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The Xroy T2 007 Dossier





# THE 007 DOSSIER

XRAY T2 007 HAS MORE TRICKS UP ITS SLEEVE

**M**y first experience of Xray was the T1 FK05 so I could get into winter racing. I was impressed by the quality of the car and it was an excellent performer. Over the same winter Xray released the new T2 car and since its release it has been their most successful car in victories and awards.

Xray set a task for their research and development team, it was to make the T2 even faster on any surface. The result is the T2 007, "The first touring car platform built specifically for rubber and foam tyre

racing, two conditions, two cars, one platform."

## "HELLO 007 WE'RE EXPECTING YOU"

The packaging from Xray is first class and the manual, pro-

motional leaflets, decals, set up and gear charts are simply the best I have seen.

The T2 007 comes in two versions, the US edition and the EU version; the main differences between the two are the chassis lower

and top-deck, suspension stiffness, front axle type, springs and spur-gear pitch.

All the T2 racecars are fully compatible with each other and 007 upgrades are available to fit any base cars.

## SO WHAT DOES 'Q' HAVE IN THE GADGET CUPBOARD?

T2 007 (the EU version) has a narrow 2.5 mm chassis and the bulkheads are assembled in the box and you do need to remove them to prep the chassis. Lightly sand the







Choice of EU Rubber or US Foam spec is acknowledged with logo



TelsShells pay homage to a legend



4.5 mm lower than the T2 C of G

chassis edges, top-deck and shock towers and apply super glue. Also slightly chamfer the battery slots and the tape slots if your retaining method is cell tape.

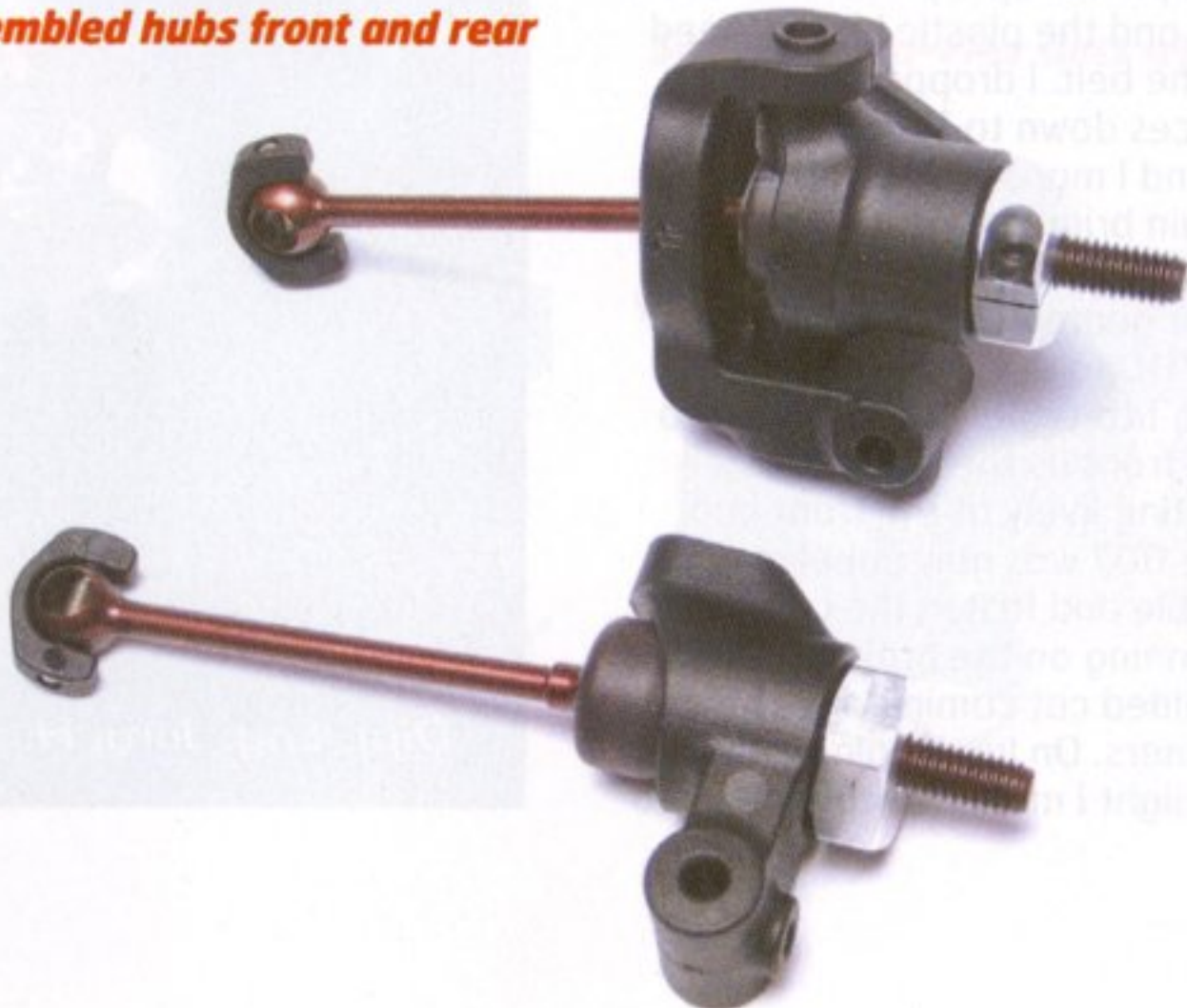
The rear diff comes factory built and has labyrinth covers to keep dust out. The multi spool is simple to assemble. As per the FK05, the Xray multi diff is actually three diffs in one. You get a spool, a one way and a solid one way in one unit. Apply some Xray one way lube to the out drives to ensure good performance. With the bulkheads bolted back to the chassis the lower arms are fitted. Different pin mounts are provided allowing roll centre, anti/pro squat, wheel base and track all to be adjusted the same as the T2. In fact the 007 suspension geometry is the same as the T2. Belt tension is adjustable front and rear via eccentric cams. All the bearings run in composite holders to decrease friction and improve drive train efficiency.

