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## X RATED!

### XRAY M18 PRO REVEALED AND RACED

#### STEP INTO THE SHADOW

KP Designs Black Shadow Superbike Chassis

#### NOT RESTRICTED TO 56 MPH

Serpent 720 upgrades, and a new look

#### BIGGER BROTHER

The Hyper ST Truggy inspected and raced

#### TOURING PREVIEW

Who's Driving  
What in the  
2007 BRCA  
Season

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Final Rounds  
of the Nitro MAM

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Check out  
the new teams  
in 1/8th RX

#### HOT ROD WORLDS

The 1/12th  
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bang heads

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05>



# XRATED!

**XRAY M18 PRO  
1/18TH TOURER**

The shaft-driven 1/18 micro car, the Xray M18, was a huge success for Xray which exceeded all expectations. As the Micro racing scene grows in the UK and around the world, the M18 has captured the hearts of the micro racing community, from drivers running for fun to the most hardcore racing enthusiasts. As with any other ongoing developments, the M18 has also undergone close scrutiny by the Xray Engineering Department to bring forward the next stage in its evolution – a race-oriented professional micro car, the M18 PRO. With obvious race orientated influences from its bigger stable mates, like the Multi-Flex Technology™ top deck, externally-adjustable ball diffs, race-oriented wheel mounting system, the M18 PRO was borne from racing DNA.

### QUICK DIAL

Xray's innovative and patent Multi-Flex Technology – MFT™ was originally designed for 1/10 touring cars, and has resulted in some of the most significant milestones in touring car development in the past few years. Being able to quickly and easily

dial in the grip balance front to rear with the simple twist of a screw driver, it has proven to be a distinct competitive advantage. Choosing soft or stiff settings at the front and rear gives four set up options.

The three screws are all tight as a stiff set up, with the outer two back out a quarter turn as a soft set up. It doesn't sound much but it has a dramatic effect on the feel of the chassis and is very noticeable out on track. Set for soft front and rear gives high traction but with a low steering response. Soft front and stiff rear will encourage better steering, while stiff front and soft rear settings will produce a car that turns reasonably well and offer a generally easy to drive car. With a stiff set up front and rear, overall grip will be less as the chassis can't help generate any mechanical grip, but the steering will be very prompt as the rear will be easy to flick around on the brakes. The all-new, narrow, 1.6 mm carbon chassis has been optimised for strength, and designed specifically for high-performance racing. An inline 6-cell battery pack sits on the left side of the chas-

sis, with moulded battery holders which ensure the batteries stay in place whether set for stick pack or side by side configuration, held down by a carbon battery strap.

The areas under the electronics feature cut-outs which allow extra cooling airflow for improved cooling and offer even further weight reduction. The rear of the top deck holds the body mounts which can be easily adjusted for height to perfectly support the body, and all bulk-head and arm mounting screws are instantly accessible.

### SLICK FIT

Putting the chassis together from a kit of loose parts took no more than half an hour, surely the quickest full race spec chassis I've ever had the privilege to assemble.

Apart from the unique chassis design, one of the most significant improvements to the M18 PRO is the wheel mounting system. A touring car-type hex wheel hub mounting system holds a one-piece wheel which directly mounts to the wheel axle for maximum retention and accuracy of geometry with minimal slop in any

direction. A large alloy wheel nut means you can get a good purchase on it with the supplied wheel wrench to make sure you never lose a wheel mid race again. A light and secure answer to a constant source of aggravation for micro racers everywhere. Pre-mounted and trued foam tyres are included in the kit for maximum grip and great handling out of the box. Front 50sh tyres and rear 35sh tyres offer an optimal tyre combination for standard racing conditions to make the car easy to handle by edging towards understeer. For those looking for the ultimate combination of front and rear grip, an assortment of optional tyre compounds are also available. A harder 40sh rear tyre would give improved steering, as would the 45sh front foam at the expense of possibly higher tyre wear.

