

The

There is a lot more to Cartel than mere body styling kits for Golf GTIs and the like, as Debra Stuart found out when investigating their new Turbo-Intercooled Ground-Effect Roadster.

TIGER

roars

It was a mere three years ago, when Chris Humberstone was attending the Auto-Expo Exhibition in the States, that the idea of the TIGER was first conceived. It was there that he got chatting to an American businessman about the potential for a Caterham Seven replacement to include all that car's marvellous character and yet



improve on its comfort, practicality and weather equipment. The more the two of them enthused about the idea, the more feasible it seemed to become, but because of the notorious drop in resale values of previously unheard-of vehicles in the States, it became clear that the car would have to be competitively priced (between \$12 and \$15,000) when new and also kept in relatively short supply to make certain that demand for both new and used vehicles remained high.

Returning to England, Chris set about designing the car, determined to make the end product completely different to anything seen before. This was obviously very difficult to achieve on a drawing board and although the TIGER looks very similar to the original sketches, it was necessary to make a number of changes on clay models as ideas for improvement occurred to the design team. Having reached agreement and with a final clay model, the next, very important subject to be tackled was the material with which to build a full-sized prototype. Steel was obviously out of the question, and as good as the properties of GRP are, it wasn't

considered strong enough. Chris needed something which wouldn't crack or deform on impact and the obvious answer was Kevlar — an aramid material (little heard of at that time) invented by the French firm Du Pont.

From their past experience in building protected cars for various monarchs and government officials (Cartel built the three 'Popemobiles' used in Spain), there was no doubting the phenomenal strength of Kevlar, but to be sure that the TIGER was virtually indestructible, a composite consisting of Kevlar sandwiched between two layers of GRP was opted for.

When it came to the question of power, Cartel knew they wanted the car to be much quicker than the Caterham Seven, especially under 70 mph. As the primary market was California where a 55 mph speed limit is rigidly enforced, in common with the rest of the States, the top speed would be pretty academic, hence the decision to go for a large capacity engine with optional turbochargers tuned to give good low down power. As the TIGER is to be fully assembled in the States anyway (only the rolling

chassis and seats are going to be sent over from the UK), the obvious choice was an American V8. However, Renault's willingness to supply engines to anybody from formula one teams to mobile home manufacturers influenced the decision considerably. The 2.6-litre fuel injected engine developing 168 bhp may not have brought fame and fortune to John DeLorean, but Cartel thought it would fit the bill perfectly. Renault are doing very well in the States at the moment, having already seen their 9 become Car of the Year and with their hopes pinned on the success of the forthcoming 25, service back up is very good. They are also about to become the first manufacturer in the world to use their own brand of turbocharger in their road cars, and will be supplying Cartel with engines, gearboxes and driveshafts. It is a well known fact that the emission regulations in California are amongst the toughest in the world, but Renault have offered to make sure the TIGER gets through these, whilst National Type Approval is needed in this country because the car will be supplied in turn-key form.

Drawing on their racing experience, first in Formula Ford and last year with



The TIGER roars

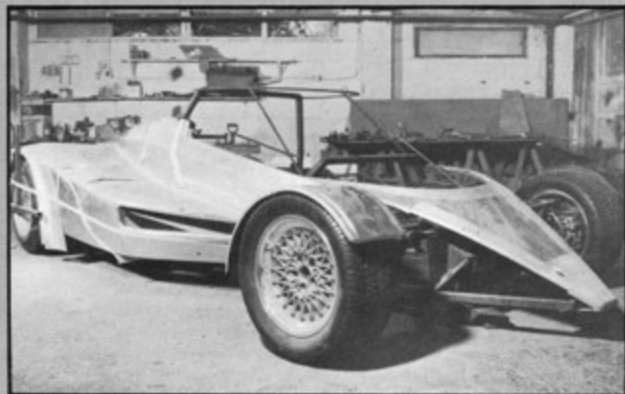


the sponsorship of Johnny Dumfries' Formula 3 car, Cartel designed the TIGER's chassis with race car principles very much in mind. The turbocharged version of the TIGER has a power to weight ratio almost identical to that of a Formula 3 racing car, so a lot of useful lessons were learnt about handling by changing the set up of wings and suspension during practice sessions. Chassis construction has been entrusted to Ray Race, a Wimbledon-based Formula Ford manufacturer, who have spare capacity out of the racing season, although three different firms will be contracted when the TIGER goes into full production later in the year.

Furthering the racing theme is the TIGER's most innovative design feature — ground effect — which is achieved by ducting air through twin channels to either side of the engine/transmission unit, thus creating a vortex which sucks the car to the ground. As on formula cars, the ground effect increases in direct proportion to the speed of the car, until at 70 mph there is a one ton effective weight working on the front wheels to make sure the car remains stable. Good braking and turn-in are ensured by the fact that the side pods start sufficiently far back to enable a high angle of attack for the front wing. In fact, Ken Tyrrell, whose factory is just

down the road from Cartel, has given some invaluable advice regarding ground effect. When we visited Cartel, the TIGER prototype was being dismantled in order to take a set of moulds from it, so we weren't able to experience any ground effect road driving, but we were allowed to get behind the wheel.

The front hinging canopy swings forward, taking the steering column with it, and the cockpit suddenly looks rather a long way away. But a stride later one is safely held in position by the moulded seat. The canopy swings gently down causing a brief feeling of claustrophobia, which is immediately forgotten. The narrow footwells and



close proximity of the bodywork really do make the TIGER feel like a race car, yet all round vision is reasonable and the driving position is good.

Although the primary market will be California, Cartel are hoping to sell approximately 200 units a year to UK customers, although if orders received in the last few months are anything to go by, that figure will be an underestimate. The English-spec TIGER, however, will not be identical to the one sold in America. Because Americans love automatic gearboxes so much, there will be a wider rear track to accommodate this. The different transmission will also require an alternative to the standard Renault

30TX rear driveshaft used in this country. Finally the suspension will feature softer springs and heavier anti-roll bars for the Californian market.

Quite apart from its revolutionary looks, the TIGER will draw plenty of attention thanks to its incredible performance. The 0-60 mph time of even the slowest, non-turboed version is under 6 seconds with a top speed of 140 mph and pricing is also more than competitive ranging from around £8,000 to £13,000. UK production won't start until May, so supercar owners have a little time to save up and purchase a TIGER for use during the summer months. In the meantime, we can't wait to drive one . . .

AT A GLANCE . . .

- Engine:** ohv six cylinder
Capacity — 2664 cc
Compression ratio - 9.5:1
Bore/stroke - 88mm/73mm
Bosch K-Jetronic fuel injection
Max power: 168 bhp/5,600 rpm
Max torque: 172 lb ft/3,000 rpm
- Suspension:** Independent all round through unequal length wishbones with top rocker arms actuating coil springs and adjustable dampers.
- Steering:** Rack and pinion. 1.8 turns lock to lock.
- Brakes:** 10.5in ventilated discs all round with four pot callipers and twin servos.
- Weight:** 1308 lb (dry, without turbochargers or options).