Diffs are clamped to the bulkheads by alloy shock tower bridges with 4 screws. To remove the layshaft you need to remove the rear carbon brace and top-deck, or alternatively it can be done by removing the right hand side alloy layshaft plate.

**Important Note: Team Xray made an announcement asking owners to add extra oil to the bearings as they have been supplied dry for those that prefer to clean them out of any assembly grease and apply lighter oil for a freer rotating transmission.**

Driveshafts are visibly the same CVDs as the T2 but Xray have improved the design and material of the drive blades and include a complimentary pair. Out of precaution, some would say paranoia, I also added some heat shrink over the CVD to help retain the pin should it come loose and move. Roll centres are adjustable by Xray's superb eccentric camber links.

Assembled hubs front and rear



Ackerman adjustable linkage



The centre steering arm/servo saver has a unique Ackerman adjustment to allow five different positions by turning just a single screw.

Xray have made the top deck longer over the T2 to allow better flex and sits 4.5 mm lower. Shock absorbers are the Xray tried and tested adjustable piston units with plastic bodies. I personally think these shocks are some of the best available, but I have to say I have now mastered them and I do admit for someone new to them they may seem awkward. 35wt oil is supplied and they should be built with 3 holes visible in the pistons. Silver front 17.5 lb and gold rear 14 lb springs are provided but the springs are progressive so feel different to the similar rated option ones. Front protection is via a foam bumper, while large body posts with body cushions secure the bodyshell.

## SUIT UP, YOUR GOING OUT

To get us on track Mirage also supplied us with a Nosram power pack, consisting of Nosram Vtec 'Big Mama' 4200 cells and battery bars, a Storm Evolution brushless motor 5.5 (equivalent to a 7t turn brushed motor) and a Matrix Evolution brushless speedo. They supplied Vtec 27 trued and glued tyres. Mirage

also provided some Xray options consisting of a battery strap; front and rear roll bar kit; and 7.5 mm wheel hexes. I purchased a motor guard from MB Models in Leeds, as I wanted to protect my Storm Evolution brushless motor from any T-bone intrusions. Lastly I fitted a Futaba SP550 digital servo and Spektrum micro receiver. To count my laps I used a MRT lpt in clear which is a clone of my Amb number but with the added benefits of a built-in bug booster and removable wires.

As the matrix speedo is larger than a brushed speedo I had to install the receiver on its side. A later conversation with an Xray team driver resulted in the fact that the servo can be mounted in the forward position allowing more room for the receiver and speedo. The optional battery brace was fitted and with the battery retaining clips located the Big Mama cells had no effect on the chassis tweak. Roll bars were fitted front and rear and were a perfect fit with no adjustments needed to de-tweak them.

## DRESSED TO KILL

Mirage also supplied a Moorespeed Mazda 6 body and in true RRCi style TelsShells came up with a superb 007 theme complete with logos and flamed dancing girls all in colours of previous Bond cars. Nice one Terry!

