

THE TRIUMPH STAG should have gone into production using the 150bhp TR5 six-cylinder engine — this move would have got the car into production earlier and provided engineers with more time to sort out the gremlins in this new V8 engine. That is the view of former Triumph Engineering Director, Harry Webster, who recently spoke at length on the 'inside story' of the Stag to *Sporting Cars* magazine.

The Stag project swallowed a vast sum of money and the car never sold in the numbers originally intended. With the wisdom of hindsight, Harry Webster can now look back and say "I was right!" — for he advocated the use of the six-cylinder engine to speed up production of the car, which went on sale more than a year overdue.

At the time, the six-cylinder advocates lost out — Lord Stokes in particular wanted his new Triumph roadster to be seen as "all new". But the time-consuming development swallowed millions of pounds.

From the beginning, Triumph were quite clear about the Stag's role as a tourer, and where it would slot into the market. Harry Webster said: "We aimed the Stag at the young executive. It was a car for the man whose sports car days were over and who had graduated from the small saloon and had the money to indulge himself in a sporting car capable of taking all the family.

"With these parameters firmly in mind it was obvious that the car would not only have to be quick but comfortable and refined. Power steering and brakes, air conditioning and electric windows, with a heated rear window in the hard top, would all be part of the package.

An irony of it all is that the formula could today be just what the market

# Stag at Bay

## Part two — the making of a classic

needs — one reason why the Stag is seeing a firm and rising interest as a modern-day classic.

Harry Webster's arrangement with Italian stylist Michelotti allowed the making of one-off prototypes on chassis sent out from Triumph. Like Bertone and Pininfarina, who also made prototypes purely for exhibition, these prototypes could be shown as examples of Michelotti's work at European motor shows. But the agreement also stipulated that if Webster liked the look of any of these prototypes he could have them brought back to Coventry.

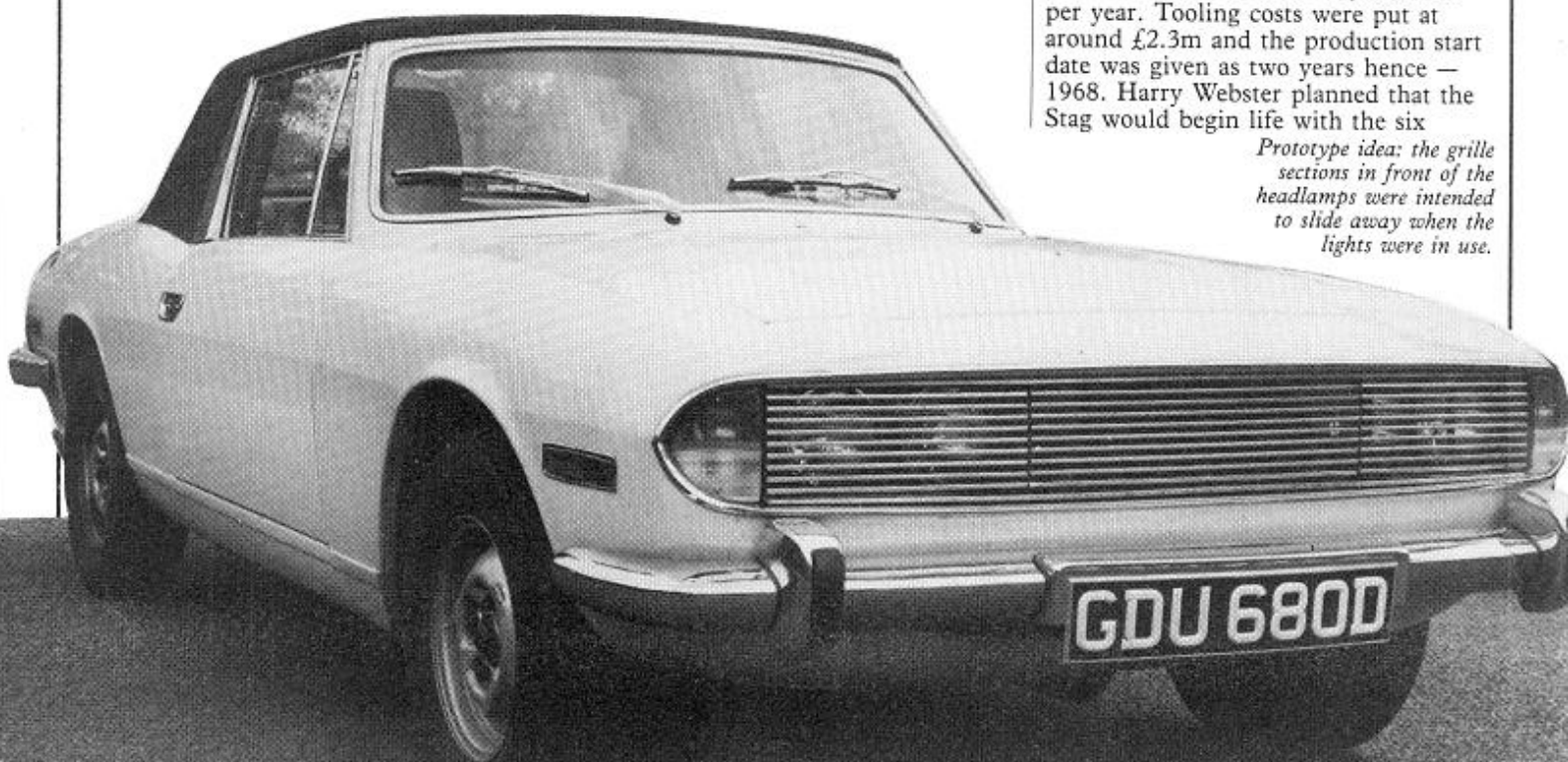
And so it was with the Stag. Webster had voiced his opinions earlier about a sports tourer and this had fitted in well with Michelotti's plans since, after producing the styling for the 2000 saloon, he was anxious to use this as a basis for an open car which he could

