

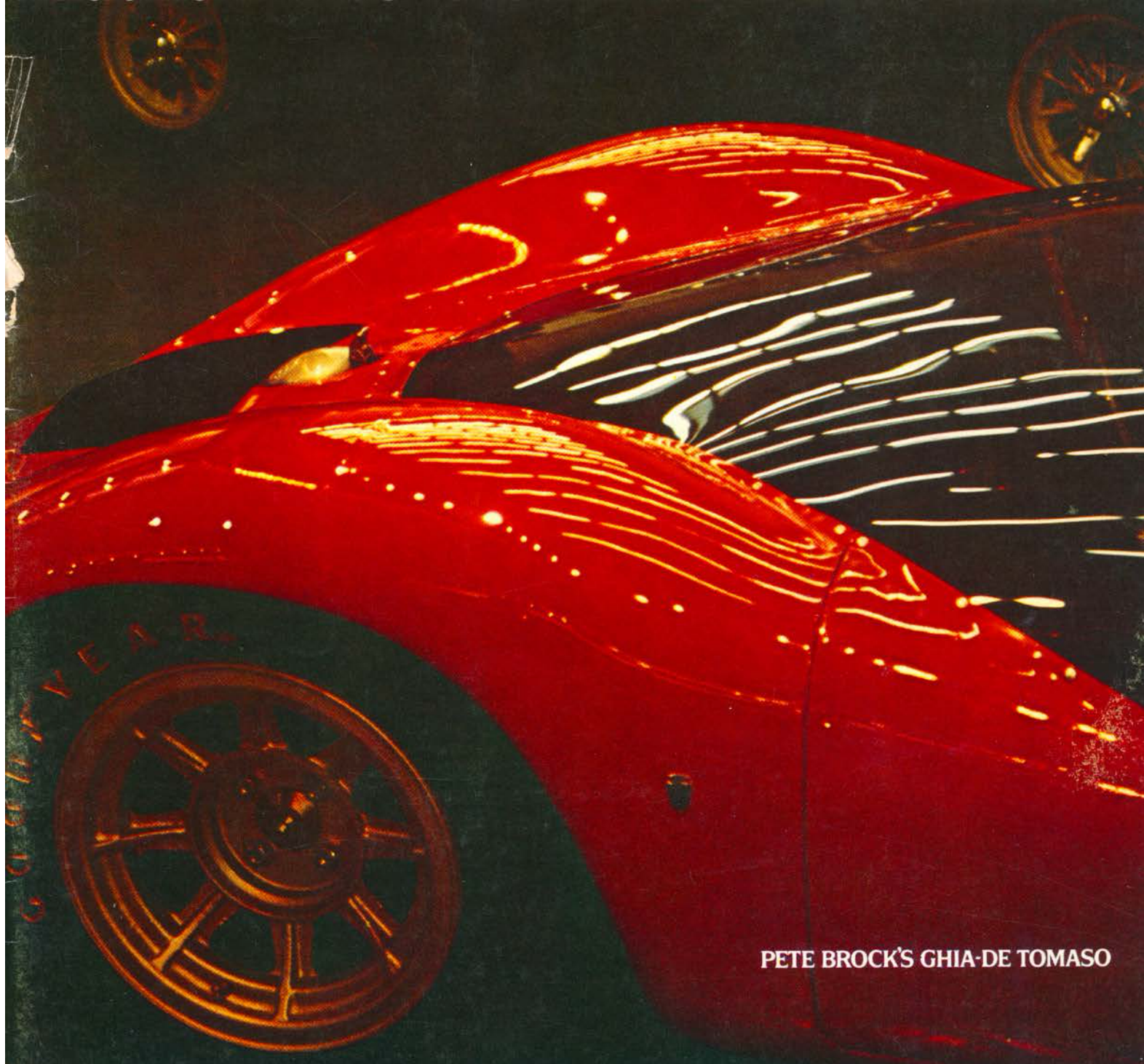
MODEL CARS FOR SLOT, SHELF AND SHOW

ROAD & TRACK^{ICD}

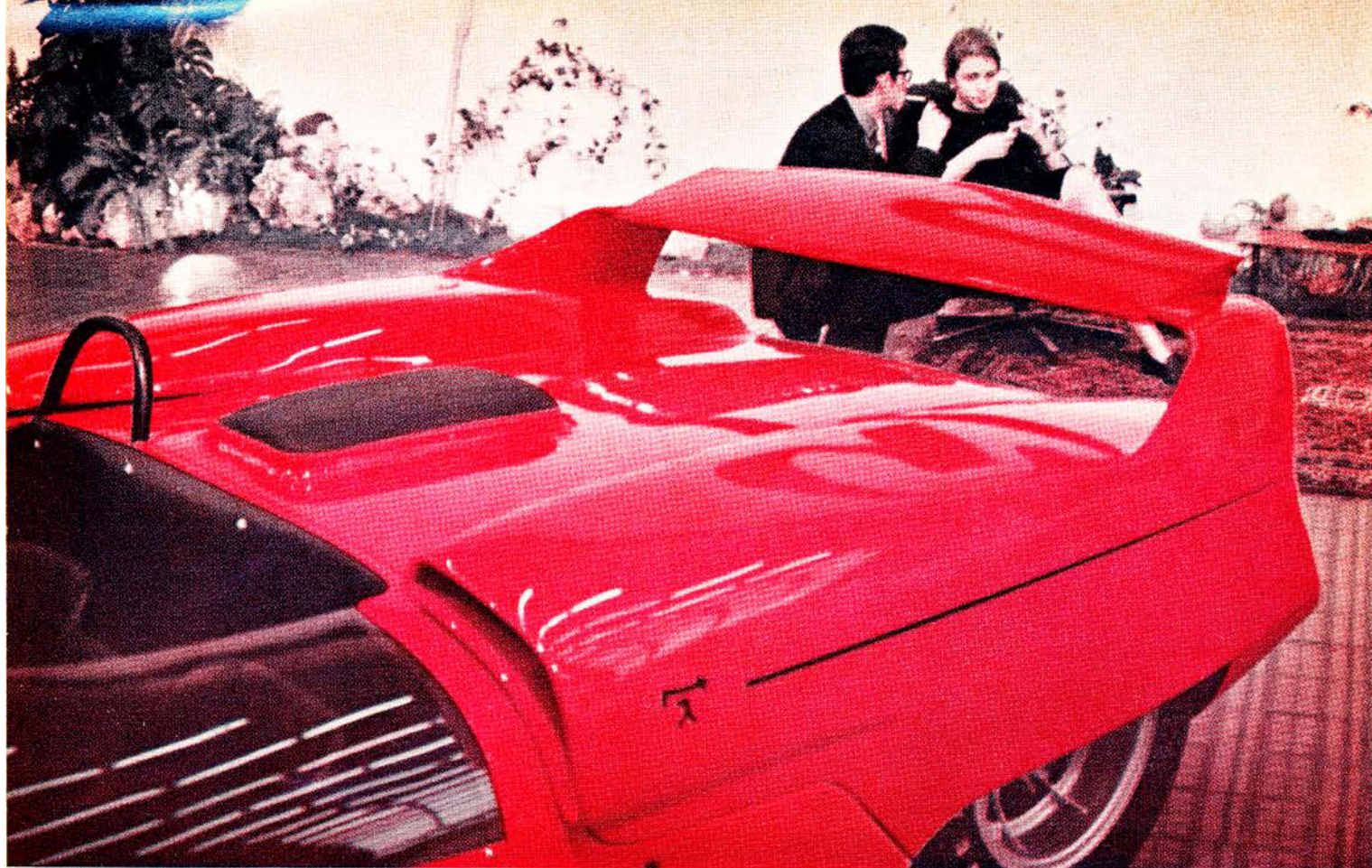
MARCH 1966 THE MOTOR ENTHUSIASTS' MAGAZINE 3/6 IN ENGLAND SIXTY CENTS

RECORD RUNS -- THE BIGGEST SEASON OF SPEED

FERRARI ANNOUNCES RACING PLANS FOR 1966



PETE BROCK'S GHIA-DE TOMASO



Ghia-de Tomaso

From Italy, a new car with body design by Pete Brock, chassis by de Tomaso, metalwork by Fantuzzi and power by Ford

