

..... Fashioned

Fibreglass bodies: the cheap, handsome and practical

answer to the enthusiasts' dream.

BRUCE MAHER, driving a cream Buchanan-M.G., ran into gearbox trouble at Tyresole Corner at a Mt. Druitt race meeting recently. He made a hand signal and pulled over to the right. Then Jim Wright came too fast into the same corner and slid. His red TR2 side-swiped the Buchanan, spun through 180 degrees and went off the track.

Neither man was hurt, but a subsequent examination of the cars showed that the TR2 was in urgent need of panel beating, whereas the Buchanan-M.G. showed long streaks of red duco as the only signs of the skirmish.

The fibreglass body had taken the blow, flexed and then sprung back into shape unhurt.

The main advantages of fibreglass, including this almost uncanny indifference to bruising, are too well known to require elaboration here. What is of interest, though, is the growing place that fibreglass is taking in the Australian motor industry.

Would-be coachbuilders are finding that they can build sculptured bodies, hitherto impossible. Commercial firms are marketing sports car bodies at a price previously thought ridiculous. Tiny backyard concerns have built up prosperous businesses making hardtops for touring cars and fibreglass mudguards which, when painted, are indistinguishable from metal. Builders of racing specials are also turning to fibreglass for, not only is it 40 per cent lighter than aluminium of the same thickness, but for such things as fuel tank, bulkheads and bonnets it is incomparable.

And the crowning achievement of fibreglass has been the launching of the magnificently styled Buckle sports coupe, an Australian enterprise with the hallmark of international elegance.

The materials used in the production of fibreglass bodies—both the amateur and the professional—is polyester resin, a catalyst, accelerator and glass fibre, either as cloth, woven rovings or mat.

The cloth is made from extremely fine threads of glass, gathered into yarn and woven into a fabric. It has a bright sheen and is similar to coarse linen in appearance. The mat is made from chopped strands of glass fibre and is held together

by a little resin-soluble binder. It can be used in its manufactured form or pulled apart and mixed with resin (plus catalyst and accelerator) as a putty, used in stopping plastic bodies before spraying.

Over 35 different types of fibreglass cloth are available and the price varies from 9/6 a pound up, and there are 18 ounces of fibreglass to a square yard of matting.

A car body can weigh anything from 56 lbs. (a racing special) to 150 lbs., a rather heavy touring body. Normal weight on an M.G., for example, would be 100 lbs. Of this, one third consists of fibreglass—in two, three or even four laminations—and two thirds of resin, which costs between 4/6 and 5/- a pound.

The lightest body has one layer of fibreglass cloth and two of resin, while as many as eight layers of cloth, each bonded separately by the resin, has been used. It is normal practice, however, to use two layers of fine glass cloth, sandwiching a layer of either rovings or mat.

In this proportion the result-

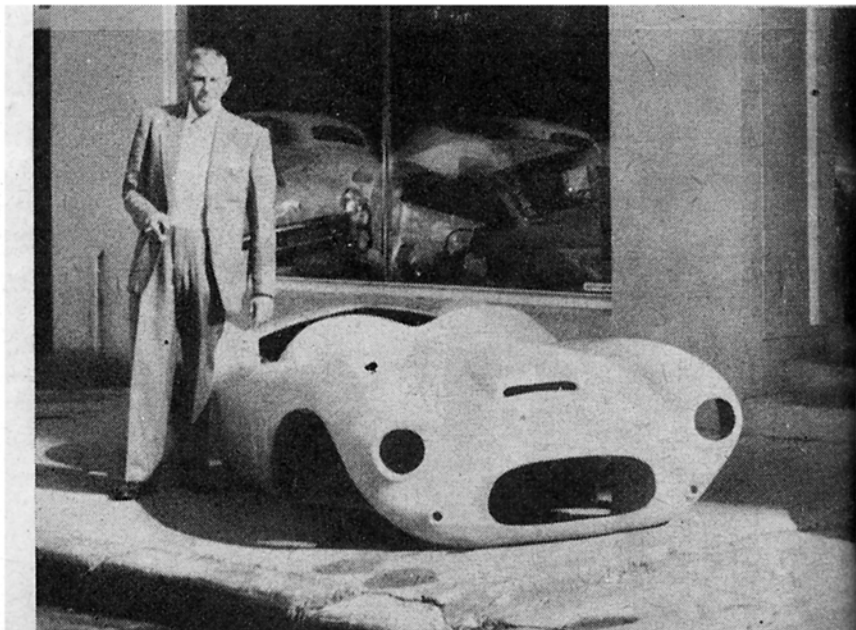
ing "plastic" is both tougher, lighter and more durable than aluminium. Its tensile strength is 26,000 lbs. per square inch against 10-35,000 lbs. per square inch for the metal.