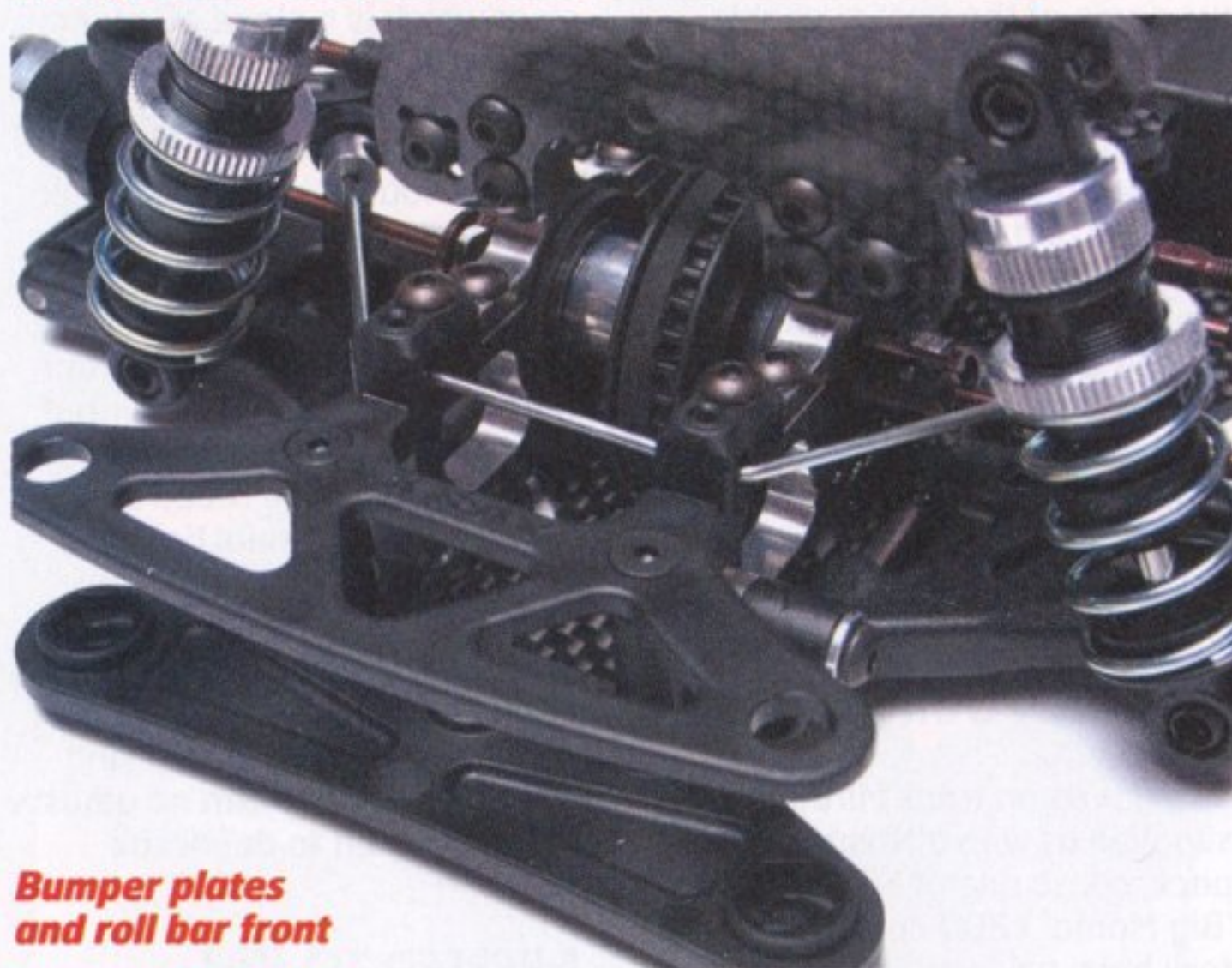
## SHAKEN, NOT STIRRED

The shake down came at round two of the BIWS winter series at Sheffield where a wary practice saw the 007 circulate the track for the first time. The rear end was coming out into the corners, but with grip being low on the fresh carpet I chose to leave the car alone and hope the track would gain grip as more and more cars ran on it with their tyre additives. Second practice saw the car with more grip





**Ready to assemble, with plenty of sub-assemblies complete**



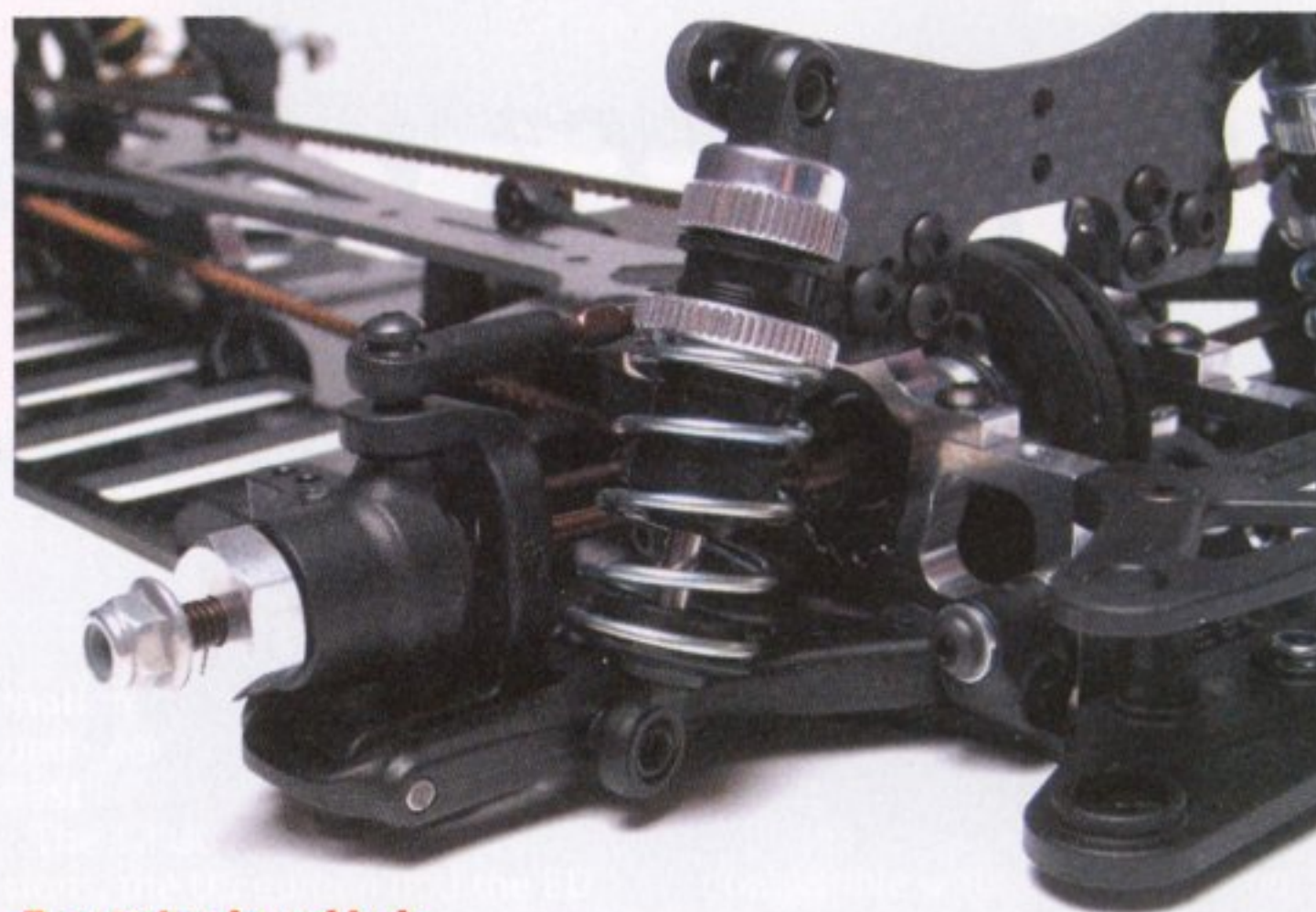
**Bumper plates and roll bar front**

although the rear still came out into the corners it felt good and quite stable. The brushless motor was fast, in fact scary yet very responsive and using the brakes stood it on its nose!

Round one of racing saw me with a fairly clean run. I qualified 13th and still had the rear stepping out off power. I had set my car up the same as Ben Cosgrove when he'd won the first round. This information and much more can be found on [www.teamxray.com](http://www.teamxray.com) website and also on the excellent forum. A quick chat with Ben soon had my set up sorted, by moving the rear shocks to the inner wish-bone hole and fully in on the shock tower.

Round two saw a car that was doing all I wanted and helped me

go a lot quicker but so did everyone else so I remained 13th. Round three was a wipe out, I didn't even get one lap. Some how on the warm up lap I had picked up a piece of another car and the plastic had jammed in the belt. I dropped a few places down to 16th. The final round I managed to improve again bringing me back to 13th spot. I decided then that I was over geared so I changed from 20/110 to 20/118 for the final. I also fitted the 7.5 mm hexes to the front as the car was now getting lively at the front end. The 007 was now unbelievably stable and fast in the corners, stunning on the brakes and like a scalded cat coming out of the corners. On lap 3 going down the straight I managed to move into



**Front shock and hub**

the lead and stayed there to take the 'B' Final win by a lap. I was chuffed to bits, my first try at brushless/modified put a massive grin on my face and some silverware for the trophy cabinet.

