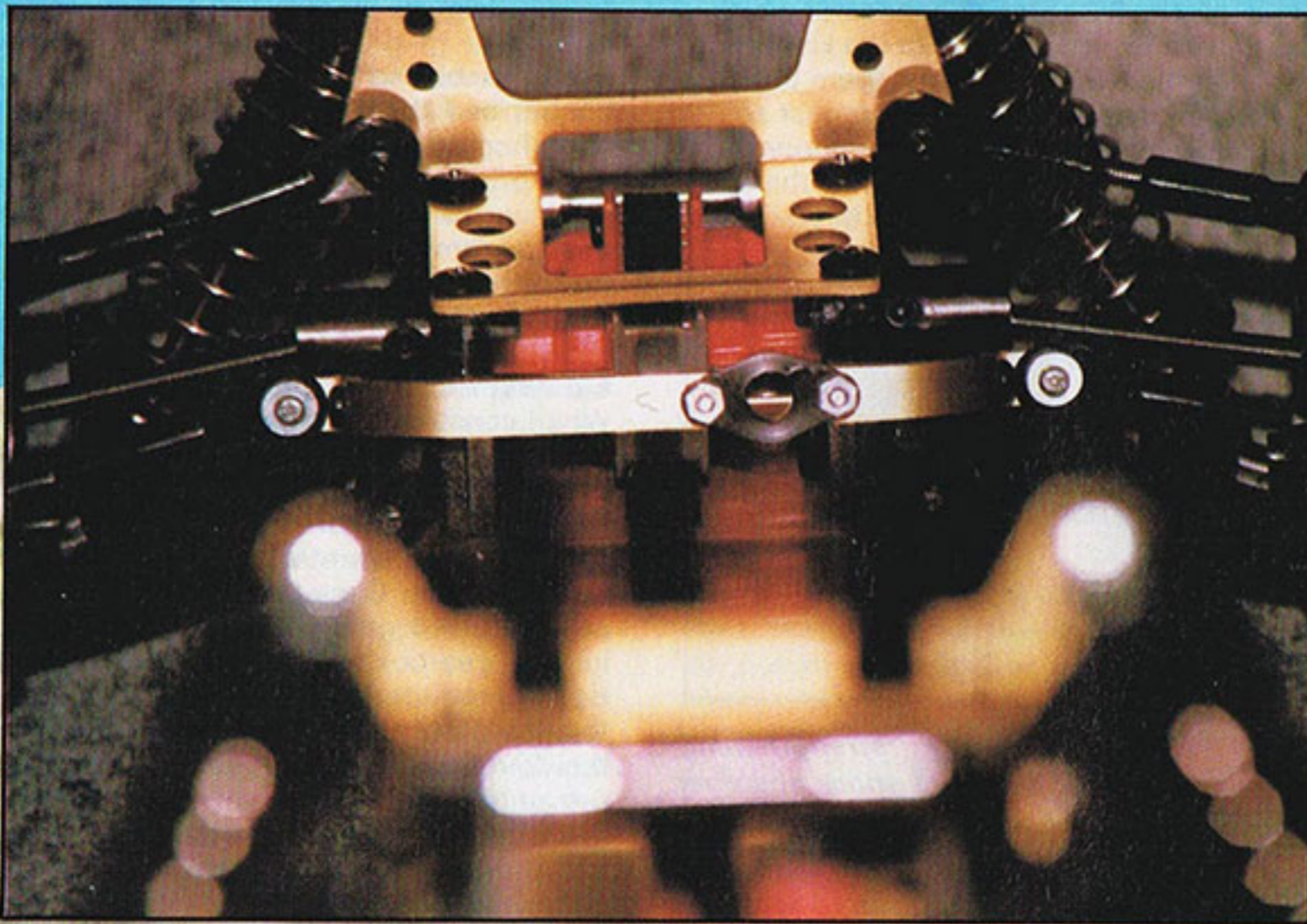