The professional bodies on sale are mostly excellent. The finish is good and requires relatively little attention before spraying. The design is pleasing and practical. One complete body, marketed by N. H. Buchanan Motors, Sydney, sells for £255 complete, except for interior trim and upholstery. In appearance it is reminiscent of the DB3S Aston-Martin body.

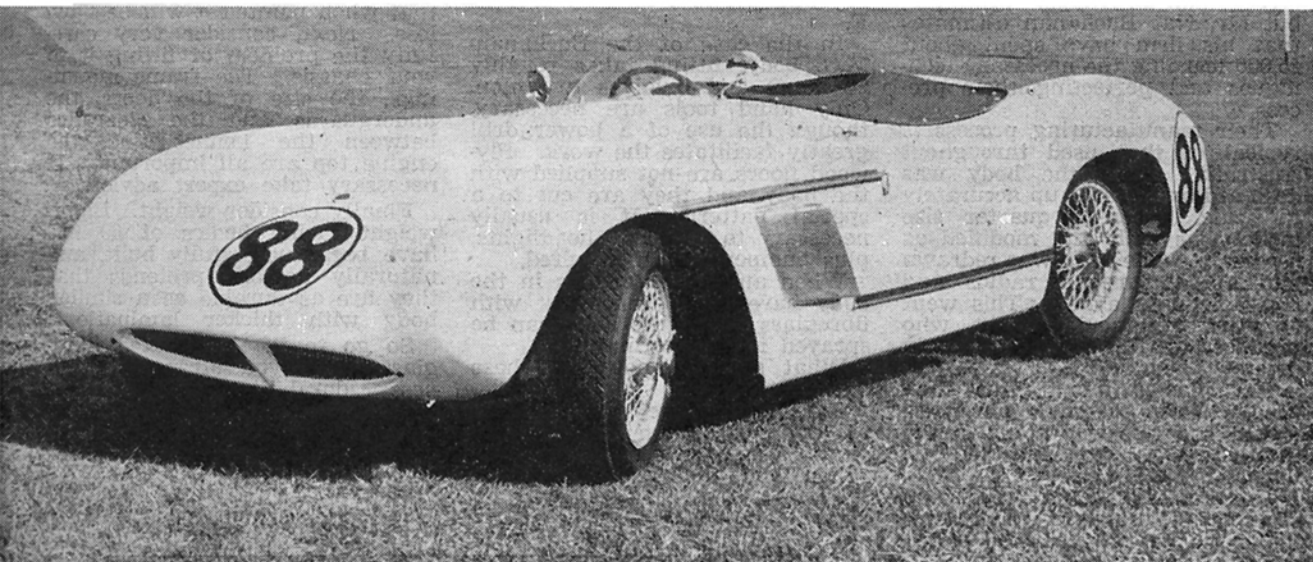
The Buchanan body was designed to fit any chassis with a wheelbase between 7 ft. 4 in. and 7 ft. 11 in. and a track between 46 ins. and 53 ins. Roughly 35 of these bodies have been sold so far and most of them have been fitted to M.G.'s.

The bare shell is also available at £150.

A windshield complete for the body runs to about £30, a hood £40, and specially made petrol tanks can be made to order for

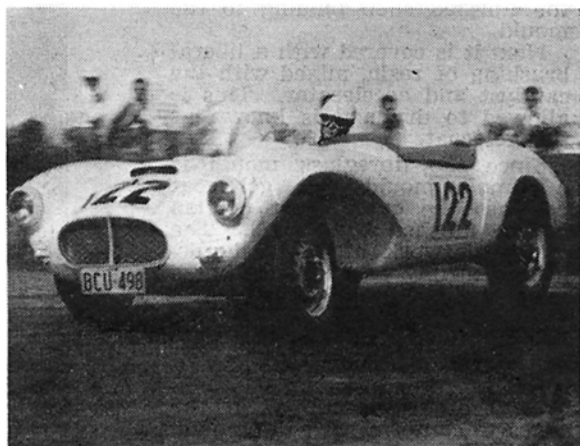


in Fibreglass



Fibreglass bodies are popular for competition sports cars because of their modest price, lightness and durability. This one is fitted to a Lotus and was made by the North Strathfield Service Station.

