations can be met with the aid of an inlet hot-spot and a thermostatically controlled air inlet valve. This was one reason why carburettors rather than fuel injection were chosen for the Stag. Triumph make no secret of the fact that they are looking at the possibility of injection, but stress that any system they use will have to be capable of meeting the American pollution requirements.

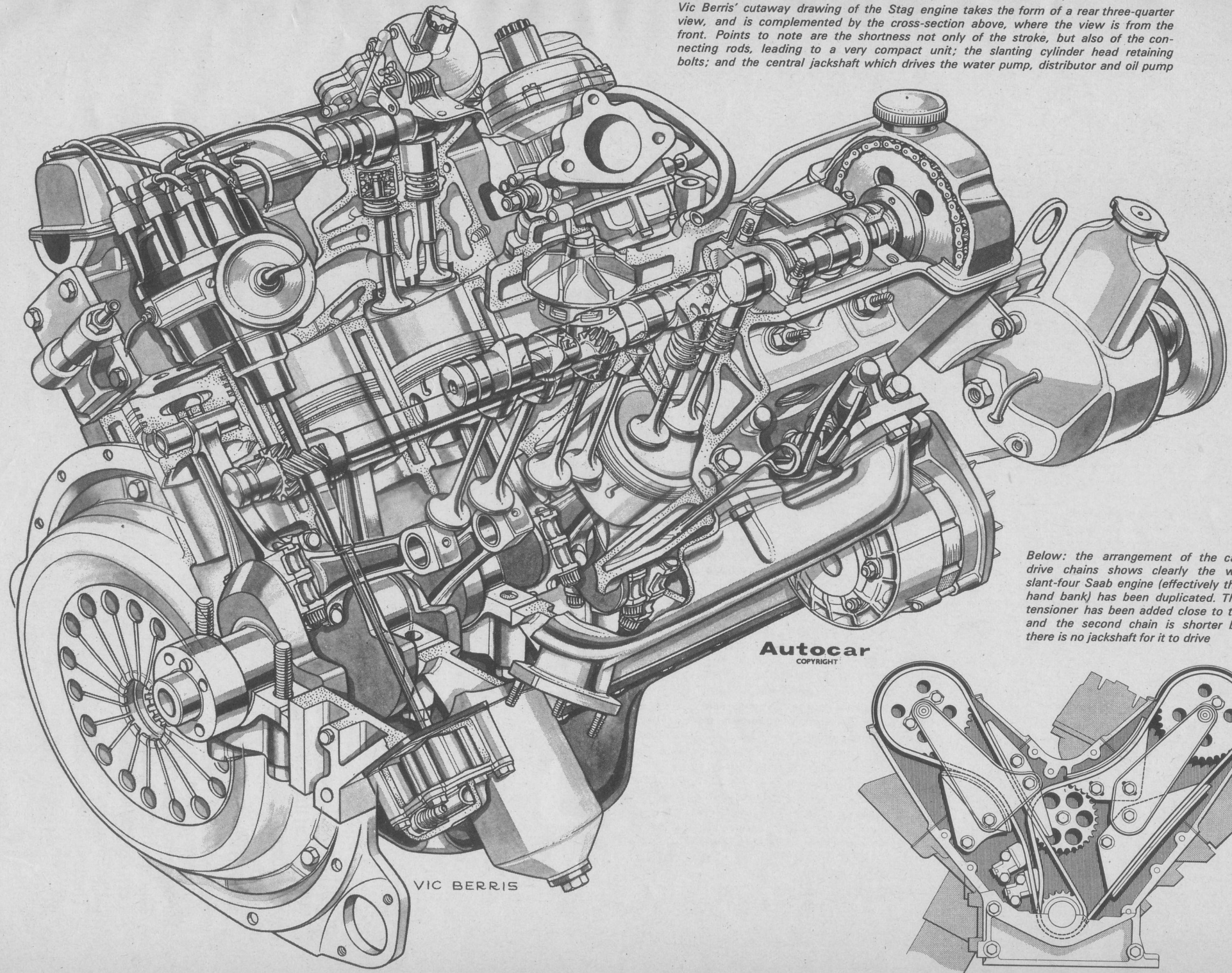
The crankshaft is a two-plane, forged-steel unit running in five main bearings. Engines have been run with single-plane cranks, but their vibration characteristics are inevitably far worse. Each crankshaft throw accommodates two big ends, with their own oil supplies from the adjacent main bearing.

Triumph quite rightly stress that the tremendous amount of work done on the Saab engine, especially in the reliability and durability fields, can in large measure be read across to the vee-8. Since Saab are now apparently satisfied that the four is the most durable engine in Europe, this bodes well for the life of the Stag.