### **M'S DEBRIEF JURAJ HUDY EXPLAINS THE T2 007 DESIGN**

The real challenge for a model car designer is to decide when to improve and release development of the current model that happens to be very successful in the current market. The T2 platform has really superseded all of our expectations and I was extremely happy that this car was so successful both with performance on the track and mostly with the overall satisfaction of the consumer. As such, I could not afford to make any mistakes in development that would negatively influence either the performance or the overall satisfaction of the current car. When designing a touring car it is important to always keep in mind that the car will be run in a wide range of racing conditions... on carpet or asphalt... with either foam or rubber tyres. All of these conditions are completely different and as such the car and set up needs to be adjusted to those particular conditions. The inven-

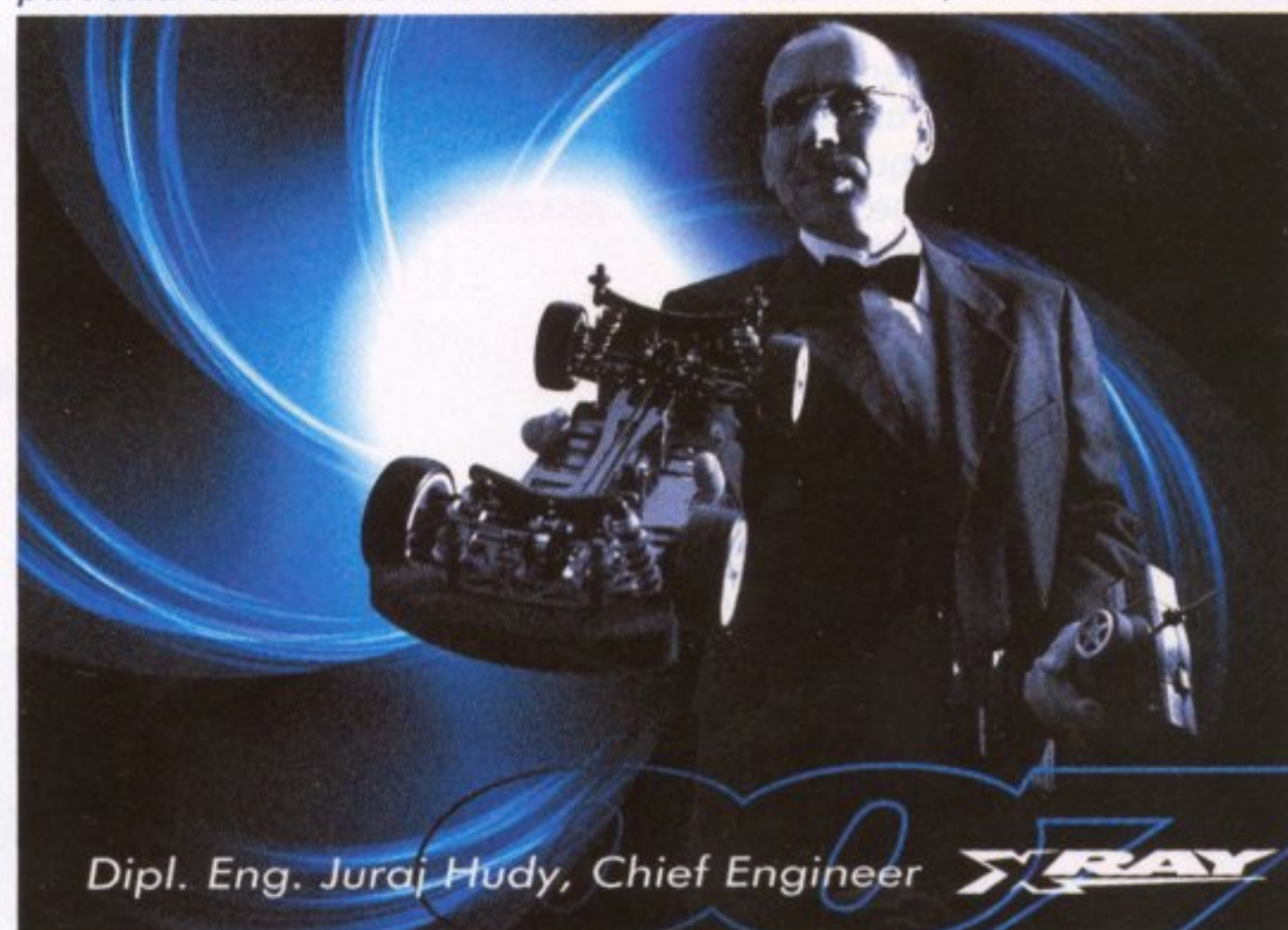
tion and release of Multi-Flex Technology™ provided an excellent set up tool that allowed the T2 to be adjusted for any of these conditions – this proved to be invaluable in 2005 and 2006. But as everything evolves I had a very clear idea how to further develop the T2 to push the limits beyond expectations.

The goal for the new T2'007 was very clear – make the car faster and more consistent but easy to drive at the same time. One of the main issues I wanted to solve was to minimise tweak after a crash.

From the beginning I had a clear vision and idea – we need to build two different cars that would allow us to capture the outer spectrum of the highest competition in the two common conditions: Using rubber and foam tyres. For this reason we decided to design a US version for foam tyres and an EU version for rubber tyres.

I started logically by eliminating the parts that did not require any changes. As the suspension plays a very significant role in performance my first attempt was to look at the suspension. However, long term results and reports confirmed that the suspension geometry and suspension parts of the T2 have worked everywhere.

