

**I**t must have been around a year ago that Tomy, the giant Japanese toy maker decided to enter the RC car market. I saw some articles and advertisements in Japanese magazines and thought that this looked more than just a bit interesting. I contacted Tomy UK and asked when they would be bringing the car to Britain. Rather curiously I was told that they (Tomy UK) were not interested in RC cars and had no intention of importing it. Well, I thought that was something of a disappointment, especially as some information about the

car was trickling through and it looked and sounded particularly interesting. Being a bit broke at the time I was not in a position to buy a car from Japan and get it sent over (well, you know how it is, money for bread, water, petrol and nicads and there is not a lot left over for luxuries). So I more or less forgot about the Tomy Intruder.

As the year passed and we watched Tamiya use up the

worlds stock of polycarbonate on different body shapes, Kyosho gobble up all known stocks of black plastic for gearbox mouldings and Yokomo oscillate between fine and course pitch belts until we all became dizzy. Suddenly ads. started appearing for the Tomy.

Ah ha, I thought Tomy U.K. have changed their mind. Wrong again.

It was the dynamic and up and coming company

SAMIFRAN who had grabbed the bull by the horns and started the importation of the Tomy Intruder. Good for them I thought, something different to look at. Well since that time Tomy have added the Tomy Intruder Adonis (the subject of this article) plus a few other cars. The original Intruder will be dealt with later.

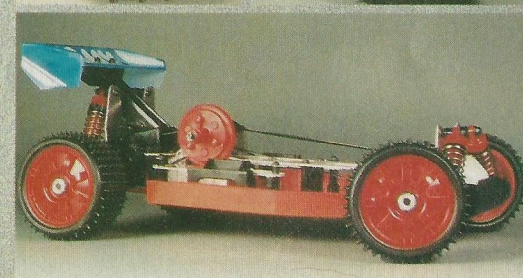
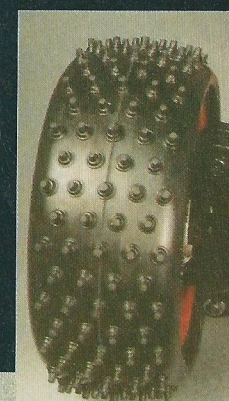
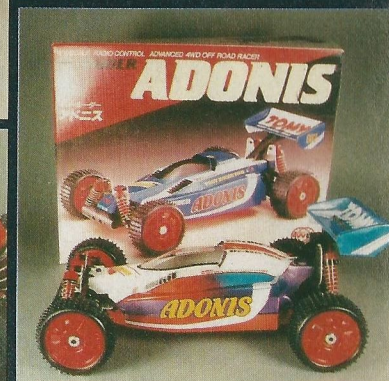
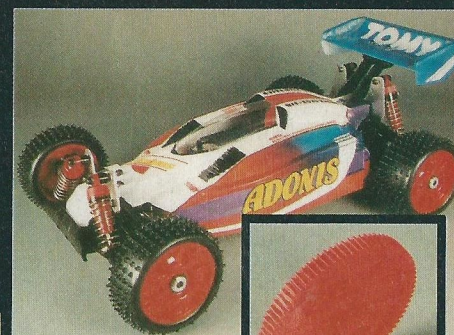
The Adonis Intruder is, I suppose a cost reduced version of the original

Intruder, but it embodies the main design features of the Intruder and is upgradable to be close to the full Intruder spec. So what have we got? A rear motor (not supplied) double belt drive, centre differential torque split transmission. This is carried on an aluminium chassis with all independent suspension and oil filled coil over shocks. A very respectable specification.