All the most important features of the smaller engine are retained, including the distributor and water pump drive from a jackshaft (driven by one of the camshaft drive chains) running the length of the engine in the vee. This has enabled the layout of the front end of the engine to be kept very simple.

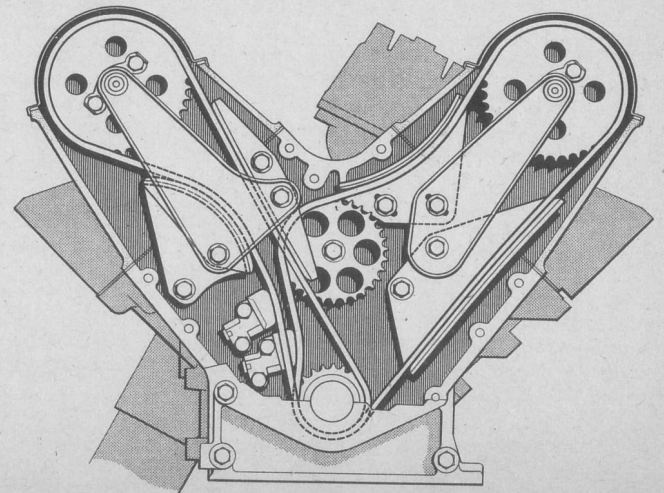
A viscous-drive fan of no less than 16.5in. dia. is used, thus reducing power losses and noise generation at high engine speeds. Electric fan operation was seriously considered, but it was felt that a unit able to produce an adequate output in the most difficult cooling conditions would be bulky and difficult to install. There are separate vee-belt drives to the alternator and power steering pump and, when fitted, to the air conditioning pump. This use of separate belts means that belt length and width can be kept to a minimum, at the expense of having a rather wide, multi-channel pulley at the front of the crankshaft.

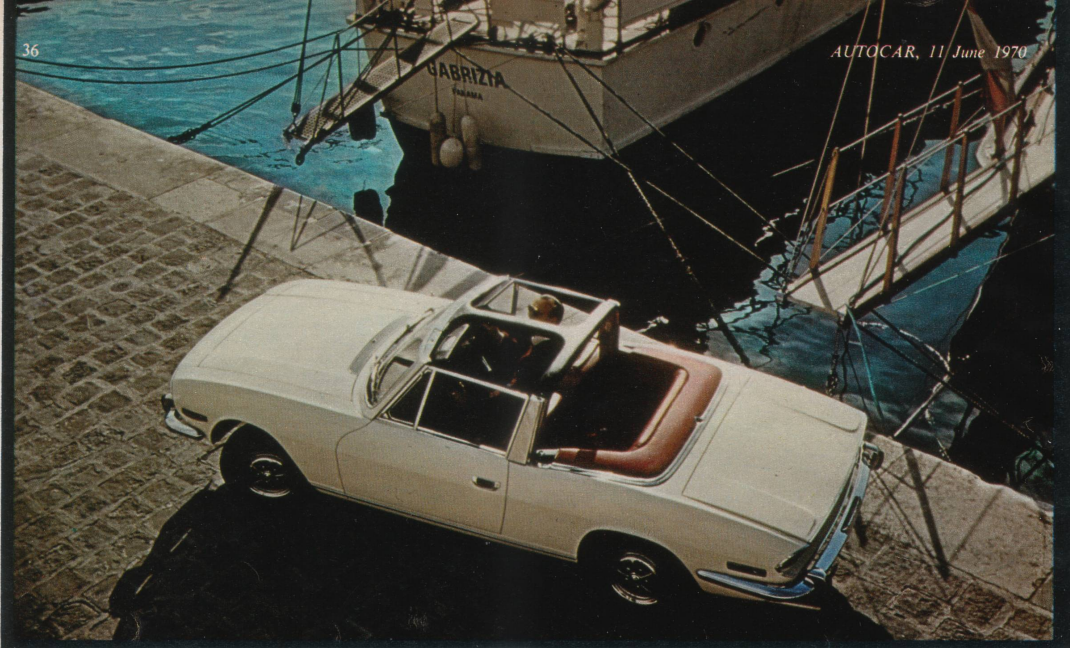
Vic Berris' cutaway drawing of the Stag engine takes the form of a rear three-quarter view, and is complemented by the cross-section above, where the view is from the front. Points to note are the shortness not only of the stroke, but also of the connecting rods, leading to a very compact unit; the slanting cylinder head retaining bolts; and the central jackshaft which drives the water pump, distributor and oil pump