The new stiffer arms and reinforced steering blocks and uprights maintain the geometry settings accurately for a surgical driving experience. Combined with the long 150 mm wheelbase for improved stability, the improved front caster from 12° to 6° and decreased rear toe-in from 4° to just 2.5° make the car far more responsive than the earlier RTR versions. All the ultra-lightweight suspension parts are moulded from special composite material that makes the parts very light yet very durable to withstand the rigors of race day and 'attention' from fellow competitors. Adjustable down stops in the upper front arms and lower rear arms enable instant suspension droop fine tuning a breeze and these are easily accessible with the body off. The steering includes a spring-loaded servo saver, linked to your micro servo by a steel turnbuckle, with steering blocks featuring optimised, fixed Ackerman positions.

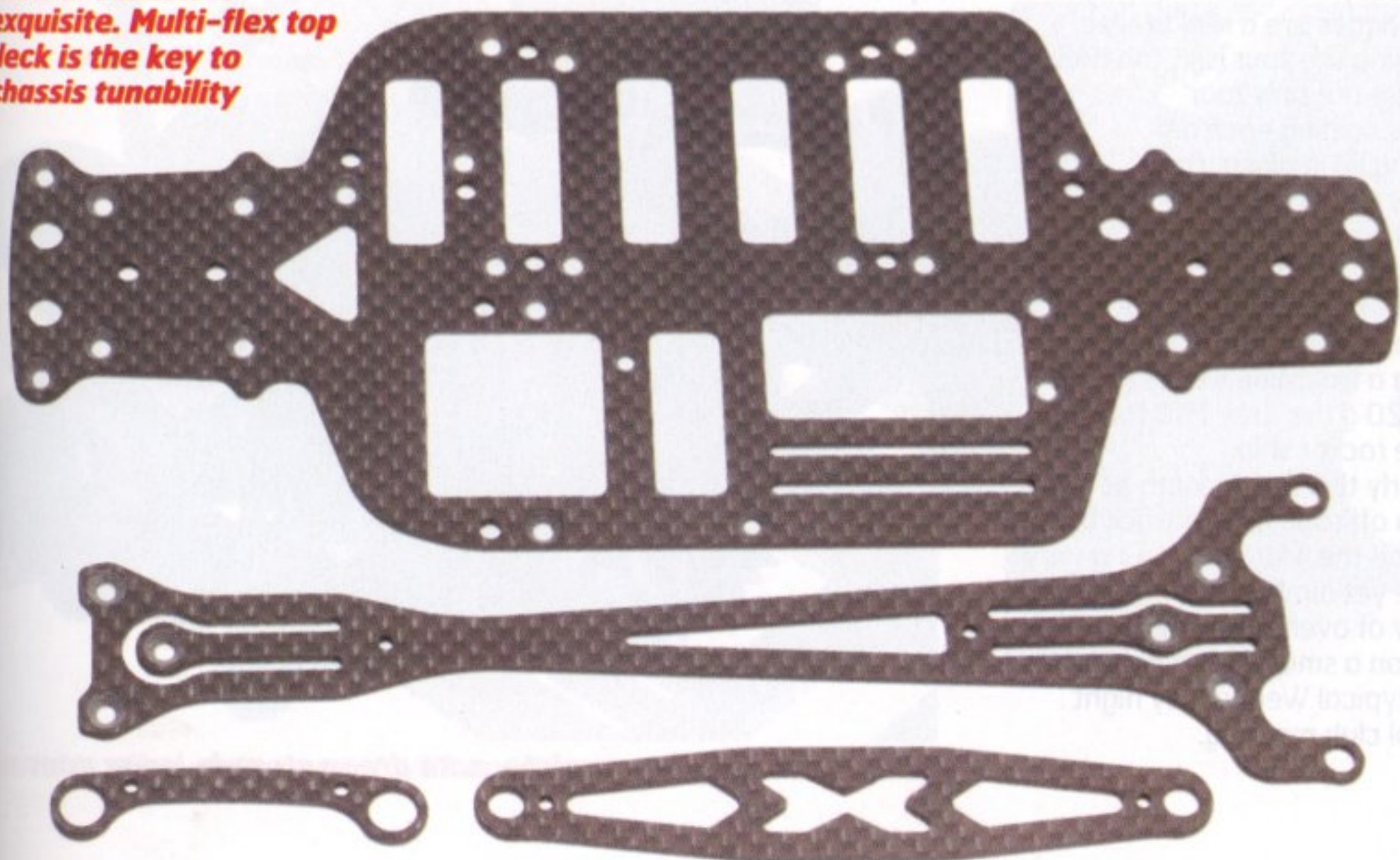
### ROLL ON

The ultra-efficient, fully ball-raced drive train from the M18 has been carried over to the M18 PRO. The inline aluminium main shaft drive shares power between the two ball diffs via an optimised internal ratio with a choice of lightened spurs and moulded pinions included in the kit to allow you to fine tune the overall gear ratio to suit the size of layout. The new ball-differentials are moulded from specially-mixed composite material which ensures longest life and minimal wear. The ball differential features high-precision steel diff balls, machined and polished diff rings, a small axial bearing, and supporting ball-bearings. The ball differentials are factory assembled and adjusted to ensure maximum efficiency right out of the box. The power from the drivetrain is transferred to the wheels through all new drive



