

BY MARK JACKSON



# NO FRILLS,

## Xray T2R PRO 1/10th 4WD Tourer. Budget Beater

### HISTORY

Xray has been synonymous with excellence, reliability and race-winning performance for what seems like forever. They have a reputation for producing high quality, luxury touring cars and accessories, which have won countless race wins and awards throughout the world and all this racing prowess and technology is easily translated to your local track once you get behind the wheel of an Xray.

As usual, quality comes at a price, as high-end components and accessories don't come cheap; until now...

Xray's Chief Engineer, Juraj Hudy has addressed this problem and Xray have released a new model for those racing on a tight budget: The T2R Pro. This is a follow-on model from the previous T1R Raycer introduced prior to the release of the T2 007 and although very popular, was soon sold out. The T2R Pro should, however, be available for a long time to come as it utilises so many designs and components from the current T2 009 and also its predecessor; the T2 008. The T2R is full of high-end features and components similar to the T2 009 it is based upon, but for a significantly smaller financial outlay. It offers the same handling and ability potential as the 009 as it shares the highly successful, race-winning T2 platform.



# ALL THRILLS

## WHAT'S INSIDE?

The box is a typical Xray Touring Car layout with a partially assembled T2R Pro Chassis inside. There are numbered bags containing all the components to complete the racing chassis apart from the usual things like steering servo, battery, speed controller, wheels and tyres and, of course a 190 mm width bodyshell. There are also several high quality manuals included with a fully detailed and easy to follow instruction manual, a set-up manual and a colour set-up sheet for photo copying to record the winning set-up that works for you. Set-ups are also freely available online on the Xray web site [www.teamxray.com](http://www.teamxray.com)

## CHASSIS

The chassis is the same belt driven 4-wheel T2 layout and drive system as seen on all the other world beating T2 marques, so performance and reliability is doubtlessly assured.

All the chassis plates are made from black fibreglass and in complying with the instructions, the first order of the day, is to file the edges of the plate), prior to sealing the edges with superglue.

The lower deck is 2.5 mm thick with an identical layout and battery placement to the world class T2 009. The upper deck is also 2.5 mm thick but it is narrow to prevent chassis tweak. There are also 2.5 mm spacers included to raise the upper deck to allow the use of some of the thicker LiPo battery packs currently available.

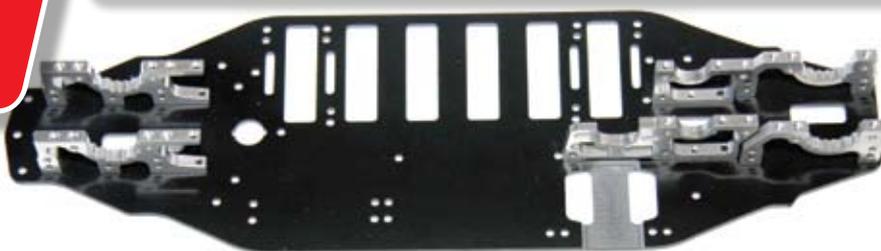
## CHASSIS COMPONENTS

The T2R is full of high spec quality fixtures and fittings, it shares many 008 and 009 components and is, in essence, a fibreglass version of the 009. It has exactly the same Swiss 7075 T6 Hard Coated Aluminium alloy bulkheads, although without the orange anodising.

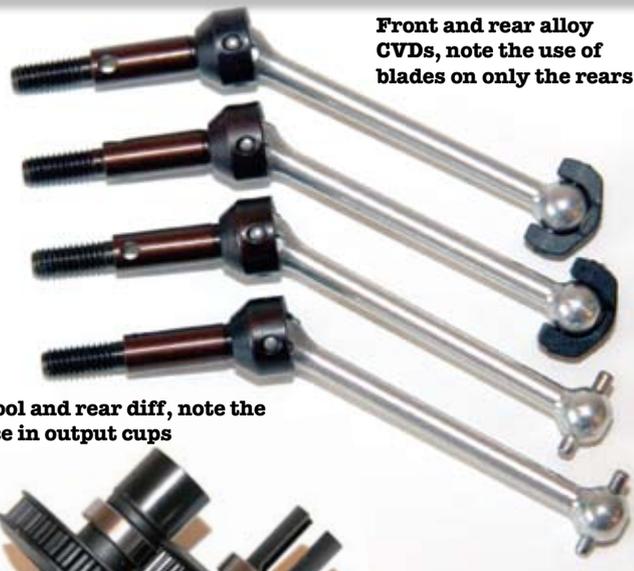
It has bright, non-anodised aluminium with all the weight saving 'skeleton' style bulkheads and layshaft carriers including the very innovative 'Multi-Flex' adjustments assuring race-winning settings and performance from the outset.