BY RON WAKEFIELD

PHOTOS BY PETE BROCK & HENRY MANNEY

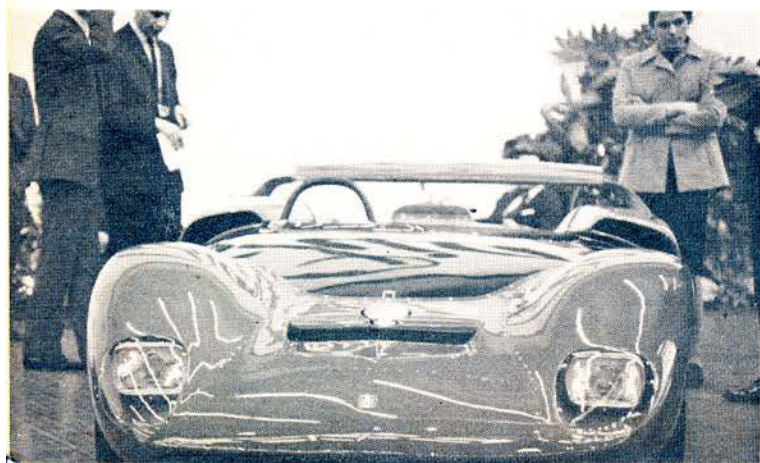
ONE OF THE most interesting of the new cars seen at the Turin show was a new Group 9 competition car, the Ghia-de Tomaso. The project leading up to this car began first as a joint effort between Carroll Shelby and Alessandro de Tomaso. The original project wasn't carried through, however, but the basic design later was used on the Lang Cooper which first appeared in Fall, 1954. Now, developed further, the basic body shape has appeared on the controver-

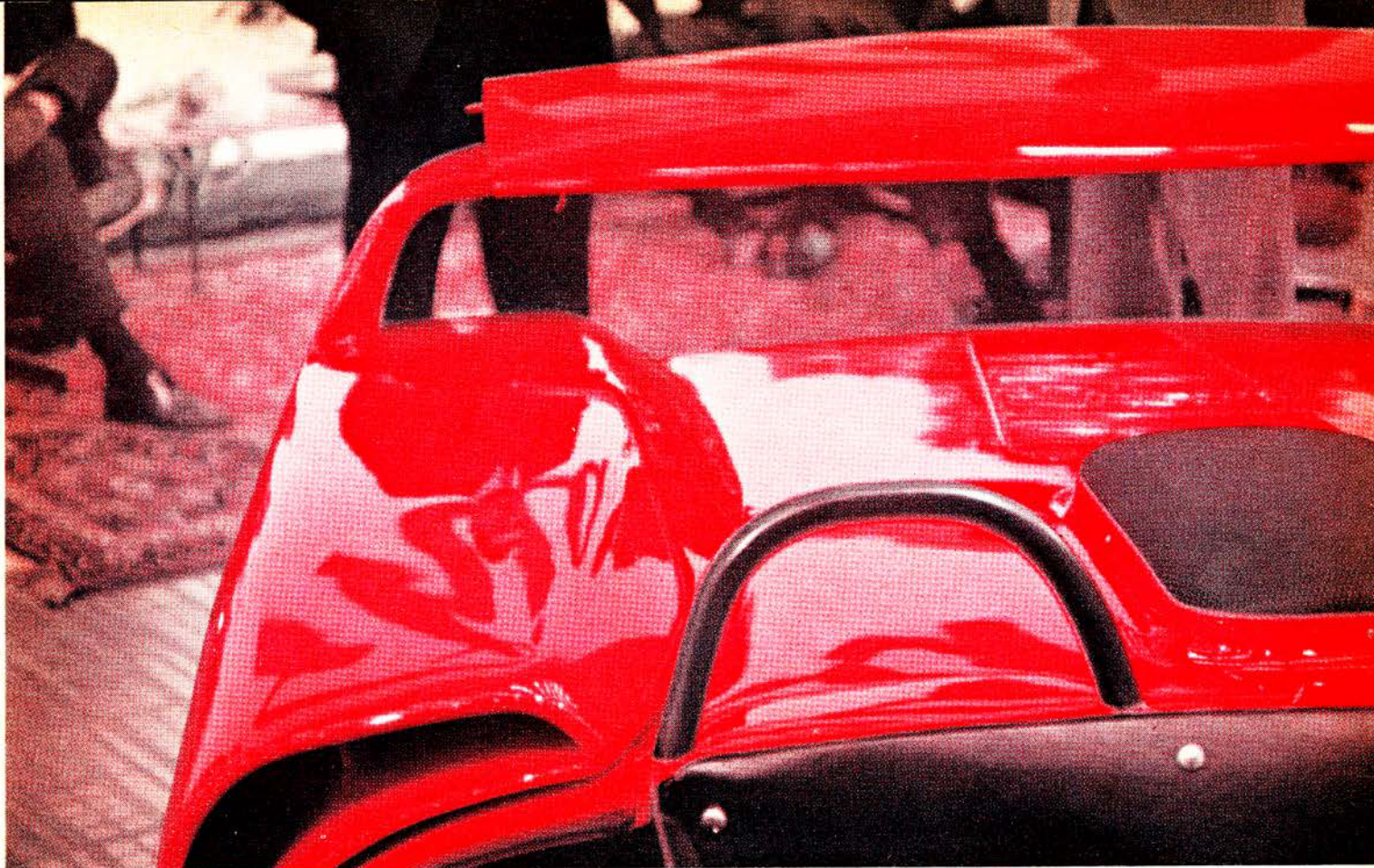
sial de Tomaso chassis, which consists of a central "spine" and the engine itself.