**The damper units contain no oil, just wear the springs, and have alternate lower mountings in front and rear bumpers**

**Carbon chassis is exquisite. Multi-flex top deck is the key to chassis tunability**





**Kit foams are mounted to hex drive dish rims**



**Pre-built ball differentials slot straight into diff cases**



**Assemble the tiny drive shafts carefully**

shafts. The drive shafts consist of a universal pivoting shaft as well as the new hex wheel hub mounted at the end making it easier to assemble and maintain.

## POWER IT UP

With some 27 MHz radio gear installed, and the optional PRO power pack slotted into place, the tiny metal geared XMS01MG servo wears the servo saver, designed for the job, while the reversible ESC with simple one button set up and integral power switch handles the juice from the 1100 mAh NiMH batteries and feeds the 300-sized motor with a progressive and controlled source of power. The brakes are substantial and will need to be turned down to stop you over doing it when under pressure.

The motor screws to an adjustable Swiss 7075 T6 alloy motor mount so you can set the

perfect mesh for minimum rolling resistance and maximum efficiency. Two screws below the chassis allow easy access and quick pinion changes are a real breeze. Changing the spur isn't too tricky as there are only four screws holding each diff housing lid in place, so there's no excuse for muddling through race day on the gearing that's 'about right', you should be spot on every time.

With a trackside weight of just 420 g the Xray M18 Pro is a little rocket ship.

Nearly the same length as a 1/18th off road buggy/truck but just half the width makes it a very stable yet nimble machine with plenty of overtaking opportunities even on a small indoor circuit like your typical Wednesday night school club meeting.