There are a few differences where composites are used instead of alloy. The composite servo posts are beefy and hold the servo easily without any flex or deviation. The wheel hexes have 'shoulders' to keep the wheels located and stable. They are strong and light and clip onto the stub axle pins firmly and don't fall off or lose the roll pin in the process when changing a wheel. The composite upper deck brace is easily up to the job, but I have to clamp it with some soft faced pliers to install it as it twists too easily as the screws bite into it. There are also composite spacers used instead of alloy, they are accurate and don't foul the lower arms which move freely under their own weight when installed.

Although the camber and toe-in is adjustable, the camber and half rotations of the ball joints to affect any setting changes potentially leaving a marginal gap either side of a perfect setting. Turnbuckles would be the first option on my shopping list.



**Xray T2R Pro arrives as a pre-assembled main chassis, with upper chassis, LiPo spacers and shock towers**



**Front and rear alloy CVDs, note the use of blades on only the rears**

**Front spool and rear diff, note the difference in output cups**



## DRIVE TRAIN

The drive train is super efficient with a tried and trusted ratio of 1.7:1 derived from the belts wrapped around 34-tooth pulleys front and rear connected with a large centrally located 20-tooth layshaft pulley. The whole drive train rides on ball races, which have been de-greased and lightly oiled by hand (just like the pros do it), ensuring everything runs freely and very smoothly.

The motor mount is an extension of the layshaft bulkhead and is machined in the same 'skeleton' fashion as the front and rear bulkheads to help save weight, but more importantly to help keep the motor cool, especially when running extreme brushless motors.

The bulkheads are super-light, but rigid and also contribute to the unique Xray Multi-Flex features of the chassis by either adding strategic screws to stiffen the chassis or remove them to allow more flex thereby generating more mechanical grip. The kit setting is 'Stiff', with all screws in.

The bulkheads allow quick and easy access to the front and rear diffs and layshaft without upsetting any suspension settings. The composite diff carriers can rotate 360° within the machined notches enabling different roll centre settings adding even more setting options to an already highly tuneable chassis.

The layshaft is machined from aluminium alloy and has an 84-tooth spur gear mounted in between both the front and rear drive belts, effectively running dead centre of the chassis contributing towards the quest for a perfect centre balance.

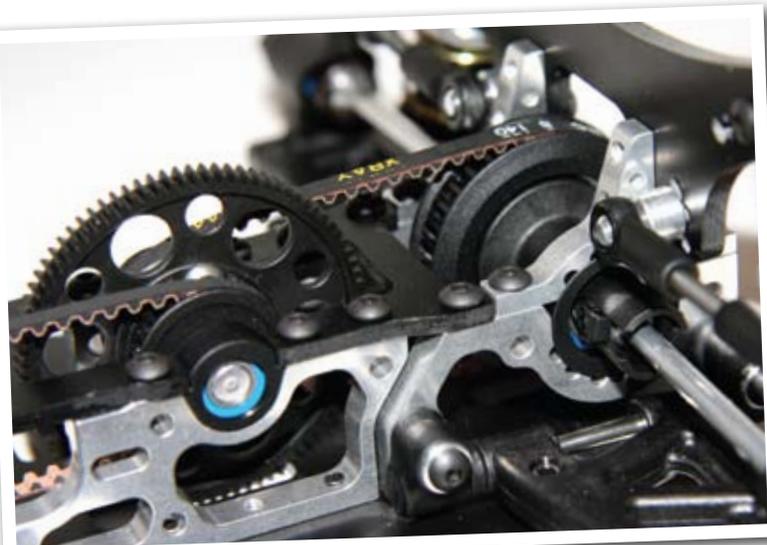
The front pulley is a solid axle 'spool' as can be found on any 008 or 009 and is super strong and light. The composite out drives don't require

any plastic blades as the universals hook up without. The rear composite diff has 2.4 mm carbide balls held captive with D-Lock diff washers.

It has light and strong composite out drives, but as they are similar to the higher spec 008/009 aluminium equivalent, which require blades to help distribute the load and reduce wear and tear. I use dry lubricant on them and I have yet to replace any though they are quite inexpensive, so it is always a good idea to keep some in your spares box. Of course, if you prefer, you can purchase diffs separately and fit them in the front bulkhead.