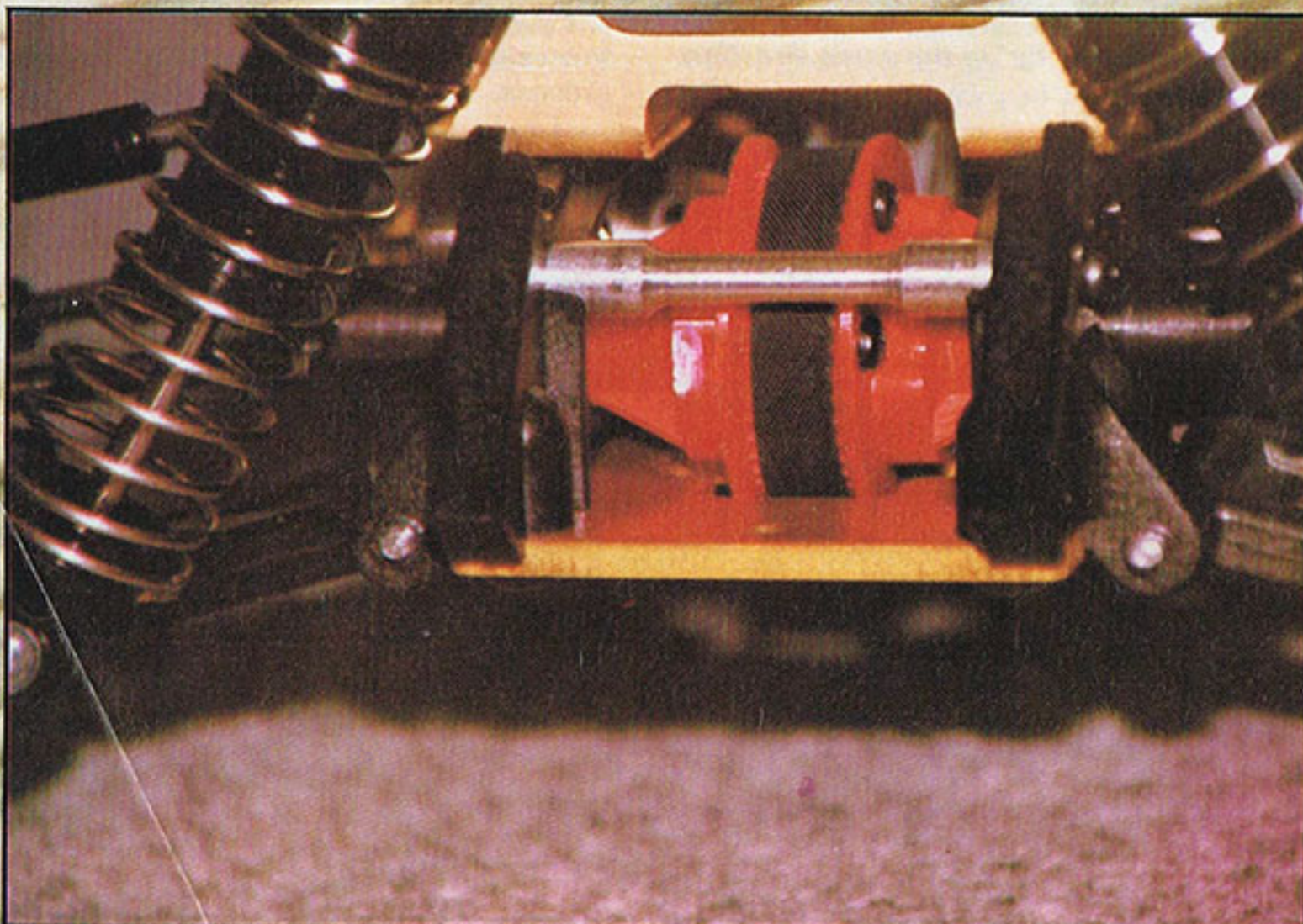