build for the 1966 Geneva Motor Show. A Mk 1 saloon was delivered to Michelotti's workshops in the summer of 1965 and work began. This was to be a fairly extensive modification involving considerable surgery to the basic floor pan and body. To begin with, the roof was removed from the base of the pillars. Then the car was cut in two and a section removed to reduce the wheelbase, thereby making it more compatible with a two door shell. The whole body was then re-skinned to Michelotti's drawings, the tinsmiths cutting and fashioning sheets of metal into panels to form the new body. When making such a prototype, it was Michelotti's practice to 'square off' the corners where the panel met to make a right angle bend, and not leave them protruding for chrome trimming as on Triumph's production models.

Webster says now that he believes that it was during one of his many trips to Michelotti's workshops — he would visit Italy perhaps as often as once a month — that he saw the wooden mock-up of Stag, liked it, and told Michelotti that he wanted the finished prototype to be brought back to Coventry instead of being put on show at Geneva. The car was driven back from Italy by one of Triumph's top engineers, Harry Colley, who remembers vividly being most impressed by the car's design and the way it handled. With bags of sand as ballast in the boot the car performed well with its 2.0 litre engine.

With the Stag prototype in England ('Stag', incidentally, being the car's project code name) Webster began to set the wheels in motion for the car to go through Triumph's full development and production process. Product Planning gave the project their approval and plans were drawn up for a production rate of some 12,000 units per year. Tooling costs were put at around £2.3m and the production start date was given as two years hence — 1968. Harry Webster planned that the Stag would begin life with the six

*Prototype idea: the grille sections in front of the headlamps were intended to slide away when the lights were in use.*



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cylinder engine, probably in fuel injected form, similar to that fitted to the TR5, to give it adequate performance. Like Triumph's planned range of executive saloons, it would eventually get a 2.5 litre V-8 power unit which was under development later on. However, this strategy was over-ruled.

The V-8 engine was part of Triumph's plans to develop a new series of engines — an overhead cam slant four and a V-8 sister unit — the result of an in-depth analysis carried out by the company's Chief Engine Designer, Lewis Dawtrey. By the early 1960s, Triumph's four-cylinder and six-cylinder (which itself was a development of an earlier four-cylinder unit) engines had been in production for some years and the company was anxious to keep abreast of their competitors. By assessing the latest trends in engine technology, plans could be drawn up for a new family of engines suitably advanced enough to carry the company forward into the '70s. By 1963, Dawtrey had completed his report and it was ready for evaluation.