The universals are made from Swiss 7075 T6 Hard Coated Aluminium Alloy for both the front and rear, and both sets are hooked up to the superb Hudy Spring Steel stub-axle drive shafts as seen on the 008, for strength and durability.

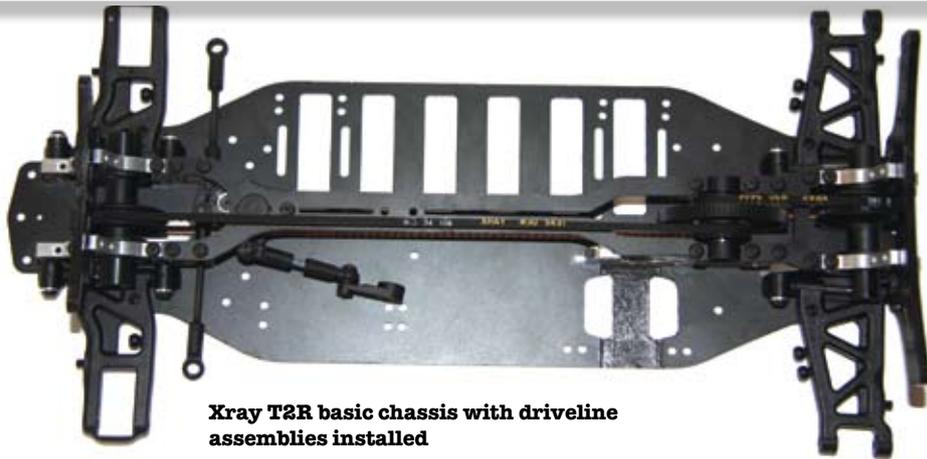
Worthy of note; all the suspension components like the wishbone arms, rear hubs, etc. are the same as is found on any of the 008/009 apart from the fact that the 008/009 'C' hubs are now wide to prevent fouling under heavy load and also to allow the removal of universals without any disassembly. The T2R's 'C' hubs appear to be the same narrow hubs as seen on the T2 007. The good news is you can easily upgrade.



**Rear bulkhead and diff outputs**



**Front solid spool outputs**



**Xray T2R basic chassis with driveline assemblies installed**



**Shocks have hex drive ball mounts top and bottom so you simply unscrew, rather than pop them off**

**Complete T2R Pro rolling chassis kit built and ready for wiring**



## SUSPENSION

The suspension is the same (but without the orange anodising) as the very high quality externally adjustable coil over oil shock absorbers as seen on the 008 and 009. All the bits are included to install fixed hole pistons but I chose the adjustable option as the flexibility of the fibreglass chassis may require some flexibility in my shock settings. They go together easily and are squeak-free and silky smooth when fitted with Xray's top quality springs; silver 17.5LB on the front and gold 14LB on the rear.

One superb feature is the ease with which the shock absorbers are attached, detached or relocated by using a 3 mm Hex Drive to rotate universal balls installed within the cap mount and bottom ball joint of the shock absorbers. It makes trackside suspension adjustment quick and ridiculously easy.

As mentioned earlier, the wishbones are the same quality, size and strength as the 008 and 009 but their movement is arrested by the shock absorbers attached to substantial and beefy, 3.5 mm thick shock towers. I can only assume that that is to reduce any deflection and let the shocks do all the work.