# I N V A D E R



Front gearbox from inboard showing the tension pulley running on the tie rod shaft, a neat and very efficient way to do things.

Simplicity is the keyword to the Invaders design, this photograph shows the sum total of moving parts and the belt passing around the drive.



Having cut my 4WD teeth on Hirobo's Alien and driven it into the ground over the last eighteen months, the point was reached whereby the car had to be retired or rebuilt. Stripping the car down revealed the cause of the problem, the problem being that the drive belt kept jumping the forward diff pulley, was the chassis. The chassis is constructed from injection moulded plastic and the stresses of racing had proved just too much, consequently the car had become floppy allowing the naturally taught belt to slacken and slip the front diff. All else was irritatingly perfect! It was therefore decided that an aluminium chassis be constructed and the Alien be allowed to run another season.

### **Funny How Events Overtake You Isn't It?**

As the old chassis was being measured the latest news from Japan arrived, it was rumoured that a new car from Hirobo was about to make an appearance. Several letters, two phone calls and a telex later confirmed the fact that there was a new Hirobo car about to be released, it was to be called the Invader.

Eventually photographs of the car arrived and guess what, the chassis was now aluminium. An Invader was quickly ordered and eventually arrived.

### **Hallelujah, Heavens to Betsy**

It was love at first sight as the bodyshell was lifted from the box, if there were Oscars or Grammys or gold medals to be handed out then the Invaders body styling would take them all, never was such a sleek beastie seen before. Enough of the rambling, technically the Invader can be summarised as a mid engined, belt driven 4WD racing car, its heritage lies deep in the technology of helicopters, its parent company, Hirobo, have been manufacturing high class helicopters for years, the odd car being thrown in for good measure. Having said that, Hirobo cars have always shown the highest degree of engineering standards and technical excellence, the Invader is no exception.

### **Bits And Pieces**

The drive train is a simple arrangement, both front and rear diffs are enclosed, bevel, planetary type manufactured from high grade steel. Both diffs are encased in

E R

**Hirobo's mid  
engined, belt  
driven, 4WD  
car is re-  
viewed by  
Dave Pearson**

engineering nylon and do come assembled from the factory although it wouldn't hurt to add a little more grease of your own. Bearings and drive cups are fitted and both are then ready for assembly into the gearbox mounting points, between the diffs runs the drive belt. Two pulleys main-



tain the tension on the belt, the front pulley runner plays a double roll acting as a steering shaft, this eliminates the need for steering posts and allows a very smooth steering action to be achieved. The steering shaft needs to be well greased as the bushes it runs in can cause a small amount of binding.

Once the front and rear gearboxes are complete the temptation to bolt the chassis and undertray in place must be overcome, the bottom wishbones have to be fitted first as they are partially enclosed by that voluptuous undertray. Both lower wishbones are held in place with hardened steel pins, the pins are held in the mounting blocks by e rings, now you can fix the gearboxes, drive and upper belt cover to the gold, anodised chassis and undertray.

**The Bits That Hold The Wheels On**

Front and rear knuckle arms are both constructed in the same manner and take literally minutes to assemble. Again Hirobo

have to be praised for their no nonsense, tough construction. Glass reinforced plastic is used in most of the suspension mouldings and two grub screws hold each of the four wheel bearings in place.

Shock absorbers are of the CVA type and are supplied with three different pistons allowing different damping rates to be used. Spring stoppers are also included allowing some fine tuning to be done. Both front and rear shocks are attached at the top mounting points and swivel on ball joints at the bottom. The shock absorbers are the only part of the Invader to cause concern, the front set are acceptable but the rear are a little too hard and would benefit from softer springs. In fairness the car is set up for the flatter, faster USA circuits, where this type of shock setting would be perfect. Brimod, Associated, Schumacher or Tamiya soft springs should cure this giving a more progressive return.

**Motor, Radio And Other Important Pieces**

Supplied in the kit is a Mabuchi 540 Vz modified motor, this makes certain that the Invader doesn't hang around, in fact the motor has a large amount of advance straight from the box. The speed controller is of the Kyosho type and is again a quality

piece of equipment, although an electronic speed controller was used for running the car. A neat idea is the inclusion of an aluminium receiver tray, this aids installation no end and allows a neat job to be done at the same time.

**The Proof of The Pudding**

After the body was sprayed and fitted the car was ready to go. So far so good! What then have we got, in essence the Invader is everything the serious racer wants, mid engined, belt driven, 4WD, beautifully engineered, precision made, and most importantly she looks beautiful. All the aluminium parts are anodised gold and fit perfectly, all the plastic shows no signs of any separation or false weld marks. All parts fit straight from the box without any modification except one and strangely enough the one problem area is the chassis, this can only be explained as an oversight on Hirobos part, or we had a pre production kit.