**Bearings support all rotating components**

## WAR PAINT

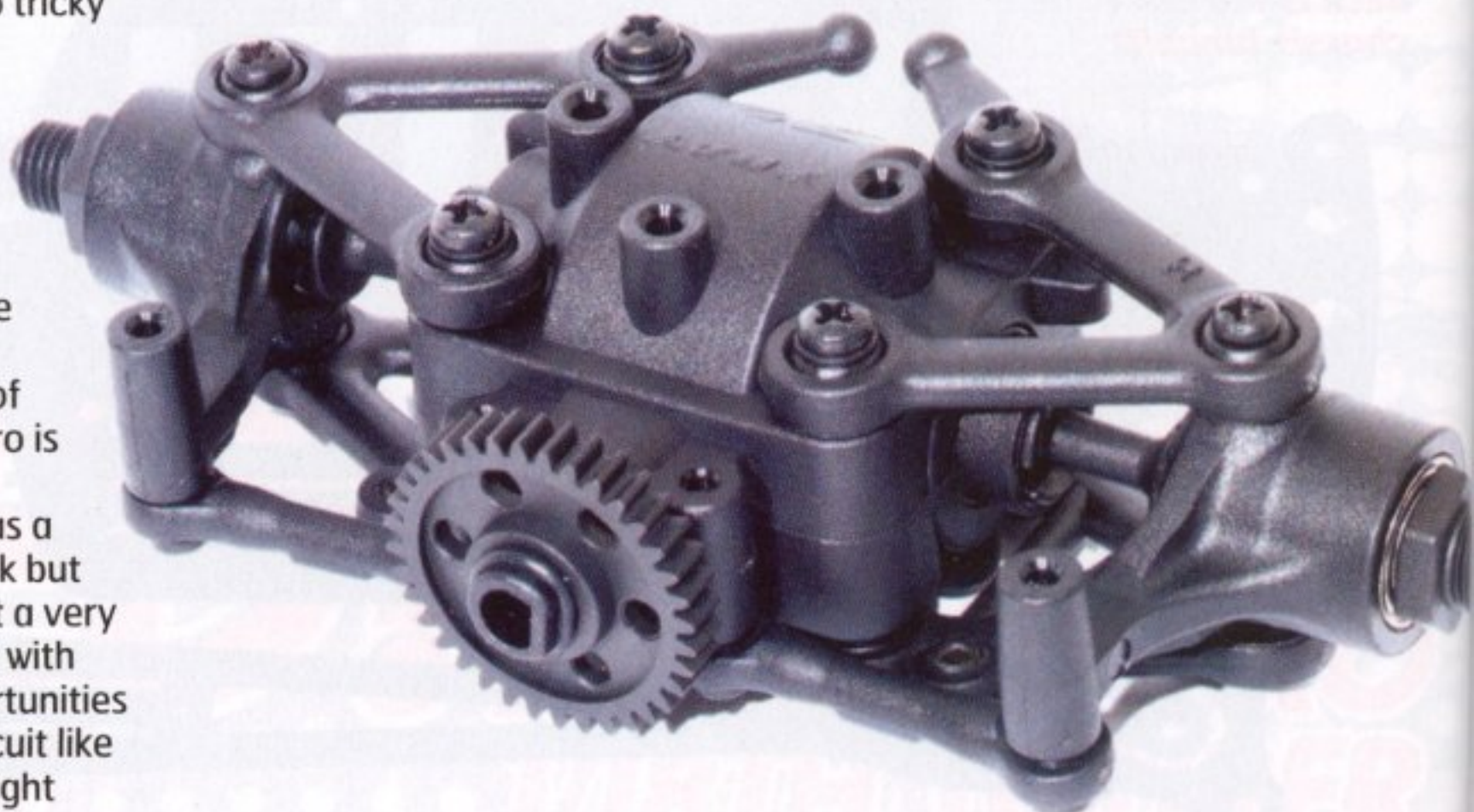
Terry did it again, even working on such a small canvas, he came up with a scheme to make me stand open mouthed, what a beauty. Thanks TelsShells, top job as always! To help protect he paint job I made sure to mount the bodyshell as tight as I could to the front bumper to keep the lexan from flexing in a shunt, and then cut the wheel arches out to suit. The compact and lightweight front foam bumper is manufactured to be supported by the front lower composite bumper moulded from rigid composite to withstand heavy crashes, while the front upper bumper brace is made from premium graphite material for extra bracing without a weight penalty. I found the front body posts worked out reasonably placed in the bonnet, but the rear body posts protrude out from beneath the rear wing which makes them very tricky to get at, and I ended up using long nose pliers to insert and remove the tiny circlips so I could change batteries on race day. I applied a cable tie to each clip and cut it short to act as a handle but even this unsightly mod didn't make them any easier to install or remove. There are several body options but the post position, whilst adjustable for height, are fixed on the upper chassis plate. I will have to see whether the Supra, Lago, or 956 offer any benefit in downforce or bodypost circlip access to ease my race day chore.