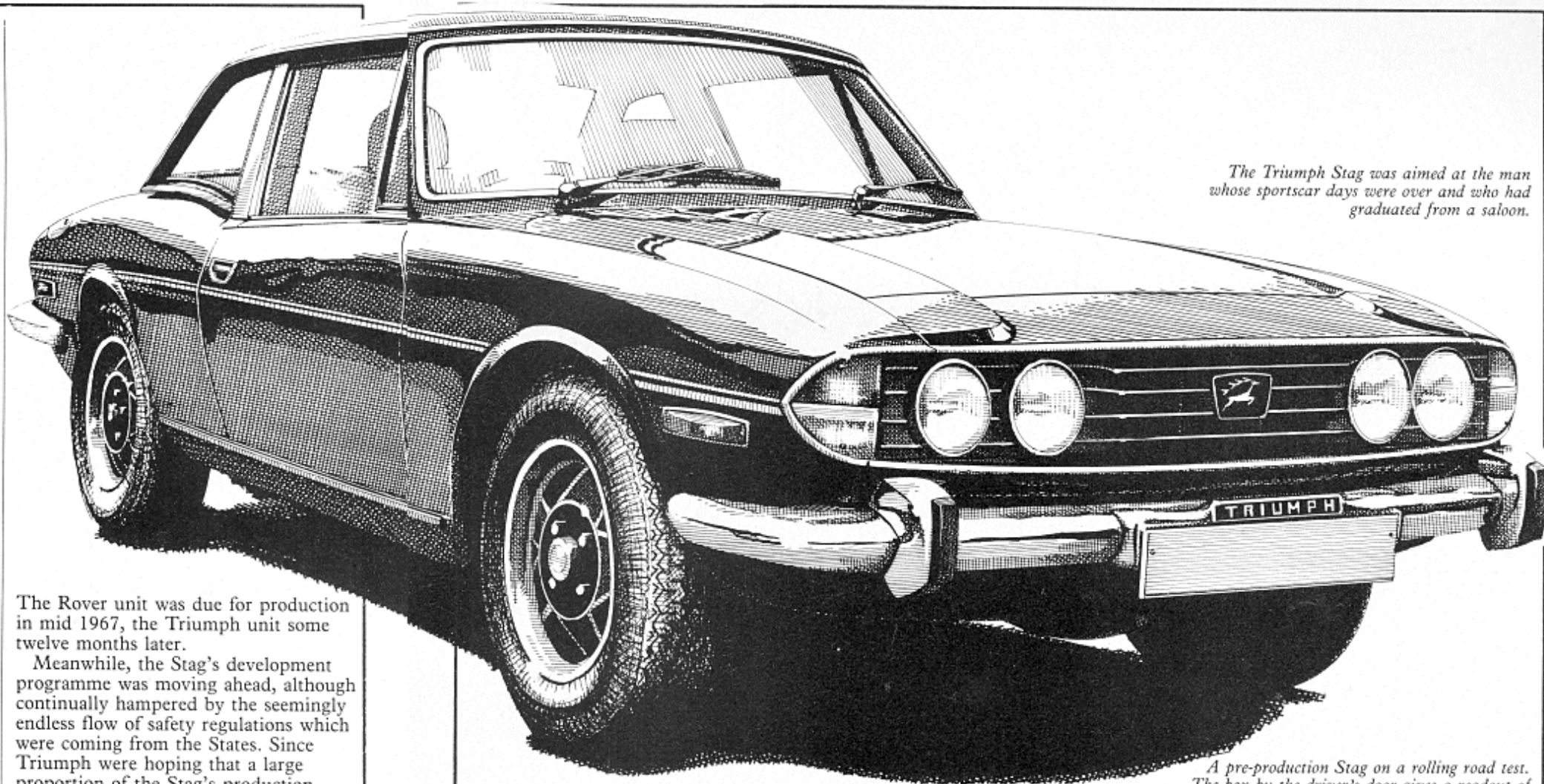
After looking at, and discarding, the revolutionary Wankel engine and the 'flat' VW engine, Dawtrey had been left with the choice of either the V-4 and V-6 arrangements (similar to those favoured by Ford) or a family of integrated four-cylinder and eight-cylinder ohc units. His reasoning behind suggesting the latter was that the slant four engine benefited from long inlet tracts, which increased gas flow, and an exhaust shape which fell away neatly from below the cylinder head. These proposals fitted in well with Standard Triumph's policy of continual refinement of their big car range: the four-cylinder Vanguard had become the