After the car was built it was found to be making some horrible noises, the sight of three grown men listening to graunching noises is quite funny, believe me. Eventually the noise was traced to the drive belt, this was found to be too loose and no ad-

justment had been designed for. Several options were evaluated and the easiest solution found, simply by elongating the rear gearbox mounting points allowed the tension on the belt to be taken up, just a small hiccup but one which is strange considering the extremely high quality of the rest of the car. Future Invader owners take note! Check to see if your car is the same as ours, if it is modify it before it modifies your drive belt.

**Driving**

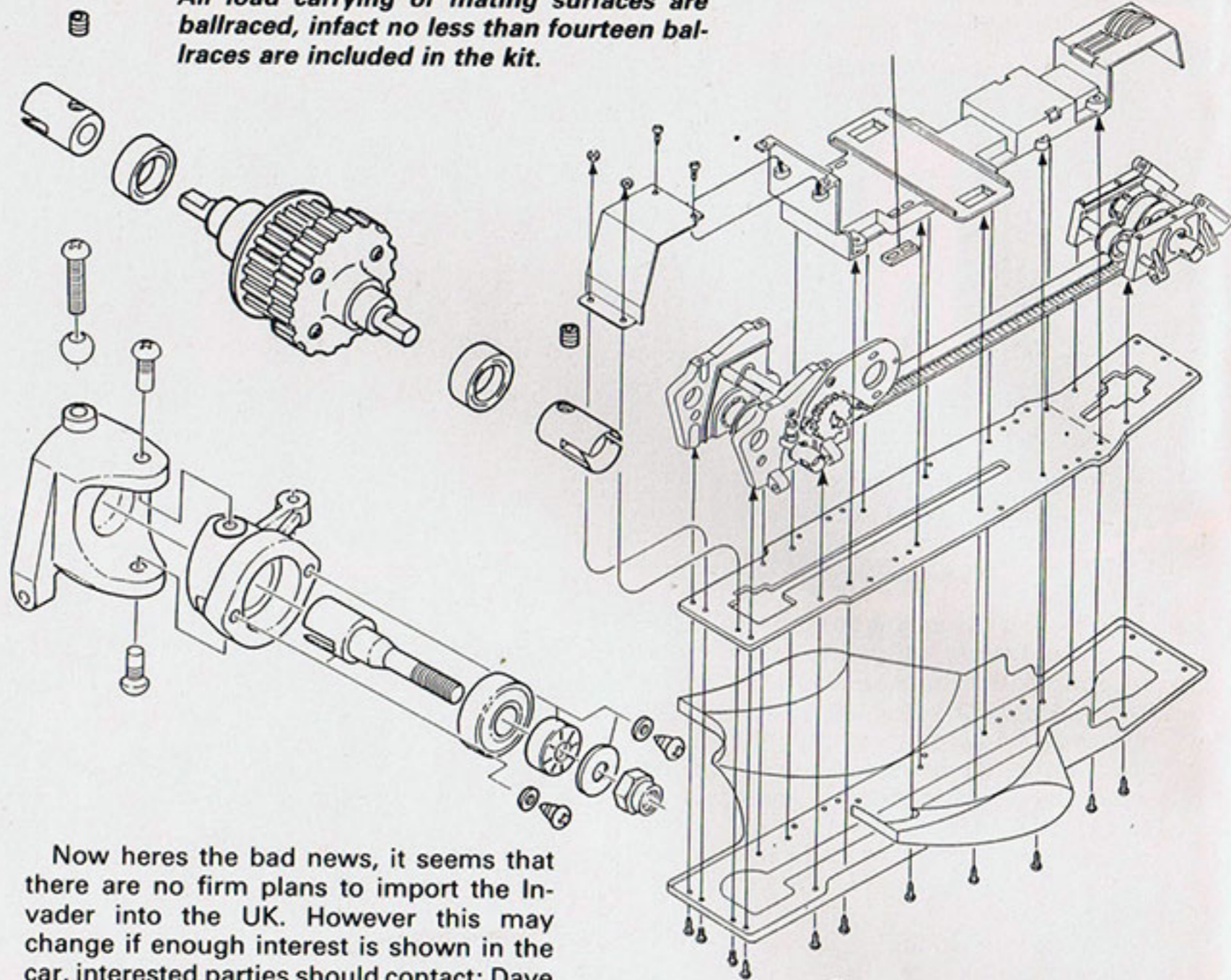
As yet the chance to race the Invader has not yet occurred, unfortunately. However, a great amount of against the clock track time has been put in on rather strange surfaces. Considering that this is Spring and a certain International race meeting is looming, can you blame me?