#### **Building the car.**

The first job is to assemble the differentials. There are three, front and rear axles and centre diff. They are a bit unusual as they are of the

**Sleek Adonis body fits the chassis well and seals to the protective undertray. Centre; Main gear option.**

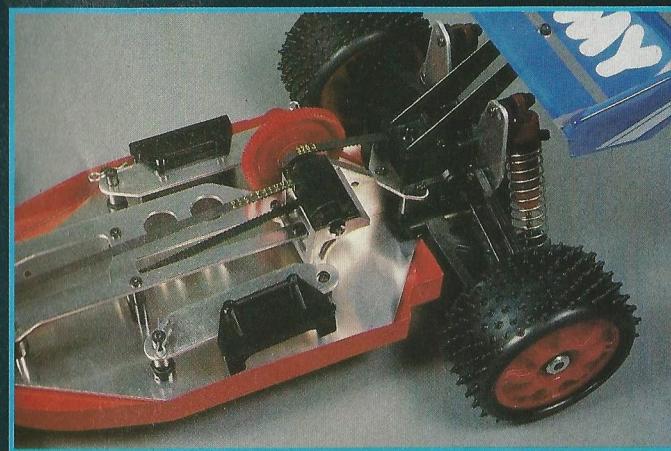
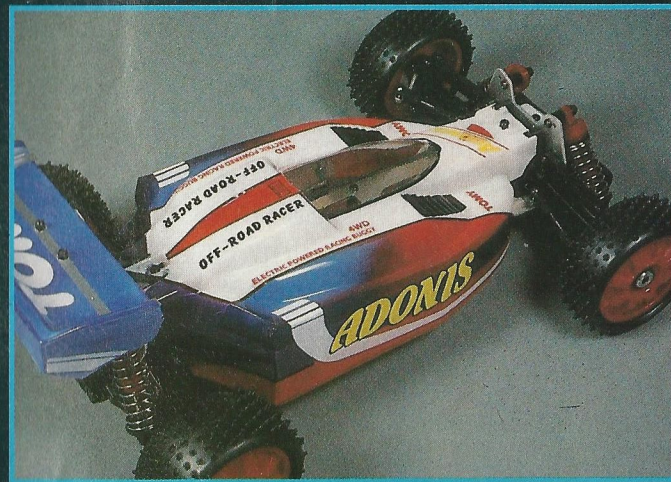


# ADONIS FROM TOMY





sun and planet type of diff. or to be more precise; epicyclic. Not the type of differential usually found on a lot of RC cars, especially at the axles. However, nothing wrong with this type of differential as the sun and planet transmission is to be found in a few full size car transmissions. I must say that the assembly of the diffts was not the easiest of jobs as lining up the four pinion shafts with the differential cover took a bit of jiggling around. Not a serious problem, just needed a bit of patience. The completed differentials were neat units and considering they were all plain bearings were smooth enough, any small amount of lumpiness would soon disappear within the first few moments of running the car. At this stage it dawned on me that I was having a bit of difficulty with the instructions. For the life of me I could not understand what I was doing wrong. The instructions are pictorial, clear, minimal Jingly words and the parts were all labelled. So what where was I going wrong, perhaps it was me. Slowly it came to me. Not all the parts in the diagrams were labelled, but the real difficulty for me was some of the smaller parts when I eventually located them did not really look like their picture equivalent. Having figured this out I felt a bit happier about proceeding. Now, I have to say that this is a personal observation,



**Inside the Adonis, alloy chassis is clean and simple with room for the radio installation.**

other constructors may not have had the same sort of problem.

Ok, on we go. After assembling the steering arm mechanism, which is an aluminium stamping which pivots on numerous plastic bushes and connects the steering servo to the track rods and hence the wheels, we then come to the main

chassis stamping. This is a beefy lump of aluminium on which is mounted the plastic moulded front and rear differential housings plus the die cast magnesium alloy motor mount, which also doubles up as a motor heat sink. Most of the plastic parts are fitted with self tappers, but every now and then Tomy tell you to use machine

screws. You have to be on your guard for this as I spent ages looking for some self tappers of a specific length only to discover I should have been looking for machine screws. Next comes the front fine pitch drive belt which is woven around various chassis components and front diff. Like most belt drive systems the problem of circumnavigating various chassis ironmongery is always a problem. To ease belt replacement Tomy have opted for no belt guards, quite honestly with such a good fitting body and undertray I can not see a lot of problem with foreign matter getting among the gears. However belt replacement will require taking off a few chassis parts, but this should only take a minute or so. Rear belt drive comes from the same centre diff unit and only involves fitting around a small piece of aluminium decking. The centre differential torque split unit is then fitted on top of the motor mount with a neat plastic cover over the gears.

