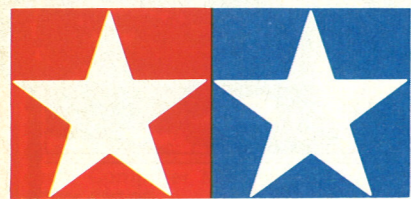


TOYOTA

Celica Gr.B



JIM CRABB reviews the latest 1/12 speed machine from Tamiya.

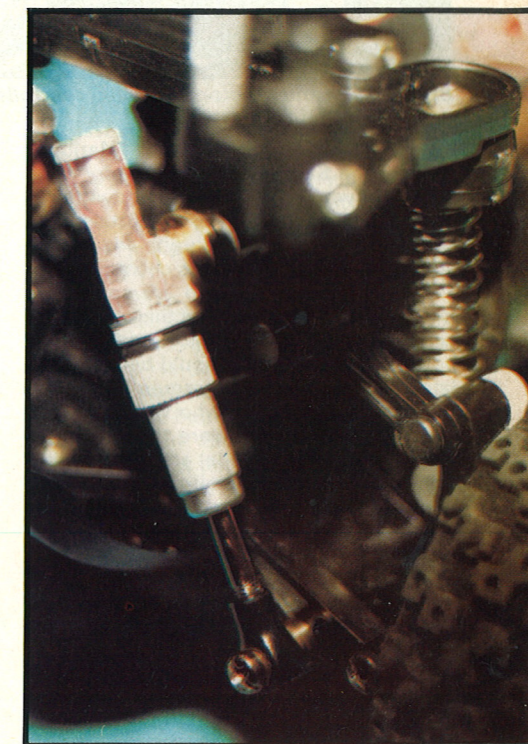
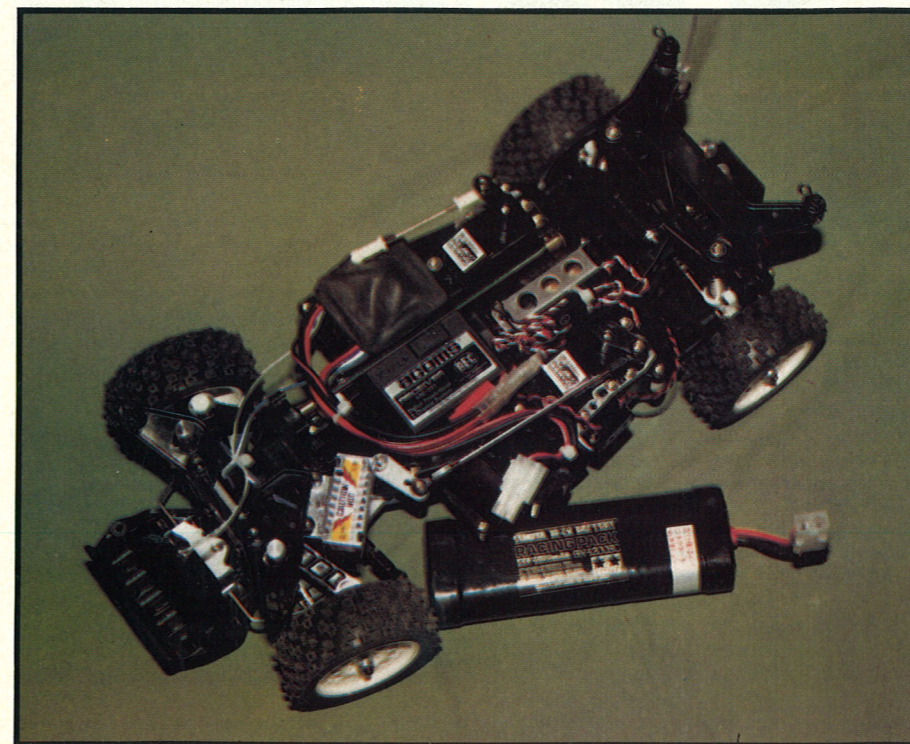
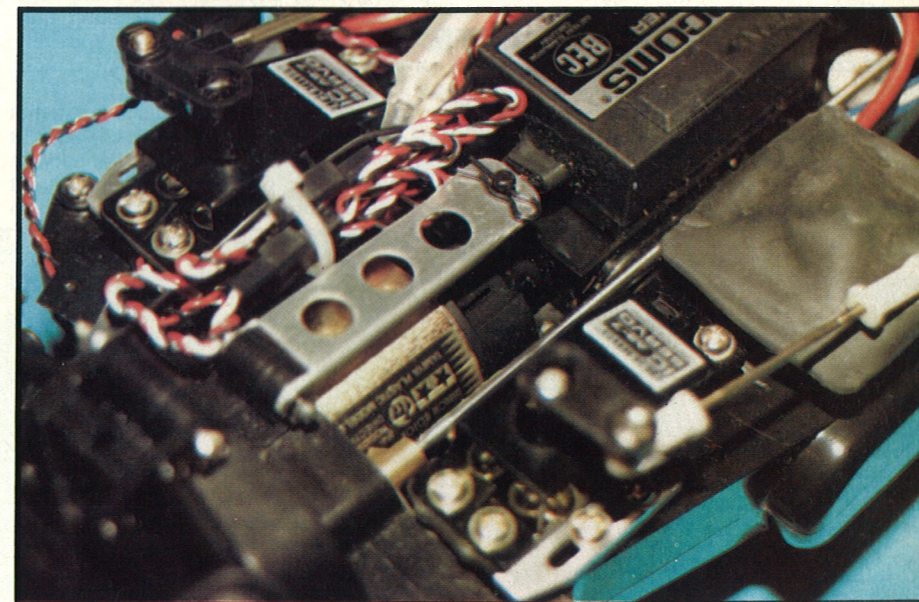
Tamiya have always been innovative when it comes to a new market, after all was it not them who started the whole off-road scene when they put the Rough Rider on sale? The present spate of large wheeled car crushing models such as the Black Foot, Big Bear, Huge Brute, Monster Beetle and Tamiya's own new 1/12 scale Lunch Box, can all be related to the first large wheeled fun car the Wild Willy. Tamiya therefore have the ability to recognise a niche in the market and design a car to fill that gap. If they are as far sighted as they would appear, what have they in mind with their Toyota Celica? I was excited to be asked to review their car as it might be a trend setter for a new dimension in our hobby.