Nat Buchanan stands beside one of his body shells, whilst the car on the right has a fibreglass body fitted onto an MG chassis.



A Buchanan fibreglass body fitted to an MG TD seen here racing at Mt. Druitt, New South Wales.

Another Sydney firm, North Strathfield Service Station, are marketing a sleek fibreglass body, available either with the whole front lifting up like a D-type Jaguar or with a hatch type bonnet similar to an Austin-Healey. This body sells for £220 and will fit a variety of cars ranging from a Volkswagen to a Holden. Made specially to order, this body will fit any car with a wheelbase of 7 ft. up and any track up to 54 ins.

Yet a third firm, Australian Fibre Plastic Industries, is selling a bare body shell, without doors, bonnet, boot, etc., for £112, plus sales tax at 16 2/3 per cent.

The basic manufacturing processes can be simply described, but Mr. Nat Buchanan estimates that his firm have spent about £5,000 learning the necessary techniques and perfecting their process.

Their manufacturing process is typical of that used throughout Australia. First the body was designed and drawn up accurately to scale. Then a quarter size model was built and modified as necessary. The body was redrawn and all dimensions, radius and technical data added. This went to a plaster mould expert, who produced a full scale model in plaster.

The plaster mould was then used to form a female fibreglass mould and this was made in the same way as the final body is built.

The female mould is cut in sections and hinged so that later the complete body can be pulled away intact.

The fibreglass female mould becomes a master mould from which as many bodies as required can be taken. First it is thoroughly waxed, then treated with a parting agent which prevents the finished shell binding to the mould.

Next it is covered with a liberal brushing of resin, mixed with the catalyst and accelerator. This is allowed to dry and is known as the gel coat.

Since the fibreglass mould is a female mould, this gel coat becomes the outer most portion of the finished body shell. The final paintwork of the body depends entirely on the smoothness and consistency of the gel coat.

A second coat of resin is brushed on top of the gel coat and before it has time to dry, a layer of fibreglass cloth is laid over it and then clipped at the edges to conform with the mould.

The cloth is worked down evenly, using a roller, so that it soaks up the resin. Considerable care is needed during this operation, otherwise the body will be weakened by the presence of air bubbles.

It takes an hour for this lamination to dry, then more resin is brushed on and a layer of mat or rovings added. This, too, is rolled flat and allowed to soak up the resin.

When dry, more resin and a final layer of cloth is added. After this lamination is dry, a generous coating of resin is brushed on.

Steel mounting brackets are bonded to the fibreglass, using fibreglass and resin as the bonding agent, and the positioning has, of course, to conform closely to the frame design of the chassis it will eventually cover.

The body is left in the mould overnight. Then the mould is unhinged and the shell removed. It takes a further week for the laminate to begin to reach maturity. During this time the temperature of the workroom must be kept as even as possible and the ideal atmosphere is perfectly dry and not less than 68 degrees F.

In the case of the Buchanan-M.G. body, fitting takes roughly 28 hours and involves two men. Only hand tools are necessary, though the use of a power drill greatly facilitates the work. Plywood floors are not supplied with the body and they are cut to a special pattern. It is usually necessary to buy new headlights, plus bumperettes, if required.

When any imperfections in the body have been evened out with fibreglass putty, the shell can be sprayed in the normal way.

What sort of men buy these bodies?

Well, clearly they can be fitted to any car of the right dimensions. Some vehicles have been rolled and their bodies written

off, a few chassis have been carefully hand built by enthusiasts with a view to motor sport. More than one man has bought a utility (such as the A40 High-light), which has a comparatively low resale value, removed the body and sold those parts which were saleable. The net cost is around £300. A sports car body and all the trimmings can then be added for roughly an additional £350.