As already stated both shockers front and rear are a little hard for the UK circuits however all propriety brands can be fitted as replacement units, again no problems as most drivers appear to replace their shockers anyway.

The Invader is the easiest, most stable car it has been this reviewers pleasure to look at, it doesn't spring any surprises and goes exactly where you point it, consequently you can take vital seconds off each race by being able to choose the tightest racing line available.

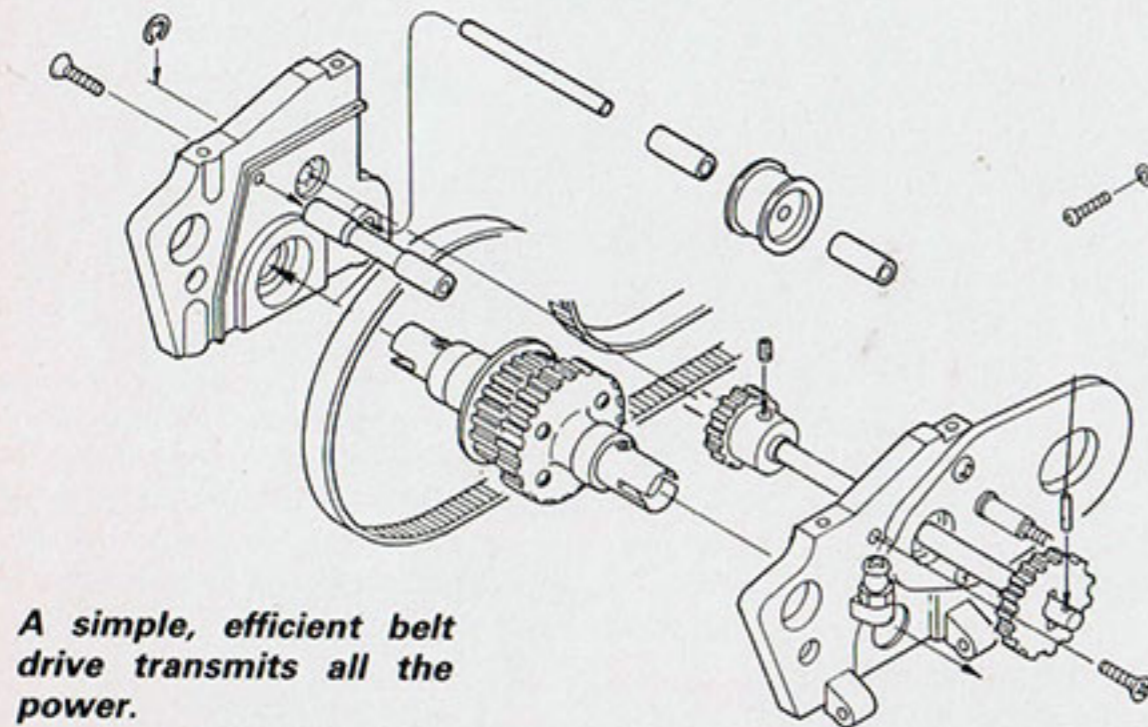
Maintaining the Invader is no problem, everything is easily accessible and quick to replace, the anti belt brigade would say that if the belt breaks then you have no option but to pack up and go home, well you can change the Invaders belt in twelve minutes, it does take practice but you can do it honestly!