On-Road Or Off-Road

I am a dyed in the wool 1/10 off-roader, so the choice of 1/12 scale came as a surprise to me especially as the car was for off or on-road use. I would think there were many hours of discussion in Japan before the scale was decided as the recognised scale for off-road is 1/10 and on road is 1/12. The choice of 1/12 means that for a given 7.2v motor, standard 7.2v nicad pack, receiver, two servos and speed controller the design has to be very concise, neat and well engineered, much the same as the real car it depicts.

The rally car it depicts has a 322 hp, twin cam, turbo engine under the bonnet which is a lot of power, and so does Tamiya's with

Top: The headlights really work. You can buy extra bulbs to fit into the fog lights. Bottom right: Separate dampers the rear spring is protected by its position and the body. Neoprene oil reservoirs on top of the damper. Below: Compact design, can you spot the motor? Note the protective cover on speed controller. Right: Shaft drive from rear to front gear-box. The Technigold RX-540VZ is buried deep in the mechanics.



a mid-engined Technigold modified motor (do you say under the bonnet if it's mid-engined?)

Perhaps an interesting exercise would be to work out the power to weight ratio for the scale model compared to the real car. Fascinating as this may be it has not answered the question, if the car is to be a compromise then it will fulfill both requirements of on and off road adequately, but as with any compromise not both fully.

Now For The Exciting Bit!!!

Tamiya's new car is not a compromise but a design for a totally new type of racing on a circuit which will be approximately 1/3 grass, 1/3 asphalt and 1/3 loose gravel. You can see why the Toyota Celica was chosen for the scale model, as the surfaces it runs are the same in the real world where last year it won the very demanding African Safari Rally taking the first two places with winning driver Waldegaard, also winning the Ivory Coast rally where the Celica took the first four places out of the eleven cars which finished.

First Impressions

The kit comes packaged in superb style with an exploded view of the car on the box top. Rally enthusiasts will notice it is the car in which Björn Waldegaard and British co-driver Fred Gallagher took fifth place in the American Olympus Rally last year.



The grass grows long in deepest Kent, or is it elephant grass in Africa?

temptation to tear off the covers and start building, partly because it was a shame to spoil such a beautiful package, but mainly so that I could read and absorb the very comprehensive 32 page construction manual.