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Below: the arrangement of the camshaft drive chains shows clearly the way the slant-four Saab engine (effectively the right-hand bank) has been duplicated. The extra tensioner has been added close to the first, and the second chain is shorter because there is no jackshaft for it to drive

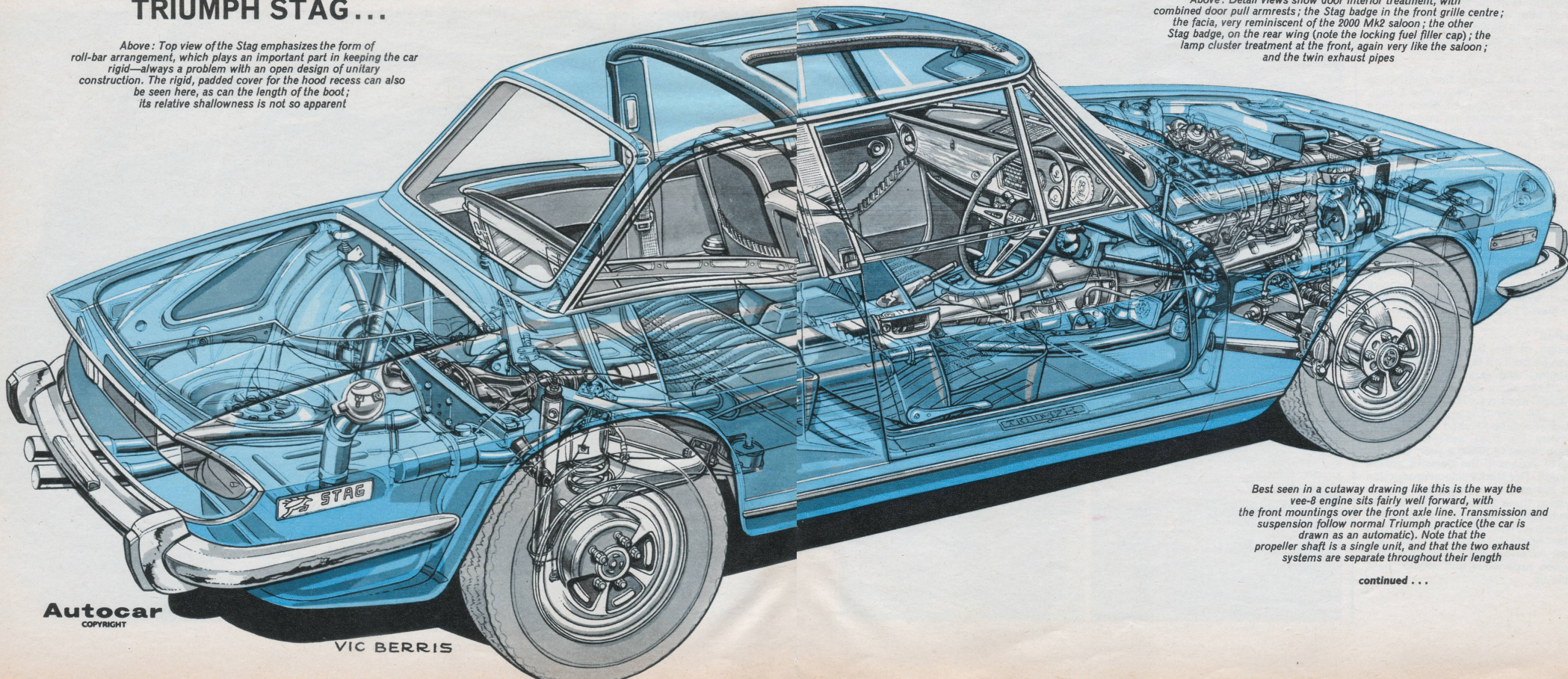




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Above: Top view of the Stag emphasizes the form of roll-bar arrangement, which plays an important part in keeping the car rigid—always a problem with an open design of unitary construction. The rigid, padded cover for the hood recess can also be seen here, as can the length of the boot; its relative shallowness is not so apparent

Above: Detail views show door interior treatment, with combined door pull armrests; the Stag badge in the front grille centre; the fascia, very reminiscent of the 2000 Mk2 saloon; the other Stag badge, on the rear wing (note the locking fuel filler cap); the lamp cluster treatment at the front, again very like the saloon; and the twin exhaust pipes



Best seen in a cutaway drawing like this is the way the vee-8 engine sits fairly well forward, with the front mountings over the front axle line. Transmission and suspension follow normal Triumph practice (the car is drawn as an automatic). Note that the propeller shaft is a single unit, and that the two exhaust systems are separate throughout their length

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their width has been increased to 2.5in. Total swept area is up to 347 sq.in., which more than compensates for the fact that the Stag is rather heavier than the 2.5PI. A split-circuit safety braking system is employed, of course, and a 3:1 brake servo is standard.