six-cylinder; the V-8 a logical step on from the six. (The Vanguard engine was a development of the old Ferguson tractor engine, and powered the TR2).

It was about this time that the Swedish firm of Saab were looking to replace their two-stroke engine with a slightly larger four stroke unit and, after contracting a company called Ricardo to design and build them a suitable unit — which turned out to be very similar to what Dawtrey had described in his report — Saab approached Triumph and asked whether they, Triumph, would be willing to sell engines to Saab. Triumph agreed and by 1965 prototype engines were running on Triumph's test bed, in readiness for production units to be sent abroad.

In common with the ohc slant four unit, the V-8 derivative, which would be used in the Stag, was designed on the drawing-board and the opportunity was taken to include in this engine several novel ideas. The combustion chambers were wedge shaped to help efficiency, while the block was made from chrome iron with alloy cylinder heads, again for added efficiency. The camshafts were individually chain driven with the distributor and water pump drive taken via a jackshaft which itself was driven from one of the camshaft chains.

In 1965 Rover bought the rights from General Motors in Detroit to build their redundant 3½-litre all-alloy V-8 engine in Britain. Although this unit had been designed by General Motors many years before, Rover had to spend a considerable amount of money on development and tooling to make it rev well enough for British drivers, before the engine could be put into production. With the merger of Standard Triumph with Rover in 1966/67 there were now two V-8 engines in the melting pot: the Triumph unit designed by Dawtrey and the Rover unit bought from GM. But, no instructions were ever issued to cancel either unit since not only did internal politics favour that Triumph and Rover should remain very much individuals (and therefore produce market competitors) but, as so much development money had been spent, nobody was bold enough to make the decision to terminate one of the engines.



*The Triumph Stag was aimed at the man whose sportscar days were over and who had graduated from a saloon.*

The Rover unit was due for production in mid 1967, the Triumph unit some twelve months later.

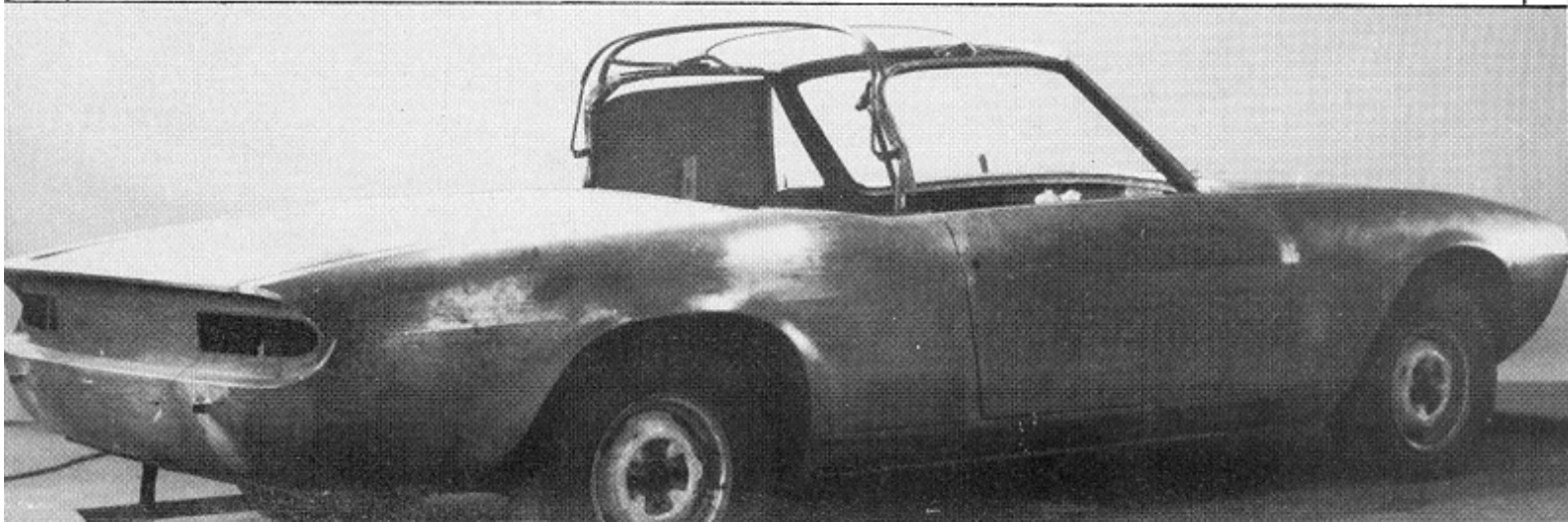
Meanwhile, the Stag's development programme was moving ahead, although continually hampered by the seemingly endless flow of safety regulations which were coming from the States. Since Triumph were hoping that a large proportion of the Stag's production would go to America, they had to take notice. As for the first prototype, this was returned to Italy, where Michelotti began to develop a hard-top.