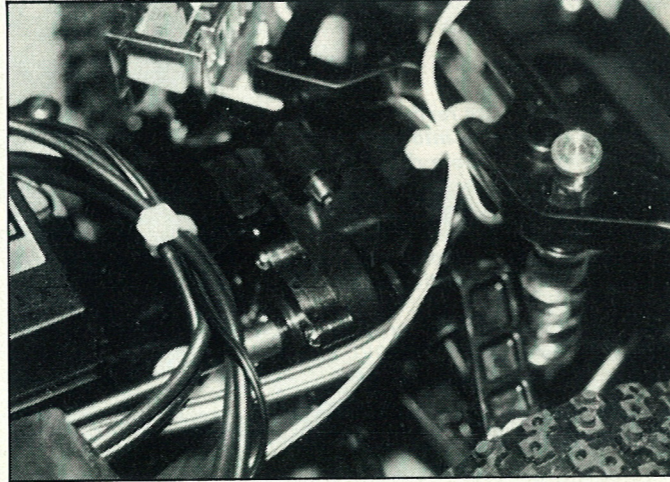
To my great surprise I discovered that the Celica is not a rebodied Porsche 959 but a new car, which although designed with the same concept in mind has a different chassis, a centre diff as well as one for each

Construction

The only tools not supplied in the kit are a pair of long nosed pliers and a small cross head screwdriver, Tamiya supply one of their much coveted 'T' shaped box spanners, allen key for the socket headed screws, grease, switch lubricant and damper oil. One is lulled into a false sense of how easy construction is to be by screwing together the two halves of the transverse battery holder upon which is moun-



BEC receiver and resistors for speed controller protected by rubber cover.



Front gearbox and off-road tyre, note wire for front lights.

You may ask "So What?". Marlboro sponsor the Safari Rally and therefore, the Safari car would have cigarette advertising on the body shell and as importers Riko will not sell a car with cigarette advertising displayed, one without was chosen.

The Porsche 959's, who are sponsored by Rothmans, have none of this type of advertising when sold in this country. I think both Riko and Tamiya should be congratulated on this, especially remembering the number of youngsters who will be driving the car. My thoughts were that if Tamiya were prepared to pay that amount of attention to that sort of detail then the model could not fail to be good. On opening the box, the presentation alone showed I would not be disappointed.

The metal parts were displayed in blister packs, the bearings beautifully presented in an inlayed baize pad, all the small items in individually labeled bags. What surprised me was the number of parts, there are more, not less, than in a 1/10 kit and the are of course much smaller. I resisted the

set of wheels (once again similar to 4wd rally cars) and eleven bearings supplied against the Porsche's ten. My admiration for the designer was growing all the time.

Better Than The Real Thing

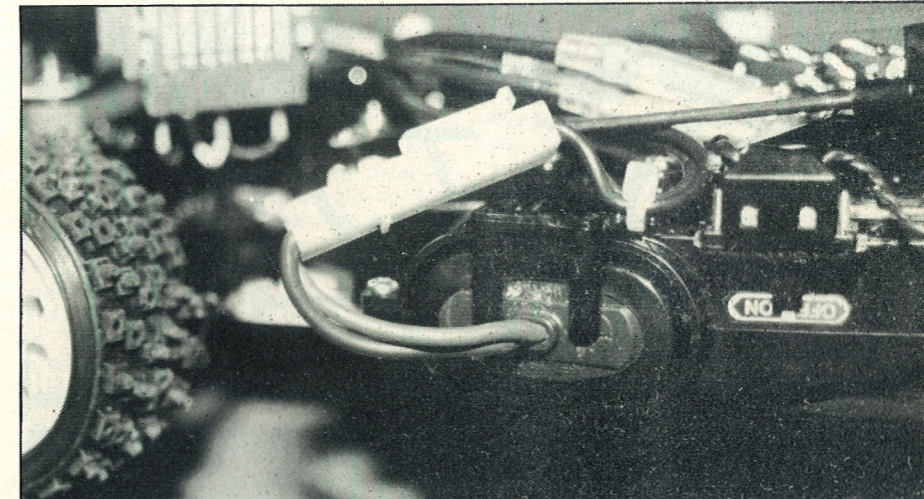
The engineering concept of the Tamiya car can be argued is better than the real car, in respect of the drive system, as it has a mid engine driving through a ball differential to gear differentials fitted back and front with permanently engaged four wheel drive. Ball diffs cope with loose and poor grip situations and gear diffs with high grip surfaces, a mid engine should ensure good weight distribution between front and back. The steering and speed control servo's are equally spaced either side of the monocoque chassis with the battery mounted transversely. So do Tamiya know something Toyota do not? As I have said Tamiya do look ahead and what to Toyota plan to rally next year? Yes you have guessed correctly, a four wheel drive Celica!