The front bumper has moulded cups as lower shock mount positions, so changing the shock angle is a simple process, flick it across with a thin hex driver or flat screw driver and try different shock settings to see what benefit the change of angle and hence spring rate have to offer. As they contain no oil they can't be called shocks, but with such a light vehicle the oil would have to be so very light as to render it redundant anyway. The light springs suspend the car beautifully and ensure great handling of the car in any racing conditions. The rear shocks have similar choice of shock angle by virtue of cup positions in the rear bumper plate.

## TRACKSIDE

I joined the D&D Models meeting at a Leamington High School where a predominantly off road 1/18th meeting takes place every Wednesday night. The M18 stood out among all the open wheeler buggy and trucks hence attracted a lot of attention, not due to its looks but by virtue of its sheer speed, putting up a good fight with the stock 300 motor against much higher spec brushed and brushless systems in the heavier buggies. Power to weight ratio rules OK.

Geared on 32 spur and 19-tooth pinion it was spot on the money as I had just enough top speed by the end of the main straight and yet sufficient acceleration out of the tightest bends, so I'd say that was optimal for the 300 motor when



**Rear sub assembly complete, note droop stops in lower arms**

running at such a small venue.

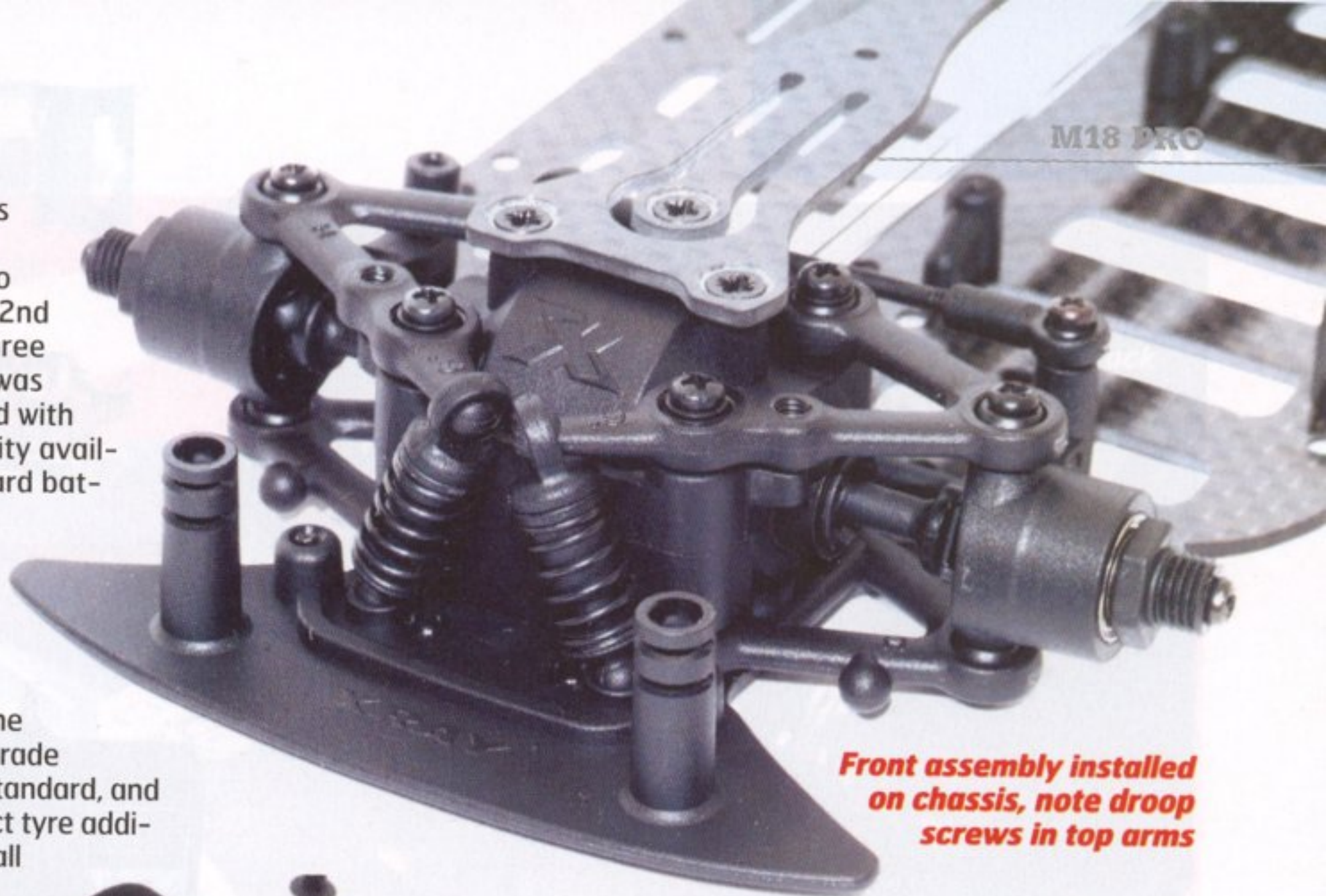
For the first round I ran the car with all top deck screws secure, stiff front and rear and the car was planted but surprisingly under steering slightly. I came off having used just 500 mAh of the battery pack in the 5 minute run, and put in a best lap of 12.6 secs.