As the Stag was developed more and more, so fewer and fewer body panels were shared with the Mk I saloon. Standard Triumph's prototypes also differed in detail from Michelotti's original. Whereas this had opening front quarter vents and frameless windows the British-built cars had frames to their windows, and the small buttons and finger plates for door handles gave way to letter-box door handles. As the Stag programme progressed, so other

*The Michelotti Stag. It was built from an old Mark One 2000 saloon. Harry Webster liked the style so much that he had it brought to Coventry to be turned into production.*



*A pre-production Stag on a rolling road test. The box by the driver's door gives a readout of the engine's performance.*





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unfortunately, it quickly gained a reputation for unreliability. In Britain, too, there were stories of overheating and cylinder head and water pump failures. Without doubt, the Stag project was an expensive one for Triumph.

But it was not all bad news for the car had demanded a high degree of technology and development. Much of the Stag's running gear was utilised in other Triumph models, particularly the 2.5 PI. Only 23 body panels remained identical to the saloons — due to the Stag's differences in height, length and width.

Could it all have been a different story?

During a recent interview, Harry Webster commented that had the Stag initially gone into production with the TR5 engine — as planned — it would have given Triumph's engineers the opportunity to develop out the problems with the V-8 engine — as they had done with the four-cylinder Saab unit.

Harry Colley said that for him, the best Stag would have been fitted with the 2.0 litre six cylinder engine, like Michelotti's prototype. He agrees that performance would have suffered but not, he feels, to a great extent — and it would have been reliable and economical.

It took seven years to sell what the planners had estimated would sell in two years. The rot was setting in for BL with too many cars using too many different engines and parts. In some ways the Stag was before its time — launched today, the concept could be a winner. As it is, historians will chalk up the Stag as another costly failure, aiding the demise of BL.

The Stag never paid for its creation.

**Mike Taylor**

Ford on a project to produce a new soft-top Escort XR3.

Body panels were produced at one of BL's Liverpool factories, while assembly and trimming was carried out at another. The cars were then transported down to Canley, Coventry for the installation of the engines and transmissions.

With the decision to fit Stromberg carburetors in place of fuel injection, Harry Colley, Stag's Project Engineer, pointed out that this created an inlet manifold with a less than ideal inlet tract shape. "Replace the Stromberg carburetors with fuel injection," said Harry, "and the power goes up to about 188bhp."

The Stag was to remain in production for some seven years until 1977, during which time a total of 25,877 units were made. That was two years production as far as the original estimates are concerned. It remained very much a production oddity since no other model was fitted with the ohc V-8 engine, although at least one Stag was given a 3.5 litre Rover engine — just as a development test bed.