Once you have made your choice of ratios the centre differential can be built. It is a ball differential with six 3mm ball bearings, nylon drive and bevel gears, and metal pressure plate and thrust washers. There would appear to be no adjustment for the amount of slip as it is governed by a fixed disc spring. Having experience of a 1/10 off road car with a centre diff. the construction of this type met with my approval.

The completed centre diff. is housed in the rear gear box which contains the differential for the rear wheels, the spur gear and counter gear are made of nylon and the bevel gears of alloy. A word of warning at this point, although the gearboxes are fully ballraced two plastic bearings are also fitted one going behind a ballrace in the counter bevel gear.

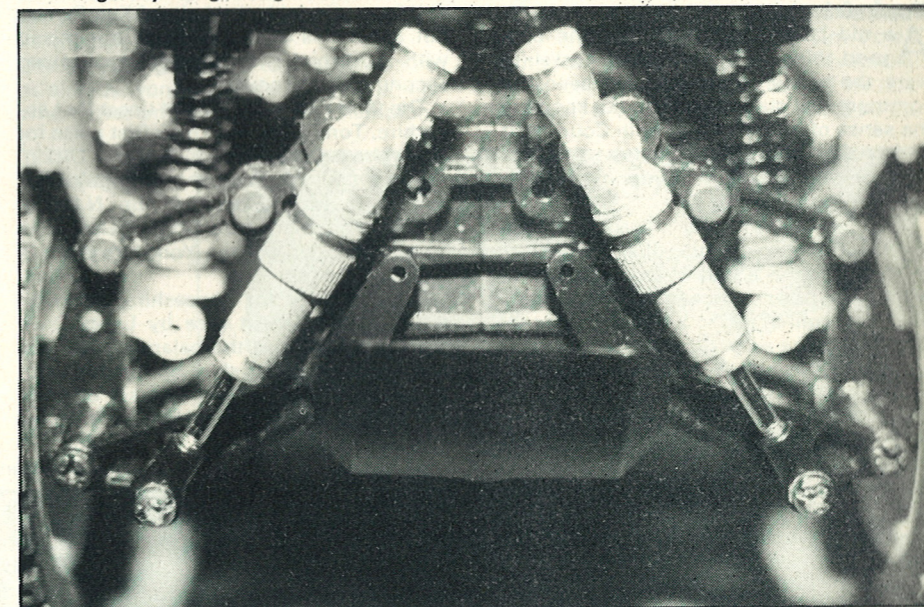
The instructions are clear but I missed it and it cost me time. It was at this point I lost one of the dreaded 'E' clips that are used throughout constructions. There are spares for most of the screws and clips but not enough to spread all round your workshop. The rear suspension is then hung from the rear gearbox where the camber angle is adjusted in a novel way by the use of interchangeable different length arms. With three lengths of arms available and four locating holes it gives an infinite choice. The links pivot as does the bottom wishbone on shafts held in place with the dreaded 'E' clips. Tamiya thoughtfully provide a tool for their removal so changes at the trackside will not present a problem. The knuckle arms and drive shafts are then fitted the wheel axles are not ballraced but have two plastic bearings. The bearings are the same as the larger gearbox bearings so a further eight to totally ballrace the wheels would be a good upgrade at a later date.

Marriage between the previously built transverse battery holder and the rear gearbox takes place by sandwiching Tamiya's top of the range fully modified variable tune RX-540VZ Technigold motor between the two halves. Prior to fitting the motor a gauge is used to position the pinion to ensure correct meshing