For the second round I went out with the front two outer screws backed off for a softer front end, and sure enough I had plenty more steering than before and the cornering was much improved. As a consequence I used more battery power than before, sapping 700 mAh from the battery pack but still safely within the usable range of the 1100 mAh capacity. I posted a fastest lap of 11.0 secs which reflected the improved front corner entry bite. For the third round I went out with soft front and back set up but the increase of rear grip brought about a degree of understeer returning. My best lap was still a respectable 11.1 sec and I

amount of time I was on the power compared to the first two runs. I had qualified 2nd over all out of the three heats of 1/18th and was more than impressed with the speed and stability available from the standard battery pack and speedo.

I would like to try the optional tyres available to see if they offered any improvements over the particularly hard 50 grade fronts that came as standard, and maybe see what effect tyre additives had on the overall handling, despite the narrow chassis I hadn't been anywhere near grip rolling just yet, so I knew there was more to come.

Having seen



**Front assembly installed on chassis, note droop screws in top arms**

**Ready for radio, battery posts can accommodate stick pack or side by side cells**

### BACK FOR MORE

I went back the following week, but this time with some better radio gear installed so I could dial it in better. With my DX3 Spektrum transmitter controlling the M18 PRO via a Micro Spektrum receiver I not only saved weight, gained cooling improvement by virtue of the extras under shell space allowing more air circulation, which combined with the attached motor heat sink kept the whole power system running much cooler. I was able to alter steering dual rates with the thumb switch and select a brake end point during a couple of warm up laps. I turned down the brake end point on my transmitter to just 30% as the deceleration had been a bit too abrupt and difficult to judge, and the improvements at corner entry paid dividends which materialised as improved lap times. I set the chassis to front soft, rear stiff and used additives on the tyres and the results were much more consistent. The extra