A proportion of the Stag's early production went to the States where,

*A one-off styling exercise on a Stag in 1969. The bootlid and rear screen were hinged together. This car never reached production.*

When the Stag finally went into production it was some 12 months behind schedule. The difficulties over body tooling and assembly had been overcome by contracting Karmann to undertake the tooling. Karmann have a great deal of experience at conversion work, and are at present working for

*Ready assembled Triumph bodysells waiting for running gear to be installed. The Stag was assembled in Liverpool before going to Canley for completion.*

improvements were added such as the pantograph windscreen wiper. Side windows were given frames and made power operated.

And to produce adequate body strength when the hardtop was not in place, the floor area was stiffened considerably, and deep sills added which ran under the doors.

Originally, the Stag's styling characteristics with low, wide frontal treatment and redesigned grille were to herald a new line of Triumph cars, cars which eventually were to be fitted with the V-8 power unit. But by this time, Harry Webster — on the orders of Donald Stokes — had moved from Triumph's headquarters in Coventry to Austin/Morris at Longbridge. Webster's replacement was Spen King, who immediately instructed that the styling of the Triumph 2000 saloon should be updated — a decision which was to rob the Stag of much of its strong launch appeal.

Michelotti was asked to provide some styling suggestions for the 2000 which, when they arrived in Coventry, looked very similar to the Stag. Although little had been altered under the skin, the car had been made longer both back and front, thereby giving it a more streamlined appearance, with a wide rear track, and along with these plans was the decision to restyle the interior. Also arrangements had been made with Lucas to offer a 2.5 litre fuel injected version.

The Mk II saloons were to be launched at the Geneva Motor Show in March 1969, which unfortunately had a dramatic effect on the Stag's programme. At the very time that the second hand-built Stag prototype was being completed, the Mk II 2000 (code

named 'Innsbruck') was given the go-ahead and since Pressed Steel simply did not have the capacity to supply the body panels for both vehicles — and as the Innsbruck was considered the more important of the two — the Stag's launch date was put back.

By this time plans to fit the TR5 power unit in the Stag had been dropped in favour of a 2.5 litre fuel injected version of Dawtrey's V-8. Unfortunately, Triumph's engineers were having difficulty with the prototype units which were still in the development stage. Nevertheless, King instructed that the capacity be enlarged to 3.0 litres to increase power and torque, and the fuel injection be replaced by twin Stromberg carburetors mounted opposing one another atop the cylinder heads.

This drastic change also brought about a hurried re-arrangement of the Stag's suspension and transmission, a stronger gearbox and final drive to cope with the added power and torque, and modified spring rates with bigger brakes, not to mention 14 inch road wheels to improve not just styling but also put more rubber on the road.

With the Stag's power unit increased to 3.0 litres, some half dozen 2000 saloons were fitted with these engines as prototype development vehicles.

One, in particular, was built for Sales Director Linden Mills. But S-T never contemplated this installation as a production option for the saloon because using Stag brakes, gearbox and differential, the car's retail price would have been unreasonably high.

Initially, Stag prototypes were fitted with a single roll-over bar to further increase body rigidity scuttle shake. But after testing (with a broom handle to

prove the point!) it was found that the best results were achieved with a centre bar added. The roll-over hoop was mostly a cosmetic affair — it is actually only bolted to the body sides!

Much of the work went into trying to perfect a grille with sliding sections — which covered the headlamps — which would move away when the lights were in use. Unfortunately, this could not be made to work fast enough or be totally reliable in adverse weather conditions (at least the worst weather which Coventry could offer), so the idea was dropped. Some effort was put into making the hood power operated but this, too, was dropped and a manual hood was fitted. As the Stag was to be offered with air conditioning, one prototype fitted with this equipment was taken to Algeri for testing.

It is interesting that the original Stag prototypes were the same width as the 2000 saloons, although by the time it reached production it was some 1½" narrower. Since the Stag was that much lower than the saloon, the seats had to be lowered, too, which meant that the transmission tunnel became a problem. To overcome this, at one point plans were drawn up to increase the width of the Stag by up to six inches and at least one prototype saloon was made four inches wider than standard.

Normally, Triumph allowed three years to produce a new car. The Stag saw production after only six prototypes. The first British made car was with a 2.5 litre engine, and painted matt black! Prototype Number Two was used for suspension testing. Number Three, a yellow car, was driven in Africa for air conditioning tests. The final three pre-production cars were to test aspects for foreign markets.