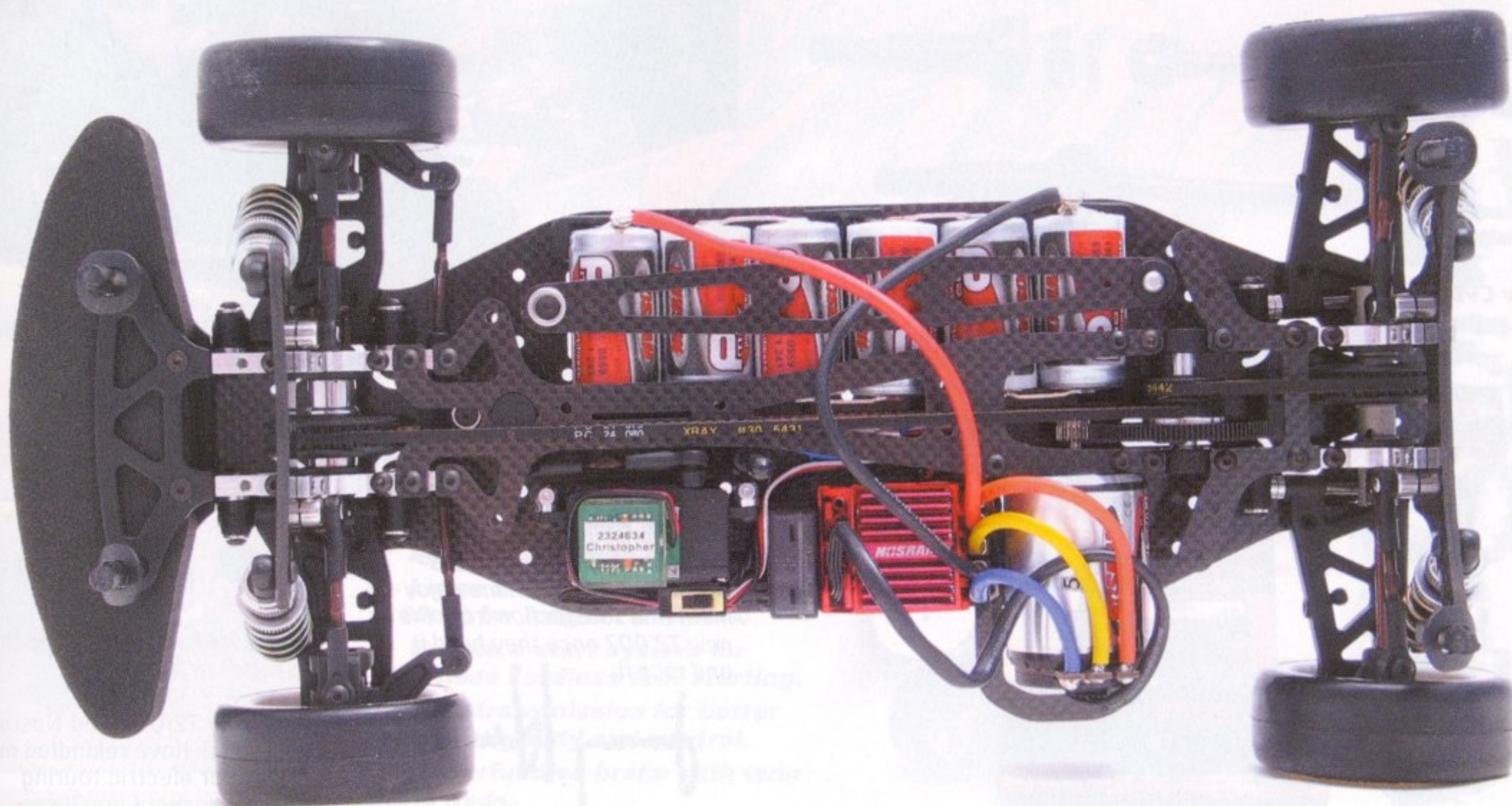
Other areas, which I was confi-



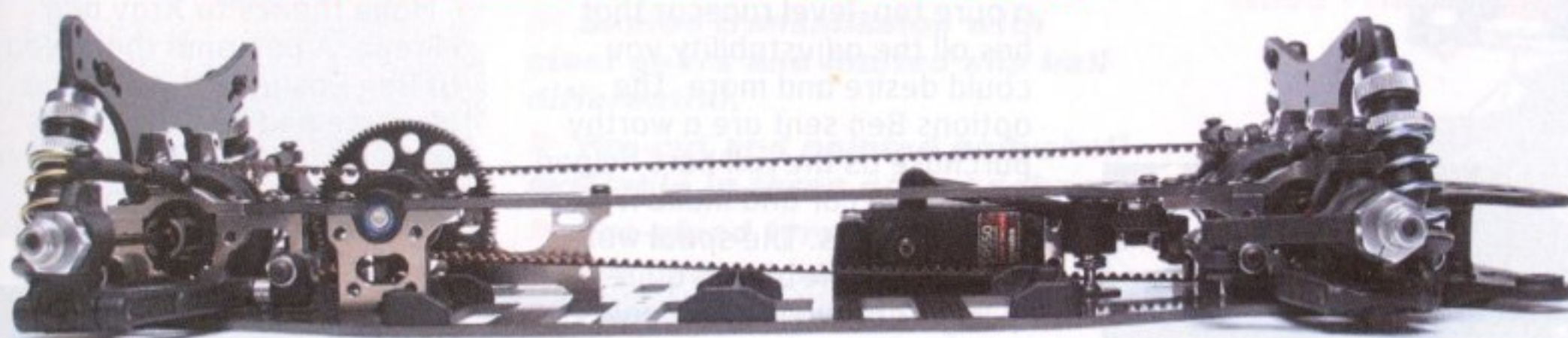
Dipl. Eng. Juraj Hudy, Chief Engineer







**Notice the Multi-Flex posts left out for maximum chassis flex and grip**



### The lowest of the low

dent in, were the drive train parts. The only drive train part updated was the ball-differential. Because brushless motors are being used more frequently along with new more powerful batteries, the power and abuse transferred to the drive train parts has increased significantly. For this reason I decided to make the ball-diff from a new improved 7075 T6 material which increases the strength by 30% and should prevent the out drives from opening or breaking in a bad crash. The other minor (but still very important) update were the driveshaft clips which

have been updated in material and design to accommodate the higher forces put upon them.