Pete Brock is the designer of the body, and hence we were somewhat puzzled when the car appeared as the Ghia-de Tomaso. The fact is that Ghia will provide financial backing for de Tomaso's racing effort with the cars (there will be 10 of them initially) which makes it logical to apply the Ghia name.

Brock, until January the director of special projects at Shelby American, has now severed his connections with that firm. He designed the body as a part of the Shelby end of the project and took his plans and templates to builder Fantuzzi in Italy for the development of the prototype, which is shown on these pages in various stages of construction. Instead of the usual quarter-scale model, one was built to $\frac{1}{8}$ -scale in clay in the Shelby offices, and to metric measurements. It was from this model that Brock defined templates and translated them onto paper. He then took the paperwork to Italy for use by Fantuzzi.

With the official withdrawal of the Shelby organization from any sponsorship of the car, Pete has become the agent and director of public relations for the project in this country. Also, he has now set up his own business, Brock Racing Enterprises, through which his services as a designer will be available.





The central spine chassis of the car is similar to that of the de Tomaso Vallelunga. It is not the first time that a spine-type chassis has been used, but it is unusual in that the backbone extends from the front suspension to about the longitudinal mid-point of the car, whereupon it forks out into the rails to which the engine mounts are attached. A reinforcing bracket from a point at the top front of the engine supplements the basic attachment, and the rear suspension is then mounted to brackets in the area of the clutch housing, with the longitudinal locating links running forward to brackets on the central spine. Thus the engine becomes a vital part of the chassis.

The chassis design has raised many eyebrows and there have been questions like, "What happens if the engine gets all twisted and a piston seizes?" We don't pretend to know the answers, but de Tomaso claims to have had no problems like that with any Vallelungas. Use of the engine to serve as a part of the chassis structure seems logical; it should save a good deal of weight and we suspect that a cast-iron cylinder block like the Ford engine has considerably more torsional rigidity than most chassis.

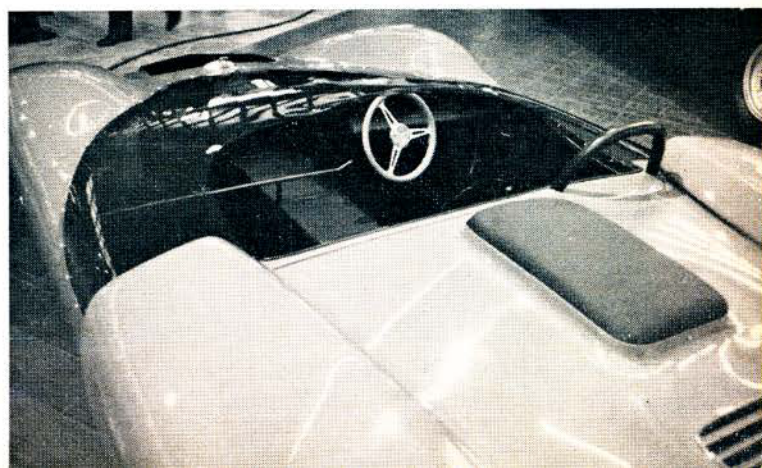
Where the Vallelungas have used 4-cyl Ford Cortina engines, this car has a special version of the Ford 289. De Tomaso has designed his own heads, rods, pistons and manifolds. The pistons, as we mentioned last month, contain the combustion chambers; something on the order of the Audi engine. On the bench the engine has reportedly developed 475 bhp at 7300 rpm, indeed a very healthy figure for a 4.7-liter pushrod engine. Other engines could be used, of course, and the customer may be able to specify his choice.