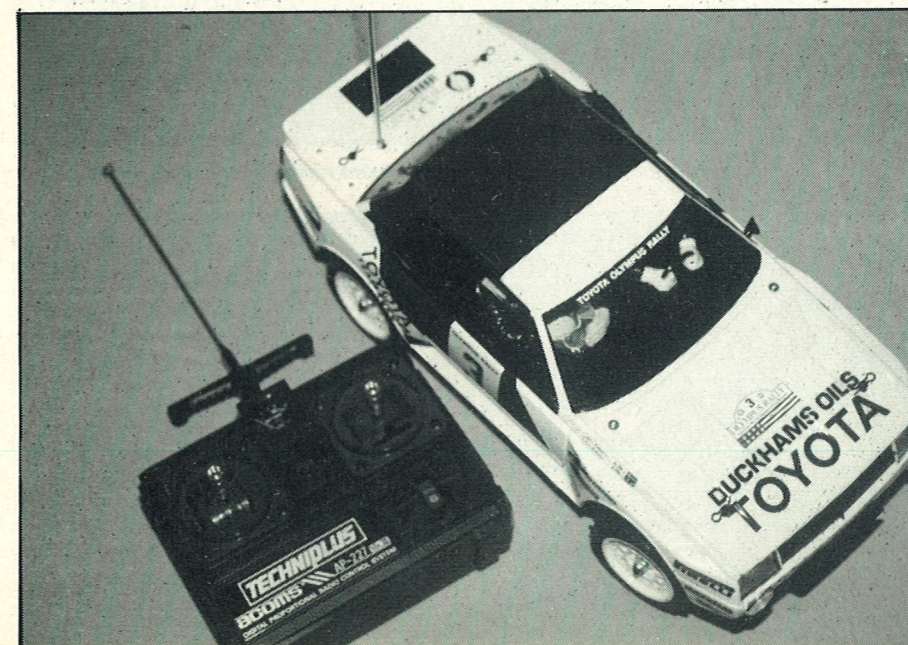


Above: Battery is completely protected and held in situ with plastic retainer which springs up for battery removal.

Below: Rear damper can be positioned to give hard or soft damping. Camber angle can be changed by using a longer or shorter link or using one of four different location holes.



Below: Car and transmitter, gives idea of size.



within the gearbox. For the novice driver make sure the timing is on zero. A screw fitted to one of the motors locating holes stops the motor body from rotating.

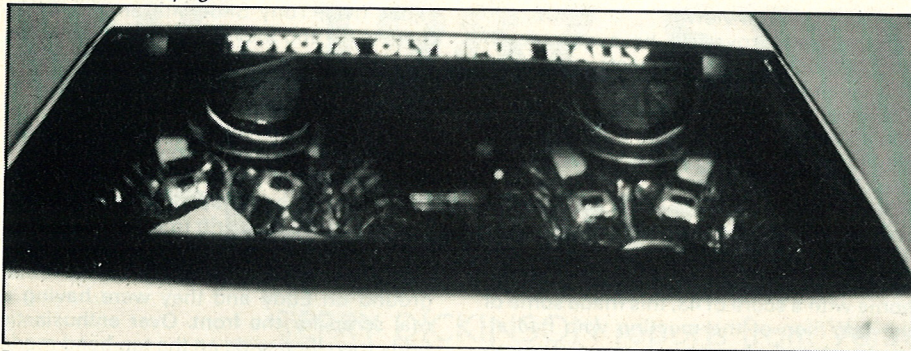
Assembly of the front gearbox is similar to the rear and once constructed is slotted into a channel in the battery housing. The front gearbox is shaft driven from a take off on the rear gearbox. The front suspension is then fitted with the king pin ball joints made of nylon but in two halves held in situ with a large 'E' clip. Completion of the chassis is by fitting an undertray which comes in two parts to give complete protection to the underside of the car.

If you have ever wondered what happen to air bubbles in dampers you can now find out. Similar dampers are used front and back but the front have coil over oil springs whereas the rear springs are located in front of the wishbone. Apart from the plastic location lugs there is nothing to retain the spring in position should it receive a direct knock, but as they are well protected by both the body and their position they should be ok. (In subsequent testing no problems were encountered).

The dampers are novel in the respect they have a length of clear neoprene tubing on the top which acts as a reservoir. The

Continued on page 68

Continued from page 61



Drivers cockpit inside body. This car will turn a lot more heads than the navigators.

dampers are topped up with oil using the syringe supplied and once filled and with all the air expelled an alloy cap is fitted. With this cap fitted you can see what happens when you operate the suspension. If there is an air bubble present it collapses, then the neoprene expands. When the damper is full of oil (as it should be) the neoprene swells with each stroke. There are four positions on the top mounting for the rear damper to change the damping from soft to hard. There is no such adjustment on the front suspension.

Construction completion takes place by fitting the bumper, there are two supplied, one in keeping with the scale appearance and a large 'practice' one, only you know how good your driving is.

Hotshot influence comes out in the design of the wheels they are very similar but much smaller, so although the instructions suggest you use instant glue on the tyres, I have not. It will be interesting to see if they slip in wet or pull off the hub when cornering.