As my time on the track is very limited, I always look for solutions that will make my work on the car faster and easier. One of the set up features I am working with very frequently is different Ackerman settings. However, I was getting very tired disassembling/reassembling the car to do this (not to mention the time-intensive geometry adjustment afterwards) so I thought about making a new servo saver that would allow me to make small Ackerman adjustments quickly and easily. After a few brainstorming sessions, I came up

with a very easy yet clever solution: The Quick-Saver™.

After eliminating the areas that did not need significant updates, I could fully concentrate on the remaining parts. The first task was to minimise tweak. We had created several bulkhead designs and top deck designs (both with countersunk and standard holes) to analyse and test how and when tweak occurs. The best results we achieved were by making the top deck as long as possible with key mounting on the top of the bulkheads. Based on previous experience I knew that by elongating the top deck I would gain more traction and the car would be easier to drive.



**Multi diff offers any set up with the flick of an O-ring**

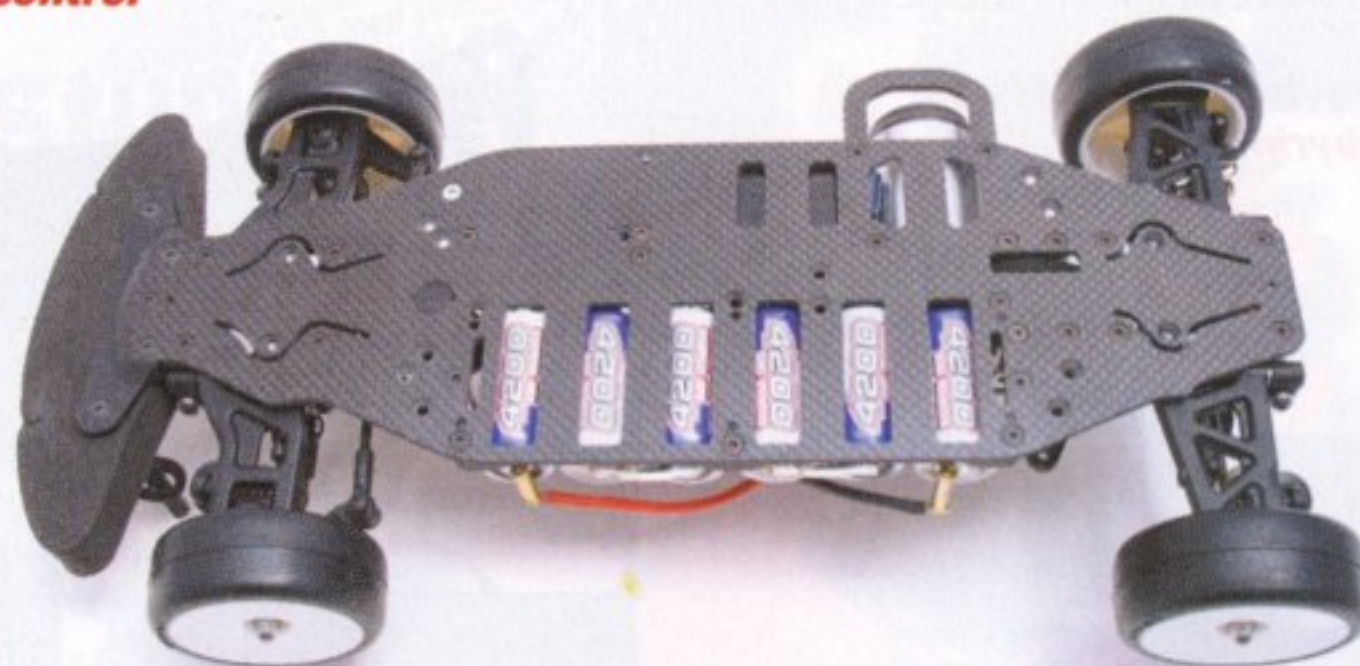
The next task was to even more improve stability and agility of the car, while keeping it easy to drive. The way to achieve this was to lower the top deck to control flex and dramatically decrease the C of G which helped the car to be more stable and predictable. To gain more rear grip we separated the rear bulkheads into two pieces allowing more flex on the rear portion of the chassis.

Multi-Flex Technology™ has proved to be an extremely helpful set up feature during the season, but as with any other concept, evolution is only natural MFT™ undergo some changes to improve the feature of the car. Armed with several different top decks, we had the chance to experiment with the MFT™ points as well as with the width of the

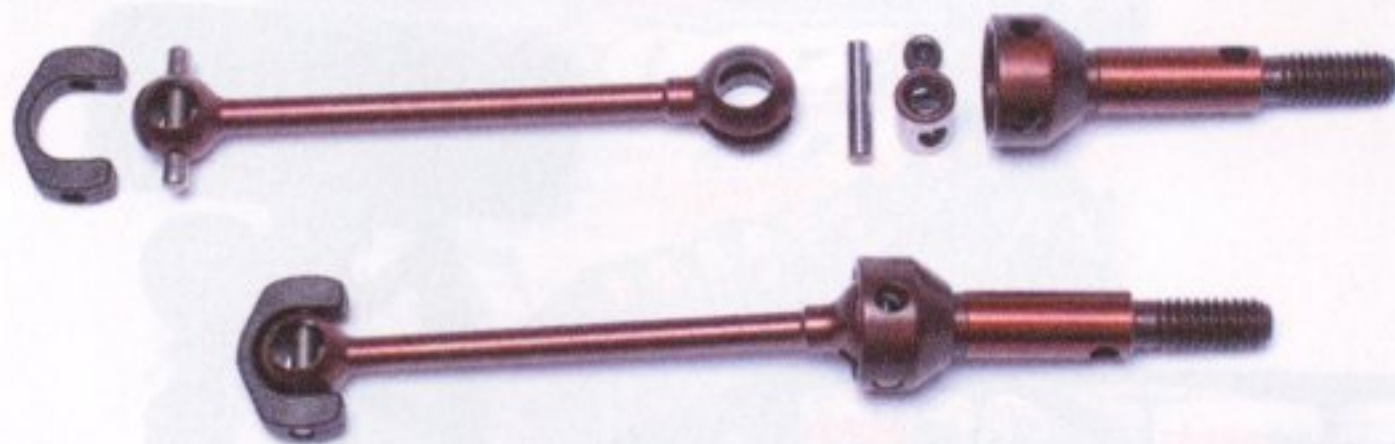
### Motor guard protects Storm brushless