The body shape is mostly conventional from the engine forward and quite unusual from that point back. The tail section reflects some fresh thinking along aerodynamic lines, as have many of the new designs in the past two years or so. This business of the aerodynamics of racing cars will be getting

a lot of attention for some time to come, for the ever-increasing speeds of these sports/racing cars have brought on problems of lift and stability that require solutions not yet known. Ask any aerodynamicist and he will tell you that ground-travel aerodynamics above 150 mph have been, at least until now, a no-man's-land. But now the subject is getting its share of attention and we'll no doubt see some fascinating shapes in the coming year (see "Aerodynamic Drag," p. 92).

Rear-end spoilers, Brock says, have been useful mainly for providing stability through high-speed (such as 150 mph) curves. Hall and Sharp with their Chaparrals always seem to bring the spoilers into vertical position for fast cornering, and Brock expects that the "ring airfoil" on his design will be used in the same way. He has gone one step further than the Chaparral's spoiler by giving his an airfoil shape—whereas the Chaparral's is symmetrical about its longitudinal axis, an elongated teardrop shape, Brock's is an inverted airfoil.

Unusual also is the skirting of the rear wheels with sheet metal. It has been almost a universal practice to leave the rear wheels open, probably for easy access and the hope of →





Completed, but not painted, prototype showing regulation GT doors, air intakes away from skin for airflow considerations.

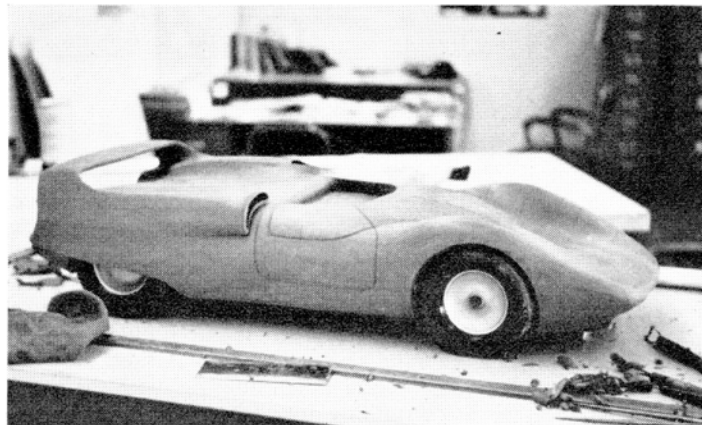
Ghia-de Tomaso

better brake cooling, but enclosing them as Brock has done promises to improve boundary layer control in that area and should thus reduce drag a little. As can be seen from the photographs, access to the rear wheels is gained by tilting the engine cover back.

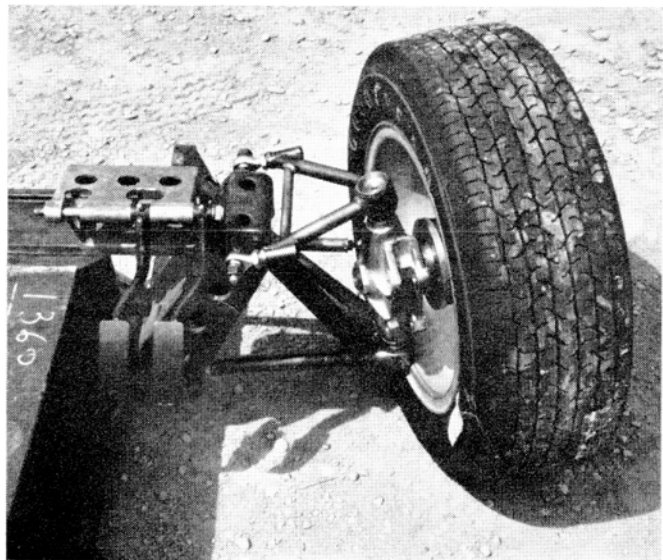
Initial plans call for assembly of 10 cars. De Tomaso will manage the racing effort (Group 9), running two cars per race entered. Masten Gregory will be one of the drivers, with another (probably Italian) yet to be chosen. The design is also amenable to the GT class, and to this end Brock has provided full-size doors. In the event it is used for that sort of thing, 50 will have to be built, of course, to qualify under the revised FIA regulations now in force. Price, with engine, is about \$13,000.