Belt adjustment is neat and simple. On the side of each diff assembly is an eccentric plate. This is just rotated until the right tension is achieved and a locking screw is put into place to prevent the adjustment going off, and that is that. One small point that did not impress me were the covers that were meant to close off the belt input side of both front and rear diff case covers. They were pieces of moulded transparent plastic that were stuck in place, having been trimmed with a pair of scissors to make it fit. Although it works, it did not somehow seem in keeping with the rest of the kit quality. This gets us to the suspension and final drive components. Bottom wishbones are substantial, braced mouldings pivoting on conventional bearing pins secured in place by various plastic mouldings front and rear. The outer pins that pivot the hub components are secured by E clips. The steering knuckle itself is a magnesium alloy die casting which rotates on pivot screws fitted through the hub. The single upper suspension plastic rod holds the whole lot together. Front and rear suspension is similar in principle. The drive line uses

dog bone drive shafts running into the outer drive cup. The stub axle shaft which passes through the hub runs in plain bearings and has a large hexagonal drive nut secured to it with a grub screw. This hexagonal drive nut engages with a hexagonal socket in the wheel. The large diameter wheels with their low profile pin spike tyres are held in place with a single big nut. Shock absorbers are plastic moulded units with double rubber seals and an internal volume compensating rubber diaphragm. Before fitting the springs it is possible to fit various sizes of spacers on the damper body to vary the pre loading of the spring. The dampers are then mounted in one of two positions on the bottom suspension arm and there is a similar choice of two positioning holes in the top of the aluminium shocker mount. Apart from radio installation the only thing remaining to be done to the chassis is the hardware of battery fixings. This car is designed to have the battery pack located across the car just in front of the motor/transmission unit.

The body is quite a complex shape and it is worth taking a bit of time cutting this out. I know that the recommended way to cut a body is to score with a knife and then fracture the score by bending, but I must admit I had to resort to cutting some of the more intricate bends and curves with a pair of scissors. The trim line was a bit difficult for me to see, now I know I can put that down to the passing of years, but at least I can admit to it. I found it easier to use a fine marker pen to outline the trim line before cutting the body. Watch out

at the front of the body moulding, you have to cut the front part of the body moulding right off as it is screwed on top of the front diff housing. The rear wing mount is neat and adjustable so the wing angle can be varied.

A final word about the transmission. I am not sure if the Tomy is unique in the model car world with its transmission configuration but is definitely a little different. True this particular version does not include all the transmission options of the full Intruder, but it does include the 40/60% torque split. A very similar mechanical torque division was introduced some years ago on the Jensen range of high performance cars. The system was developed by the Ferguson Research company (who also made tractors). The real car system was a bit more sophisticated than the Tomy as it included anti lock control, however the principle of torque division by taking the output from different points in the epicyclic gear train is still used to this day. Cars such as the immensely successful Peugeot 205 rally cars employ a type of transmission based on a torque split. The enhancements on full size cars overcome the problem of the unloaded wheel taking all the available drive. A simple way to overcome this happening is to lock the diff at the moment of slippage. We do not yet have this in model cars yet, so in the short term Tomy provide you with a gear that does away with the centre diff and gives you a straight 50:50 torque split. Of course we are now into the realms of needed one way clutches and the like,