**See the Multi-Flex slots which the upper plate and link posts control**





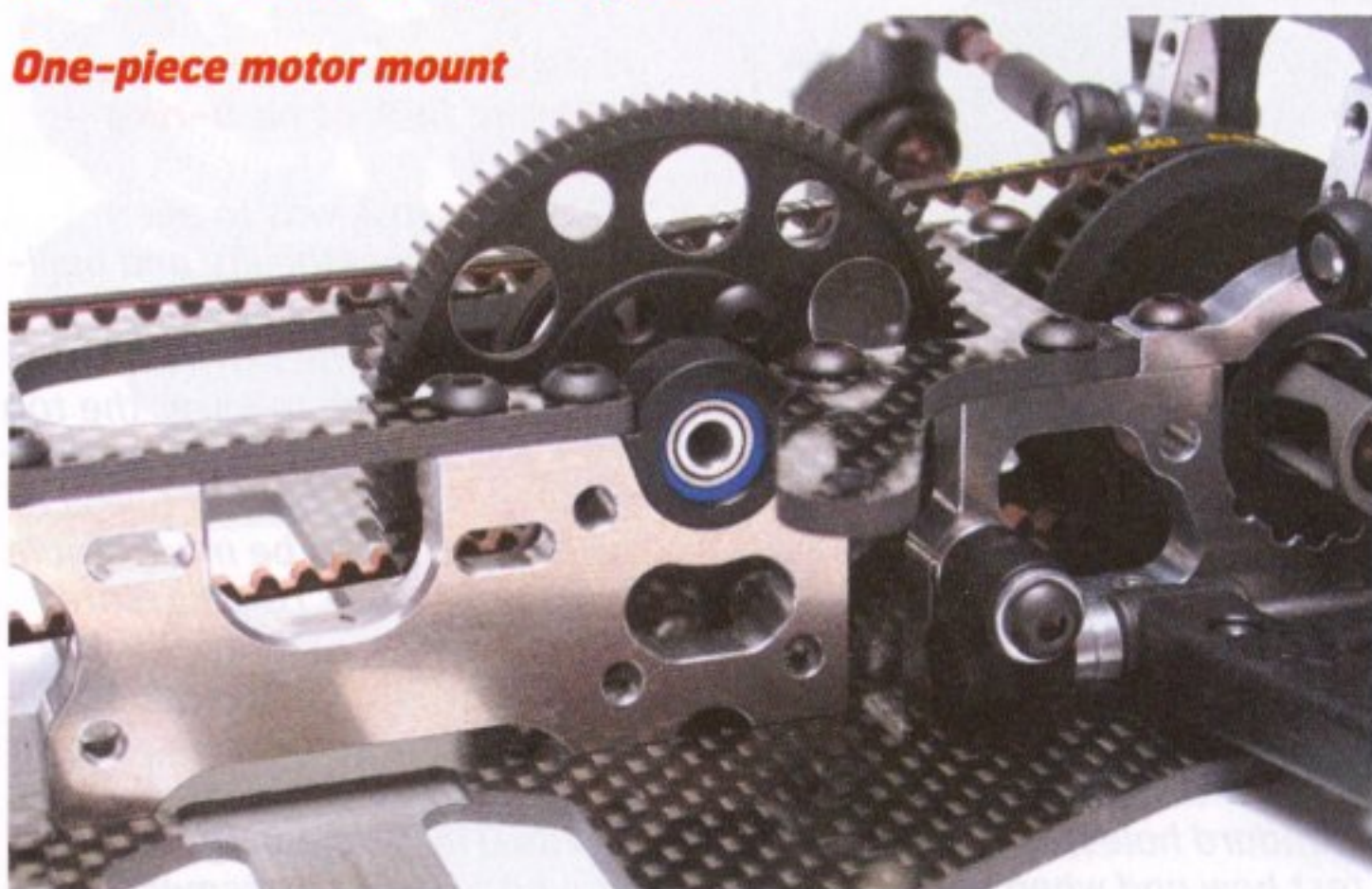


**New CVDs have better material and design, and two spares!**



**Our choice of Nosram power pack**

**One-piece motor mount**

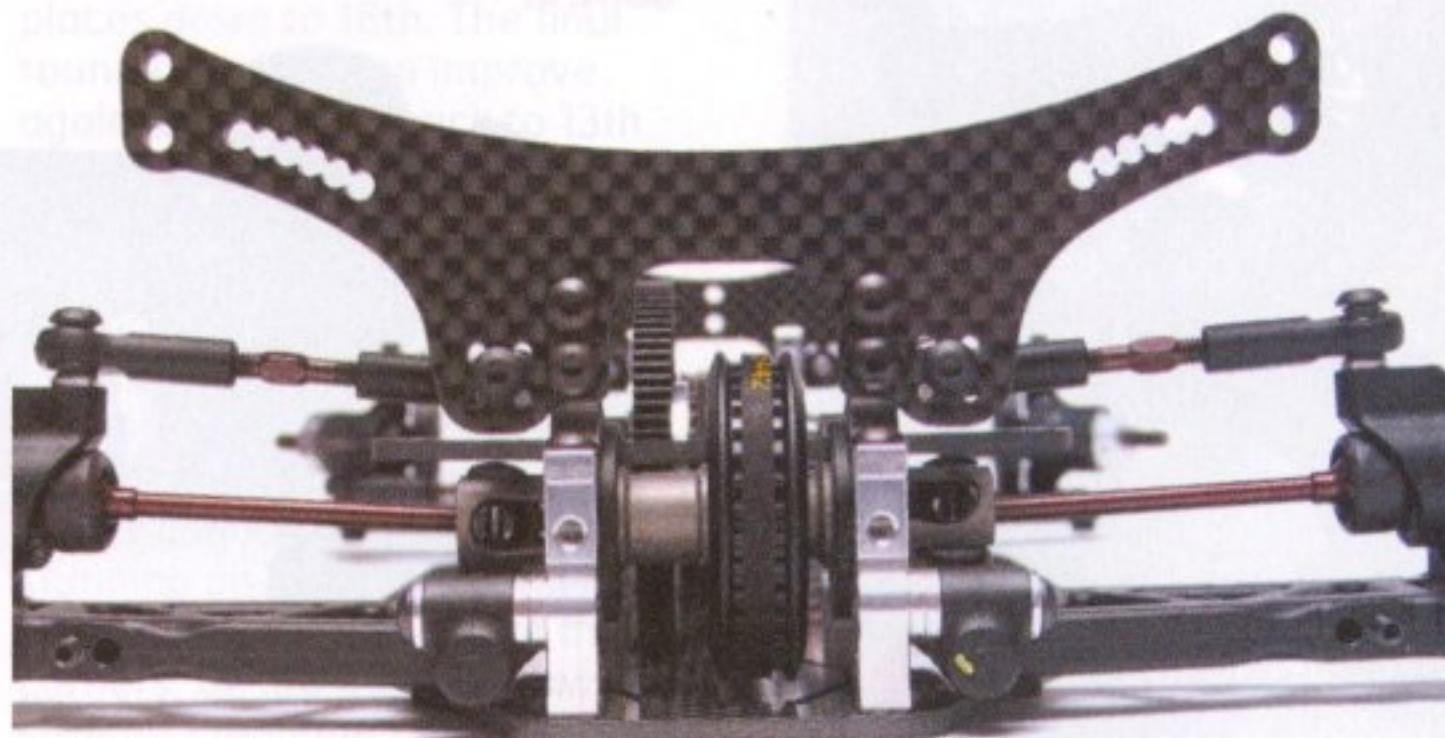


top decks to find the best compromise. In the end the results showed that for foam racing the extra wide top deck with alu mounts set as wide as possible will make the car super stable for the high grip conditions; while for rubber racing we needed the top deck to be more flexible... so I decided to go with two different top decks for the final kit. By redesigning the new top

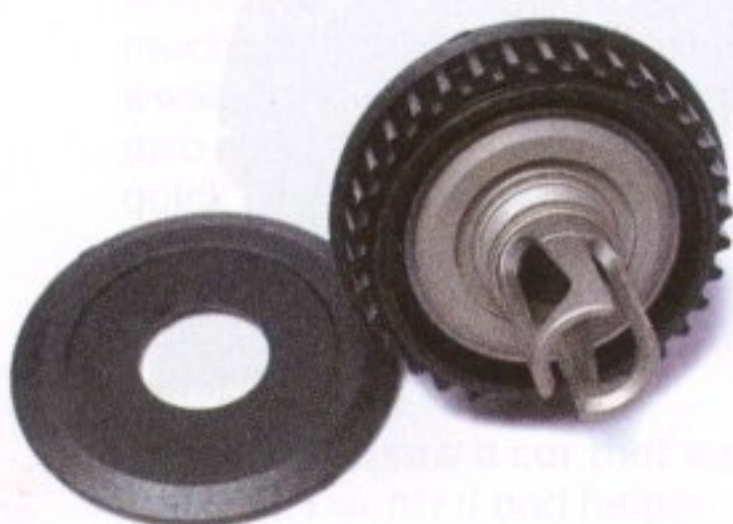
deck I needed to gain more rear traction and also more steering, especially for asphalt racing where the solid axle is being used.

Over long term testing, I have gone through several crash-tests finding that the tweak problem has been significantly

**Rear diff and bulkhead with shock tower**



**Pre-built rear diff and labyrinth covers**



**Rear suspension**

reduced and the performance has increased. I was very confident that regular customers would love the new car.

The debut of the T2'007 at the International Indoor Championship was spectacular and I am convinced that customers will get the same enjoyment and satisfaction from the new T2'007 once they build it and race it.

*Ben Cosgrove*

What can I say? The T2 007 is a pure top-level racecar that has all the adjustability you could desire and more. The options Ben sent are a worthy purchase as the roll bars helped flatten the car and make it work in the corners. The spool wore the drive shaft blades quite quickly, however once again I spoke to Ben who suggested I should apply some light grease between them and the out-drive, after which the problem was resolved. They do tend to wear quicker with a spool and if you clip a track marker they are designed to be the sacrificial link and save major damage to other larger chassis components.