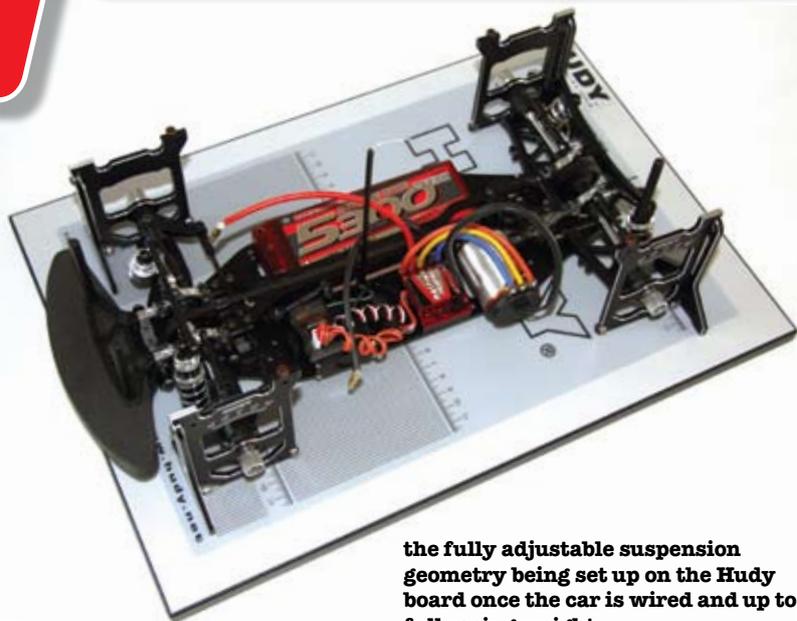
## STEERING

The Xray Quick-Saver ball raced bell crank system has five adjustable Ackerman positions to boot. This is again a high-end feature seen in every T2 chassis so far. It is tried and trusted and handles the steering very well whilst absorbing any excessive bumps and shocks without transferring them to the steering servo. The only downside is the fact that without turnbuckles it means the steering arms are attached via simple threaded rods and it is a tedious rigmarole to adjust the toe-in/toe-out settings as it entails unscrewing a ball end (easiest off the steering arm) before rotating it to get as close as possible to the desired setting. The kit measurement left the T2R with too much toe-out so I unscrewed the ball ends



**ABOVE:** When it is this adjustable there's only one way to do it properly





**the fully adjustable suspension geometry being set up on the Hudy board once the car is wired and up to full racing weight**

**Alloy motor mount offers some heat sink properties to the motor. Chassis is milled out to drop the motor centre**



one full turn on both sides to get as near to zero toe-in as possible.

To get the chassis turning in the right direction, I hooked the steering up to Mirage's Maverick MV23143 with MS-23M metal gears. It is powerful and quick and remains straight and true responding to every input I make with zest and accuracy.

## WHEELS AND TYRES

In keeping with the 'Pro' portion of the T2R Pro name, Xray have supplied only the chassis without wheels and tyres. This helps keep the costs down and basically assumes nothing with regard to your skill or track requirements, ultimately keeping more money in your back pocket to spend as you choose.

We used the rather tasty Nosram VTEC tyres, pre-mounted and glued Competition Slick 27R's. They are mounted on white-dished wheels and look the business. We also used some HPI 'D' Compound X-Pattern Radial Tyres with some Team Orion JB Foam with the revolutionary 'Double Rebound System', which we mounted onto some black HPI Split 6 wheels, more in keeping with the brilliant scale looks of the HPI Lotus shell, and these tyres are very good for car park practice, etc. where the surfaces are perhaps dusty and grip isn't so readily available. They last well and offer stable, consistent handling throughout.

## CHARGE!

In keeping with the idea that this chassis may well be somebody's first foray into racing, we chose the latest affordable tech and with that in mind, we decide to use the Nosram X-treme Race 5300 mAh VTEC 7.4 V 2s LiPo in a rather striking red hard case. The battery has cell mouldings along the outer edges to locate within cell cut outs to stop forward or lateral movement within the chassis and fits snugly into the Xray chassis held in place with some fibre re-enforced tape. Owing to the fact that this is one of the 'larger' commercially available LiPos, I used the Xray spacers to raise the top deck as I noticed that the chassis was being 'tweaked' a little by the LiPo. An added bonus with this 5300 is the fact that it is also supplied with charge and balancing leads. The best feature of the 5300 by far though, is the fact that you can access all three ports via the top or the bottom, to suit flat chassis without cell cut outs.

To translate the LiPo power into motion, we used the Nosram Matrix Reverse speed controller. It automatically identifies and adapts to either NiMH or LiPo cells saving any guesswork and preventing any problems if you should change your battery-type usage. It is also supplied with a heat sink and double-sided tape with which to mount it, as things can get a little warm when running brushless motors.

We then hook-up the speedo to the Nosram 13.5 turn Spec Racing Storm Evolution with a sintered rotor fitted with Neodymium magnets. 13.5 turn brushless is in general, universally recognised as a 27T brushed motor equivalent. This is a very popular motor because it offers effortless, race-

winning performance with zero maintenance, as it has no commutator or brushes or springs.

## BODY BEAUTIFUL

WOW! There is one thing about the HPI bodyshells; their designs can never be described as 'plain' or 'jelly mould'. The quality is consistent and the scale looks are true to the car it emulates. In this case, it is the rather superb 190 mm wide, Lotus Elise. It has overspray film and is also supplied with window masks and pre-cut decals for the finer trim detail (lights, windows, door handles, etc.) all included to get you trackside with the minimum of fuss and bother. It even has a wing and the mounting screws are included to keep things easy.