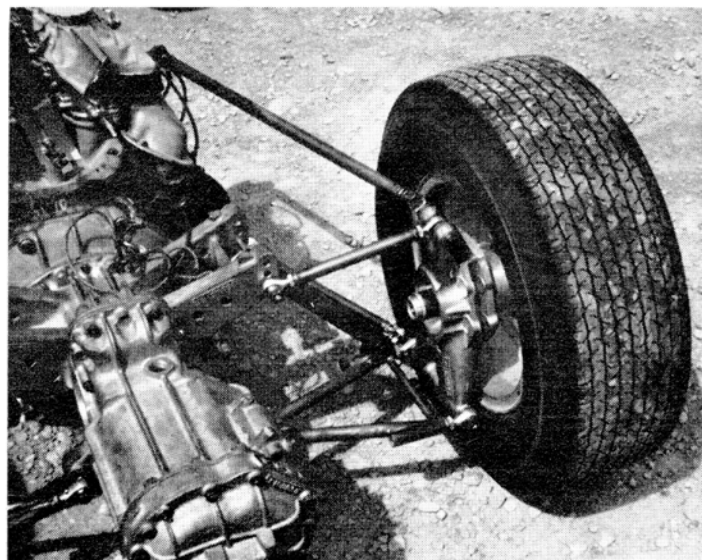
The 1/5-scale clay model at Shelby American office.

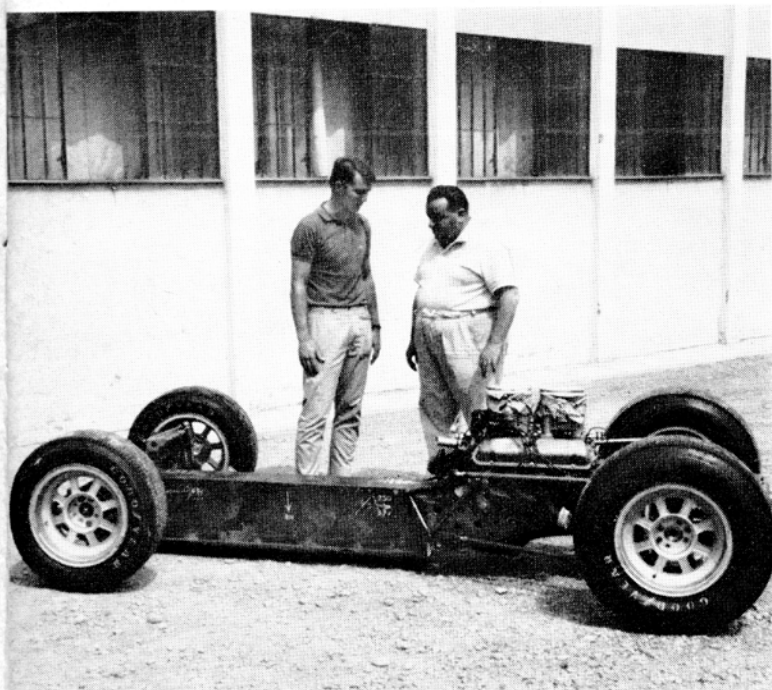


Front suspension is conventional unequal-arm type. Springs are replaced with steel rods during building stages.



Rear suspension is also conventional, but it mounts to brackets on the clutch housing in de Tomaso's unusual design.





Designer Brock, left, and builder Fantuzzi. This view of chassis shows the frame branches to which engine mounts attach.



Fantuzzi and de Tomaso discuss the just-completed prototype. Rear cover provides access to wheels as well as engine.

SPECIFICATIONS

General

Curb weight, lb.....	1450
Distribution, front/rear (no driver).....	n.a.
Wheelbase, in.....	93.0
Track, front/rear.....	53.5/54.5
Overall length.....	160.8
width.....	69.5
Overhang, front/rear.....	38.2/29.5
Ground clearance.....	4.0
Fuel capacity, gal.....	.30 plus aux.
Tires.....	Goodyear "Indy"
Size, front/rear.....	7.40-15/12.40-15

Engine

Type & make....	V-8, ohv Ford-de Tomaso
Bore & stroke, mm.....	97.5 x 70.0
in.....	4.00 x 2.87
Displacement, cc/cu in.....	4730/289
Bhp @ rpm.....	475 @ 7300

Transmission

Clutch.....	Ford
Gearbox.....	de Tomaso

Suspension

Front....	unequal-length arms, coil springs, tube shocks
Rear....	unequal-length arms, coil springs, tube shocks, longitudinal arms

Chassis & Body

Type:	central spine with engine sharing loads.
Body shell:	aluminum sheet over steel tub- ing.

Special Features

"Ring airfoil,"	controlled by driver for variable aerodynamics.
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The ring airfoil combines with a forward-raked flat tail for a most unusual-looking rear end. Ducts extract brake air.



For construction a framework of concrete-reinforcing steel tubing is made, aluminum sheet is then formed over framework.