Electrics

Servo arms are supplied for all leading makes of radio but if you do not have a BEC receiver you will need a battery eliminator when using a normal receiver. Tamiya and Acoms have always gone together so what better system to use than their Techniplus system with the ARE-227 BEC receiver. Access for the radio installation is superb with the receiver in the centre which facilitates ease of crystal change and the two servo's either side of the motor to help give good balance.

A three speed forward and reverse resistor speed controller completes the electrics. It is similar to the well proven one

Which way to Nairobi?



used in other Tamiya model except it has two extra wires which are a supply for the cars headlights!

The Body

You may have guessed by now that I am more than impressed by this model and was becoming hooked on scale models. I knew this car was going to cause a stir and it needed a paint job to match.

Whilst Toyota are winning the Safari Rally each year, club member Peter Dorwell was also winning the International Olympia Custom Car 'Best Car Award' in any category for paintwork, so who better to do the body. Not to be outdone, my son Robert, studying 'A' level Art, painted the cockpit detail. Lesser mortals like myself would mask off the windows, spray the inside white and stick on the red body transfer, but Peter did it all with an air brush. The body needs trimming prior to painting but the difficult part round the wheel arches is done for you. Once the body and cockpit paint is dry they can be fixed together with four small nuts and bolts and the headlights fitted. Position the transfers and you have an exact replica of the Toyota Celica GrB. This car is a thoroughbred and perhaps is worthy of a little more care than you normally give to 1/10 shells as they get broken so quickly. My reaction to the completed car was that it was too beautiful to get wet, let alone race and risk a roll, but once I had seen its initial run, that was soon forgotten.

Value For Money

What is value for money? It means different things to different people. If it is the number of parts you get, then this car has it, if it is good looks, then this car has it, if it

is good engineering, then this car has it and it is attention to detail, this car has it. For me it was the sheer pleasure of building such a well thought out and designed model. Anything else was going to be a bonus; and what a bonus there was in store.

Rally Performance In Miniature

Two drivers had agreed to test the car, my son, an experienced 1/10 off-roader, and Wayne, son of paint job man Peter, who is an accomplished junior. We had reservations about the tremendous amount of power available in a small car with what (compared to 1/10) had a very narrow track, although its weight of 3lb. 6oz. was not a lot lighter than its 1/10 equivalent.

Initial runs were made on a tarmac surface with a lot of loose gravel, the car sat its back end down, lifted the front and just took off. The speed has to be seen to be believed. The car was built in normal mode (i.e. slowest available) and is certainly quicker than any 1/10 car we have seen. The straight line directional stability is good. This is partly due to the centre differential operating and reducing power to the back wheels when the front wheels start to lift under very heavy acceleration and partly to a very well balanced car. The car, helped by the front anti-roll bar, corners sharply, with the inside wheel just lifting, it did not roll. The unglued tyres proved to be excellent and did not come off the hubs. Both drivers were able to kick the back of the car out and corner in a four-wheeled drift with full power on:- very spectacular. Hand brake turns could be accomplished with care and this was with the rear camber angle set for maximum grip. Yet to be seen is the fun drivers are going to have with a set of slicks or some camber angle which will get the rear end to move. Whatever is in store when we change the gearing for the faster radio?!

The car coped well with reasonable bumps and can be driven off a six inch drop flat out without bottoming out or losing straight line direction. Both drivers agreed that this could be the most exciting thing that has happened to our hobby for some time and that the car is fun to drive.

Where Do We Go From Here?

The Celica could compete to a degree against both 1/10 off-road cars and 1/12 track cars but it would not be on equal terms with a purpose designed version of either. This car is in a class of its own, so why not, as I suggested earlier, have one? There is a Toyota Celica GrB down here in Kent ready to take on any Porsche 959, so how about it?

Conclusion

This car is a bright light, even brighter than its working headlights. It is well engineered, mega fast, absorbing to build, looks beautiful and each time it has been driven has caused a lot of interest but perhaps above all it is fun! With Christmas on the horizon one of Medway's 'older' drivers was heard to say, "I think I will have to have a word with my wife about what Father Christmas will bring me"

If this car was to be raced or should I say rallied (and it can be) straight from the box I can imagine what a fine sight eight assorted Toyotas and Porsches would make. It is a sight I hope to see next year.

My thanks to Allan Bond for the photographs and Pete Darwell for the paintwork.