The Big Mama cells came off with well over 1500 mAh capacity left. The speedo did not shut down once and only ever ran warm, and never hot. The motor got warm, not hot, yet remained consistent throughout the run and I had no maintenance (brushes or skims) to do between heats and finals, hence brushless is now my preferred class over 19 turn.



**Take a look inside the shocks in stages of build**

The Xray T2 007 and Nosram power pack have rekindled my passion for electric touring cars and I expect you'll see many wins from them in the future.

Many thanks to Xray and Mirage. A personal thank you to Ben Cosgrove for looking after me and passing on his team driver hints and tips throughout the meeting.

RCI



**CLASS:** 1/10th Electric 4WD Touring  
**TYPE:** Self-assembly chassis kit  
**MANUFACTURER:** Xray  
**PRICE:** XR300008 Euro Rubber Tyre Edition £294.99 RRP, XR300007 USA Foam Tyre Edition £304.99 RRP (S/O)

**LIKES**

Manual and set up book  
Quality  
Performance  
Shocks (when you get them right)  
Stunning looks

**DISLIKES**

Tight fit for LiPo  
Released less than a year after T2 although a conversion kit is available  
Shocks – not the easiest to build  
Wearing of blades (See text)

**REQUIRED TO COMPLETE**

Nosram Matrix Evo Speedo  
Nosram Storm Evo 5.5 Brushless  
Nosram 4200 Big Mama team cells  
Futaba S9550 servo  
Ko Helios radio with Spektrum  
Robbietronic overloader  
Moorspeed Mazda 6 shell

**OPTIONS FITTED FOR TEST**

Battery strap  
Front and rear roll bars  
+ .75 mm wheel hexes