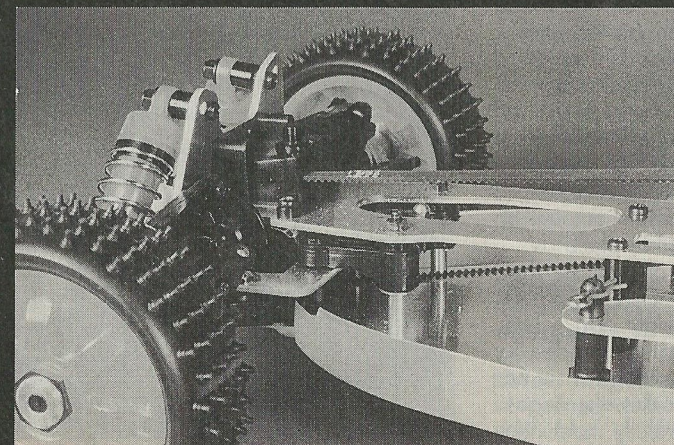
that is where the standard Tomy Intruder comes in, and that's another story. The main advantage of a torque split on any car is that the majority of the tractive effort can be directed to the wheels that need it the most, namely the rear wheels. It also has the advantage of reducing understeer and, it is claimed improving straight line stability.

### Conclusion

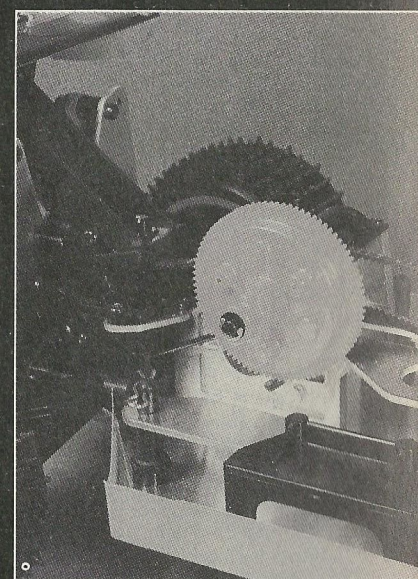
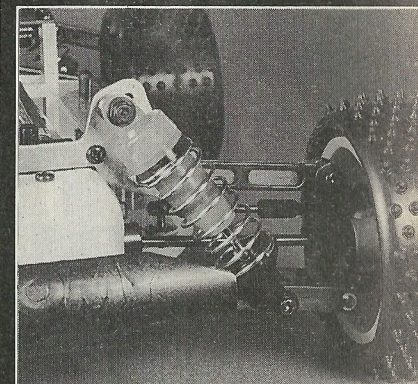
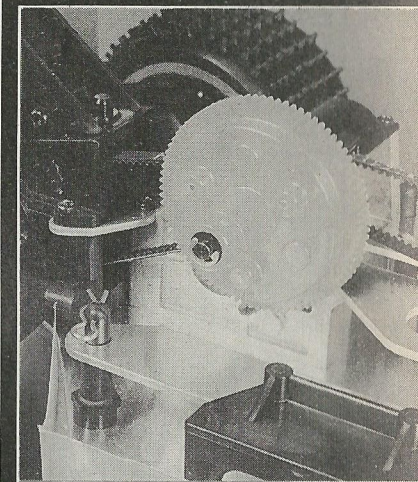
This model is the cheaper of the two Intruder versions and as such you would expect some price compromises. These are mainly in the choice of materials for shocks and chassis plus the use of plain bearings and a single transmission option of a 40/60 torque split. However the instructions detail all the transmission upgrades and how to set them up. The extensive use of aluminium provides a rigid but also a forgiving chassis, by that I mean if you bend it should be possible to straighten it out, but perhaps with a little weight penalty. However the basic design of this car is the same as full Intruder and that car has already had some notable track successes. So it must be said that the car works. The kit was reasonably straight forward to build accepting that I had some difficulty with the instructions, but I accept that this may be my own shortcomings. I liked the easy to adjust belts, the interesting transmission configuration and the overall quality of the kit. I did not like the daft internal differential covers.

I did enjoy building this car and although this specification is unlikely to win world championships it is a first

**Left; Belt runs to the front of the car and is out in the open protected only by the bodyshell. Right; Detail on the Adonis including the drive system and battery clamp.**



class vehicle and will provide 4x4 devotees with an interesting additional choice. I am sure that as long as drivers can get a look at the car in the flesh it will provide some real competition for the traditional range of 4x4 buggies.



### Dimensions (manufacturers data)

length 405mm  
width 245mm

wheelbase 272mm  
max ground clearance 35mm  
weight 1800 gm  
track front 208mm  
rear 197mm  
height 160mm