*All load carrying or mating surfaces are ballraced, infact no less than fourteen ballraces are included in the kit.*

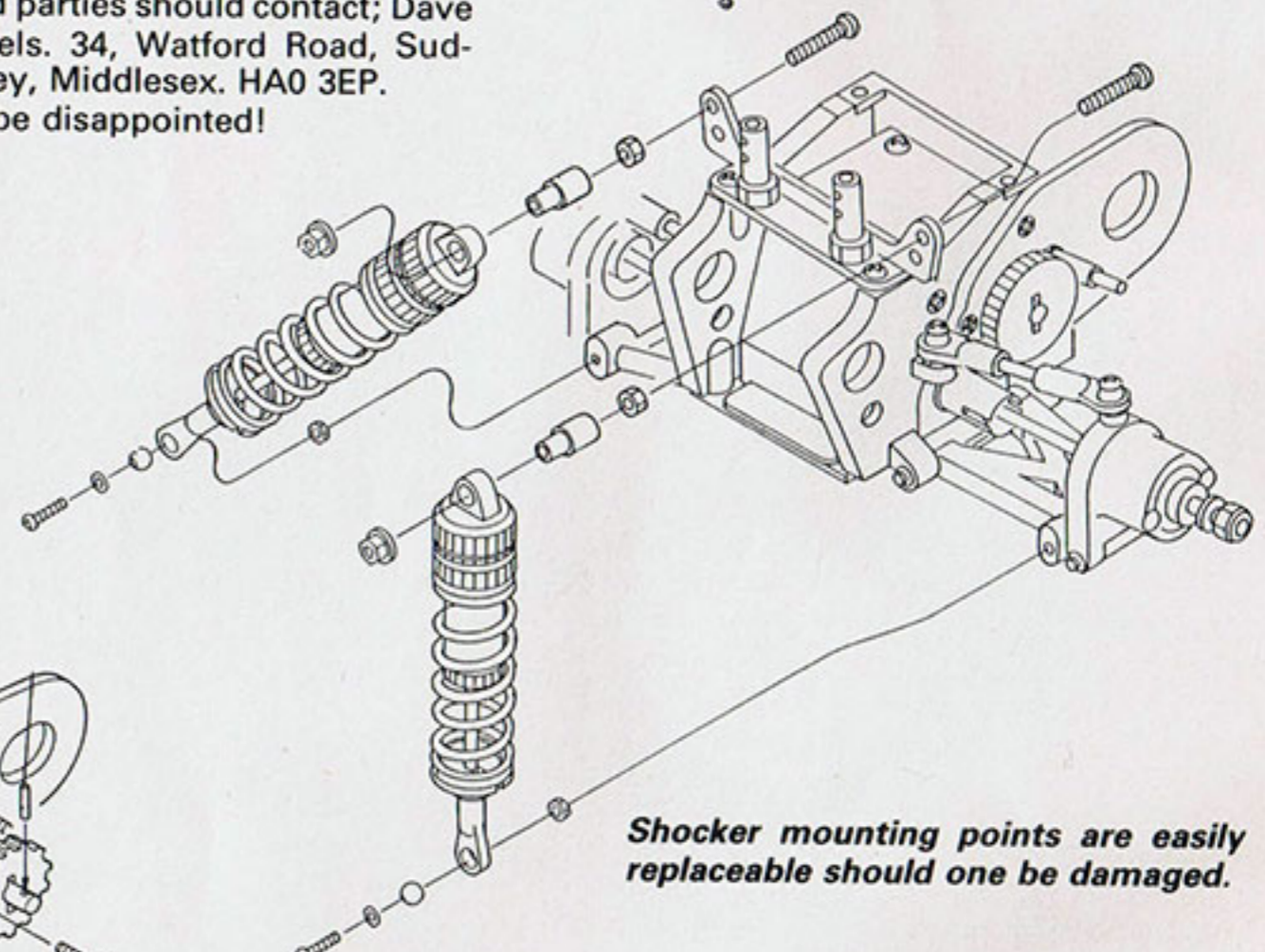


Now heres the bad news, it seems that there are no firm plans to import the Invader into the UK. However this may change if enough interest is shown in the car, interested parties should contact; Dave Nieman Models, 34, Watford Road, Sudbury, Wembley, Middlesex, HA0 3EP.

You won't be disappointed!



*A simple, efficient belt drive transmits all the power.*



*Shocker mounting points are easily replaceable should one be damaged.*

*Summing up the Invader is easy, simplicity has been the design watchword, followed to the letter.*