Steering

Power steering is standard on the Stag. The decision that this should be so enabled the rest of the system to be designed with less regard to the need for keeping steering effort low. The pump is situated high on the right front of the engine, and powers an Adwest rack and pinion system. The steering wheel is relatively large at 16in. diameter, and the column adjusts for length and rake, as in the Triumph 1300. There is also a column lock.

Standard wheels are 5.5in. steel-discs, carrying 70-series 185-14 radials. Initially, Michelin XAS will be the tyre equipment on all cars. The effect of the lower final drive and the lower tyre profile in reducing the overall gearing is offset to some extent by the use of 14in. wheels, but the mph per 1,000rpm figure in direct top is still only 19 as compared with 20.2 for the 2.5PI.

Equipment

The aim has been to cut the number of options to a minimum by having a high basic standard of equipment. Much of this (radial-ply tyres, brake servo, power steering, electric windows) has already been discussed. The interior bears a strong resemblance to the 2.5PI, with the same instrumentation and equipment; the front seats naturally have adjustable squabs, although lack of space means that they do not recline fully.

A Lucas 11AC45-amp alternator powers the electrical system, which carries considerable loads through its fully fused circuits. The starter is of the pre-engaged type, and the battery is of 56 Ah capacity.

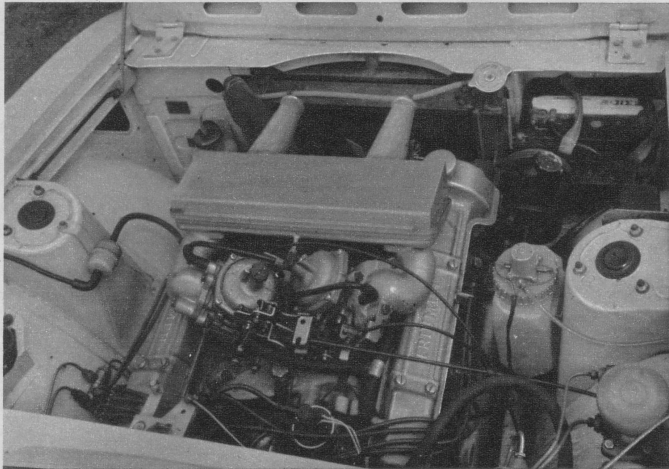
An air-mixing heater and comprehensive ventilation system is virtually inherited from the Mark 2 saloons.

Production

The design of the Stag engine means that it can be built on the same line as the Saab engine, and both units are now flowing off the same Coventry production line in large numbers. The body is produced in the new Triumph Merseyside plant, and sent fully finished and trimmed to Coventry for final assembly. Initial production target is 10,000 a year, with the capacity to expand if the demand proves high enough. The Mark 2 saloon production rate, for the sake of comparison, is currently about three times this figure. The first few months' production is earmarked for the home market, with introduction into overseas markets, including the all-important American and Common Market ones, when experience and stocks have been built up. □



Above: The three-quarter rear view, with the hardtop in position, again betrays a relationship with the saloons. The hardtop is well endowed with window area; the rear quarter windows hinge open at their leading edges, and the rear screen is electrically heated



Above: The view into the engine compartment, looking forwards. Accessibility to most components is extremely good, indeed better than the picture suggests. The fan, not visible here, is of impressive diameter, and is of the viscous-drive type



Left: The wiper system has been carefully engineered to clear the greatest possible area of screen, especially on the driver's side

Below left: The rear view looks very saloon-like with the hardtop in place. There is no Stag badge on the back panel, but the twin tailpipes are a give-away

Below: The front seats are released by a catch high up on the door side, tipping slightly sideways as well as forwards to permit access to the back seat



DRIVING THE VEE 8 STAG

First impressions from a trip in Belgium



SO far, the only Stag driving we have managed was a relatively short trip in northern Belgium. This is not ideal driving country, for the road system mainly consists of fast, open straights joined by very slow corners through little villages. On the other hand the celebrated Belgian *pavé* is still very much in evidence, so that one is well placed to learn a good deal about ride and road noise.

To some extent, the visual impression of the Stag as a "cut-and-shut" 2000 Mk2 saloon disappears when one enters the car, despite the close similarity of the instrument panel and minor control layout. One sits fairly low, with the result that the most comfortable driving position involves leaning back slightly; the steering column is adjustable for rake and reach, so that it is possible to settle really comfortably. Visibility is good without being outstanding. The nose is quite long and wide, but the front corners are well defined so that it is easy enough to place the car accurately in a traffic stream. The tail is visible for reversing. One excellent feature is the use of a parallelogram system for the driver's wiper, so that it clears the largest possible area of the big, steeply raked screen without leaving any blind spots.