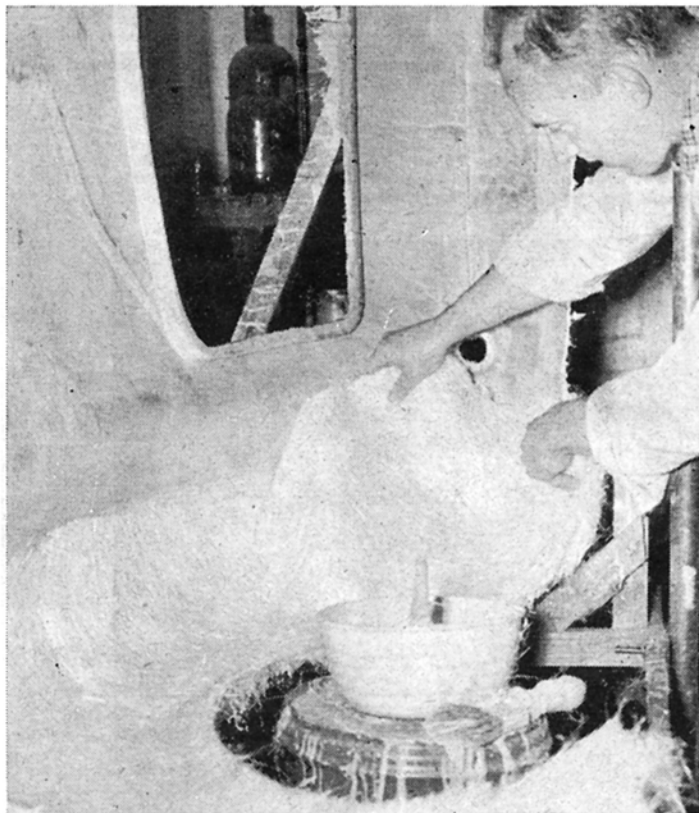
And the final equipage is mighty pleasing on the eye!

You might ask: What does a man look for when he is buying a fibreglass body?

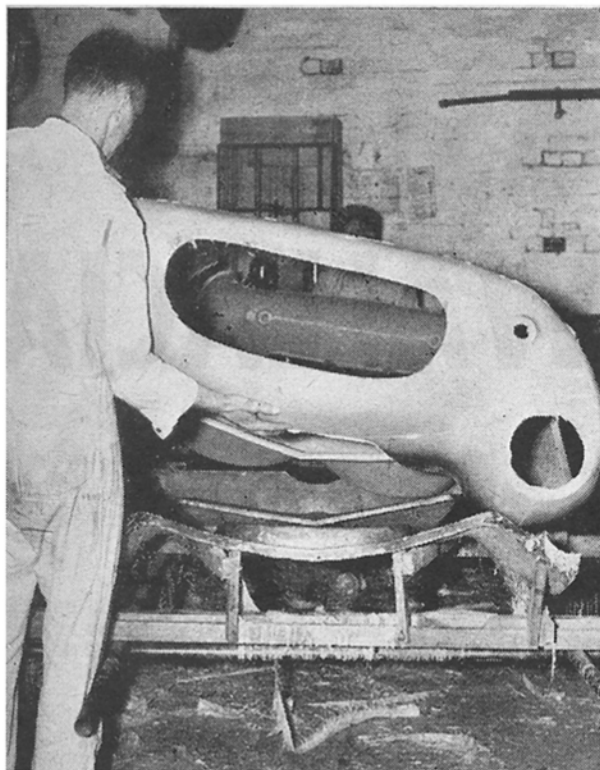
The first thing is to examine the surface closely and make sure that when painted it will be flawless. Next, consider very carefully the problem of fitting it to your chassis. The frame mountings, the size of the doors, the underguards and the clearance between the bonnet and the engine top are all important. If necessary take expert advice.

Finally consider weight. Lightweight racing bodies of 60 lbs. have been successfully built, and naturally no one pretends that they are as durable as a similar body with thicker laminations.

So go to it. Laminated fibreglass gives you strength, lightness, durability and relative cheapness. Even more, it gives you sculptured lines never before possible in cheap, over-the-counter bodies.



Fibreglass mat being applied to a mould. Bowl contains resin to bind to the mat.



A body shell will cure overnight, but takes a further week to mature properly.



Wax is applied to the mould before the fibreglass and resin are laid in, otherwise the body would adhere to the mould.

The mould being removed from around the completed shell at the Buchanan works.