We left the final design to Tel from TS Designs and WOWEE! Tel has used a two-tone red and white with some rather snazzy gold flame work detailing in-between. The ace-up-the-sleeve is two pearlescent stripes up the middle that blow you away when viewed from certain angles. Simply stunning, thanks Tel!

## SO, HOW DOES IT GO?

Before any driving actually commences, I put the T2R on the rack, in this case the superb Xray Set-up board to see what the settings actually are especially with the threaded links.

Apart from the steering being slightly toe-out, the chassis was spot on and the wheels have exactly 2° camber all round. Now I tend to use 1°, but, having complied with the instruction manual, I will leave it at that and see how it goes.

We take the T2R Pro to the friendly Bedworth On-Road track, where there is nearly always someone on hand to offer set-up advice or driving pointers. Just ask. It has some great tarmac with countless variations in track layout if you wish to challenge a chassis but the



**Nosram brushless speedo and motor combination in the popular 13.5T specification**



**LEFT:** Nosram Evo comfortably installed and ready to light up the track

## CONCLUSION

The T2R Pro certainly lives up to the 'Pro' part of its name. It never swapped ends or lost composure during my quest to break the 18-second barrier, although it did give me some dramatic looking but easily held sideways action!

This chassis could easily upset some of the 'higher end' chassis out there with its out-of-the-box race-winning manners.

## VERDICT

The T2R Pro has so many features and fittings carried over from the T2 008 and 009, but is still very much a chassis in its own right. Granted my gripes of using threaded links for the camber and steering may make fine-tuning awkward, but not insurmountable and perhaps turnbuckles would be the first option I would consider if only for the sake of convenience. Perhaps it is a result of being spoiled by all the other extremely high spec bits and pieces included in what is in essence, a beginner's kit.

The T2R Pro will, without a doubt, bring home lots of shiny trophies and medals in beginners or seasoned drivers' hands alike, as the winning Xray DNA is all too evident in the build and performance of this excellent chassis. **RRCi**

regular layout is challenging enough with a long straight, fast sweeper, hairpins and chicanes to keep the chassis and driver working hard.

The chassis runs pretty much straight and true after I input some right sub-trim. Bearing in mind that the 13.5T motor has a lot of torque, I fit a 25T pinion, the biggest pinion I could, to the 84T Spur gear. This equates to a final drive ratio of 5.71:1, which is as close as I could get to the Storm Evolution recommended ratio of 5.8:1. The T2R takes off fearlessly and effortlessly steers into the sweeper translating the bus stop, right-hander with ease. The infield is handled just as easily with the power ever so evident as any injudicious abuse of the throttle gets the back end squirming without losing balance or poise (you have to do it don't you?) The long straight seems to fly by too quickly and then we're back into the infield again.

My best times were consistently mid 18 second laps which we nibbled to a best of 18.1 seconds and every lap regardless of little mistakes here and there were all under 19 seconds. That speaks volumes for the consistency the chassis offers and the fact that we need to explore setting changes starting with a smaller spur and a larger pinion to realise more of the torque offered by the Nosram Storm Evolution, which hadn't even broken a sweat throughout the 12 minutes run! The motor was just 37°C (isn't that normal body temperature?) talk about cool running!



**LEFT:** Maverick servo proved robust and reliable, whilst fast enough for accurate control

## QUICK SPEC

**Class:** 1/10th 4WD Electric On Road  
**Type:** Self-assembly chassis kit  
**Manufacturer:** Xray  
**Price:** £214.99 RRP

## REQUIRED AND RECOMMENDED

**ESC:** Nosram Storm Evo  
**Motor:** Nosram Storm 13.5T  
**Servo:** Maverick MV23143  
**Cells:** Nosram X-treme VTEC LiPo  
**Radio:** Spektrum DX3R/SR3100  
**Tyres:** Nosram VTEC Comp Slick 27R and HPI X-Pattern Radials  
**Shell:** HPI 190 mm Lotus Elise  
**Paint:** Tel from TS Designs

## RECOMMENDED OPTIONS

Carbon fibre motor guard  
 Turnbuckles

## DISLIKES

No turnbuckles in kit

## LIKES

Top quality components and features  
 Fully race tried and trusted DNA  
 Race winning handling from the start

## CONTACT

Mirage RC Enterprises  
 01283 226570  
[www.mirageracing.com](http://www.mirageracing.com)  
 and  
[www.teamxray.com](http://www.teamxray.com)