Thoughts of the saloon recede even farther when the engine is started. A single turn of the key produces a subdued but characteristic vee-8 rumble, with a slightly uneven idle at about 700 rpm. Throttle response is smooth and progressive. But the pedal movement feels rather long. Indeed, all the control movements are on the long side, not least those of clutch and gearbox; this seems to have been preferred in order to keep the controls as light as possible—which they certainly are.

Moving away from rest, the smoothness and urge of the new engine becomes obvious. There is no impression of the car running away with the driver, but the low-speed punch is certainly there if required. As one moves higher up the speed scale it becomes obvious that the engine is going to stay with you all the way. There is no hint of low-speed torque having been obtained at the expense of high-speed strangulation. A yellow sector on the tachometer advises one not exceed 5,500 rpm—at which maximum power is developed—for cruising; the red line is at 6,500 rpm, which is a high limit for a relatively large unit like this. The engine is perfectly willing to rev right up to the red line, and in direct top gear it is possible to cruise well into the yellow. Triumph's claimed maximum is 118 mph in either direct or overdrive top, corresponding to 4,900 and 5,960 rpm respectively; in other words, about equally spaced either side of the maximum power point.

The gearbox is adapted from the 2.5PI, using a higher first gear, both to suit the engine characteristics and to reduce the torque loading on the final drive. By modern standards it is not a particularly good gear, but the synchromesh is strong and there is no baulking. In any case, the lazy driver will find that with a bit of throttle-feathering, the Stag can be trundled away from 10 mph in direct top, and selecting overdrive is simply a matter of sliding the little inset switch in the top of the gear lever. The spacing of the gears and the choice of overdrive ratio means that overdrive third falls nicely between direct third and top, so that the Stag (if thus equipped) is effectively a six-gear car.

Considerable efforts have been made to make the Stag a quiet car to ride in and in large measure this has been achieved. The viscous-drive fan undoubtedly plays its part in keeping down noise from under the bonnet. The engine itself is certainly subdued up to about 5,000 rpm, after which some induction and exhaust noise starts to intrude. Wind noise is quite low, and the suppression of road noise has been very successful, so that even on steel-braced Michelins over dreadful Belgian surfaces, little noise penetrated the interior. In keeping with the general policy, other noises seem to have been suppressed as far as possible: the heater fan, wiper motor and electric windows are all quiet in operation, as is the comprehensive ventilation system, which works extremely well. It is even possible to close the doors quietly.

If the object of taking us to Belgium was to demonstrate that the ride was good even over very poor surfaces, then it was successful. Even though the Stag is no more than a half-way approach to the classic French theory of soft, long-stroke springs and lots of damping, it copes remarkably well with all but the very worst surfaces. The suspension travel of well over 6in. is sufficient to smooth out any sort of main-road imperfection up to and including deepish potholes. At the same time it is firm enough to avoid more than the slightest suggestion of float; there is no sign of pitch, and roll angles are small. The seat springing feels as though it complements the suspension well, and the design includes enough wrap-round to support occupants against sideways forces right up to shoulder level.

It was difficult to gain a real impression of the handling. Straight-line stability is excellent, and the power steering light; almost too light to begin with, but eventually feeling well harmonized with the lightness of the other controls. Even so, it is still not really good enough to compare with the very best systems available.

Where open corners could be found, the handling appeared to be basically slight understeer, with sufficient power always on tap to push the tail wider if needed. Beyond this, judgment will have to await our full Road Test, to be published as soon as possible.

Short drives of this nature are no place to start punishing the brakes systematically; but there was nothing to indicate that the Stag's massive disc-drum system, the largest yet fitted to a Triumph, is anything but entirely adequate. Pedal pressures are kept well down with the help of a large servo. The handbrake is situated between the seats, and is light and effective in use.

On the basis of this short meeting, it seems that the Stag might be a *genuine* example of that rare breed, the GT car. From the British Leyland point of view, it plugs the gap between the MGB and the Jaguar E-type. It is rather faster, much better-equipped and more comfortable than the former, but nothing like as fast, or as expensive, as the latter. Prices were settled after the main description in our colour section went to press: they are as follows. □

PRICES

Triumph Stag

Soft top £1,995 17s 6d (£1,527 basic)
Hard top £2,041 11s 5d (£1,562 basic)
Hard + soft top £2,093 15s 10d (£1,602 basic)