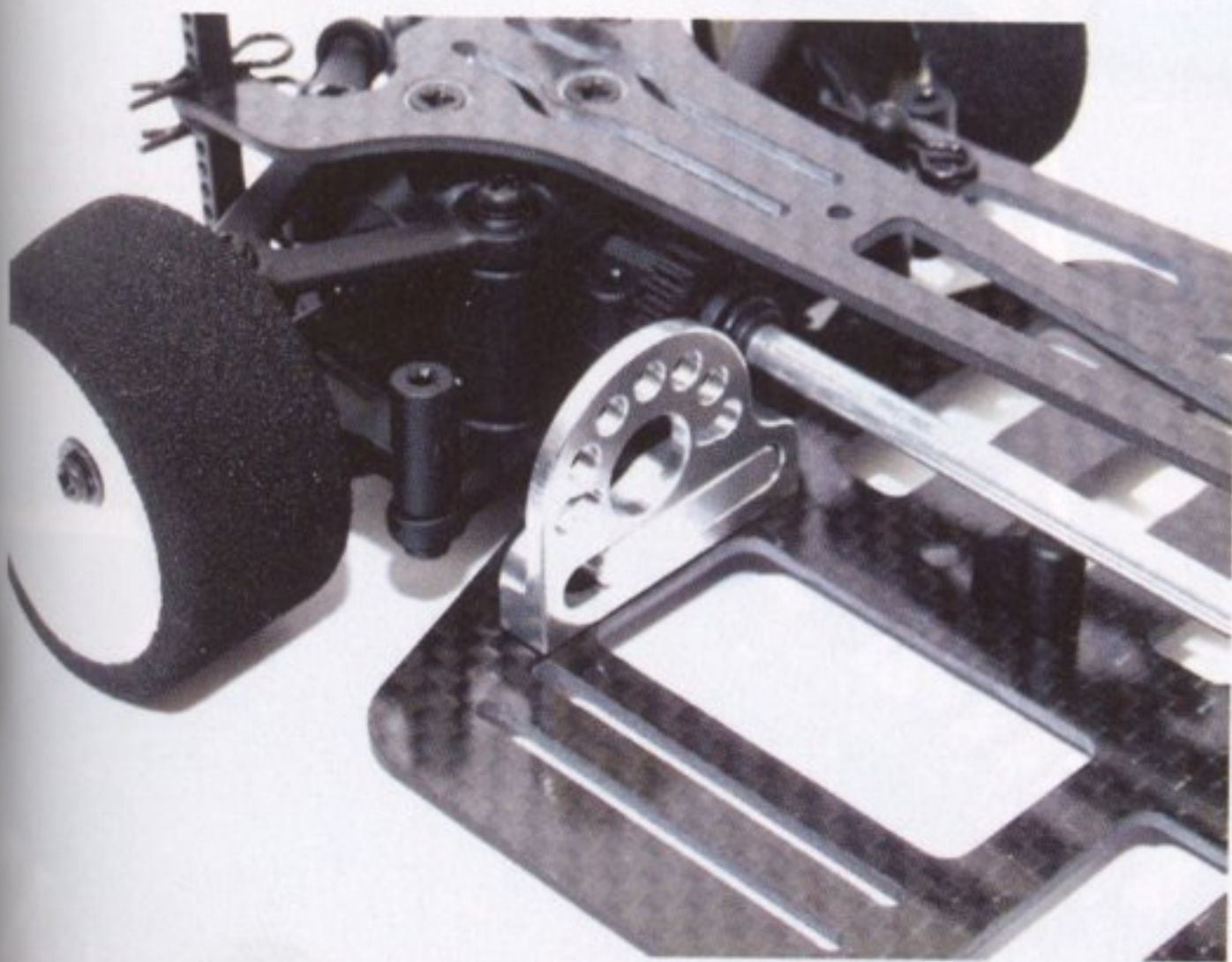
whereas a stronger, lighter, simpler micro would give more thrills and make the track feel so much more open and flowing by virtue of its scale.

For the final I tightened all 6 upper deck screws and then backed them all off quarter of a turn. The whole chassis now flexed in every direction, surely as much grip to offer as physically possible. I had the best run of the night, knocking 6 seconds off the overall 5 minute time. The car was dialed and predictable, but you shouldn't have to run the chassis this loose to generate grip, it's a sure sign that the kit tyres were too hard for the conditions, without additive.

two heats of 1/10th touring cars struggling around the same course I had been enjoying with the 1/18th M18 PRO it

begged the question, why does anyone still run 1/10th indoors at such club meetings when they could have more fun with a smaller scale? Particularly the youngsters just learning the ropes, as a 1/10th car is a real handful around such a tortuously tight layout

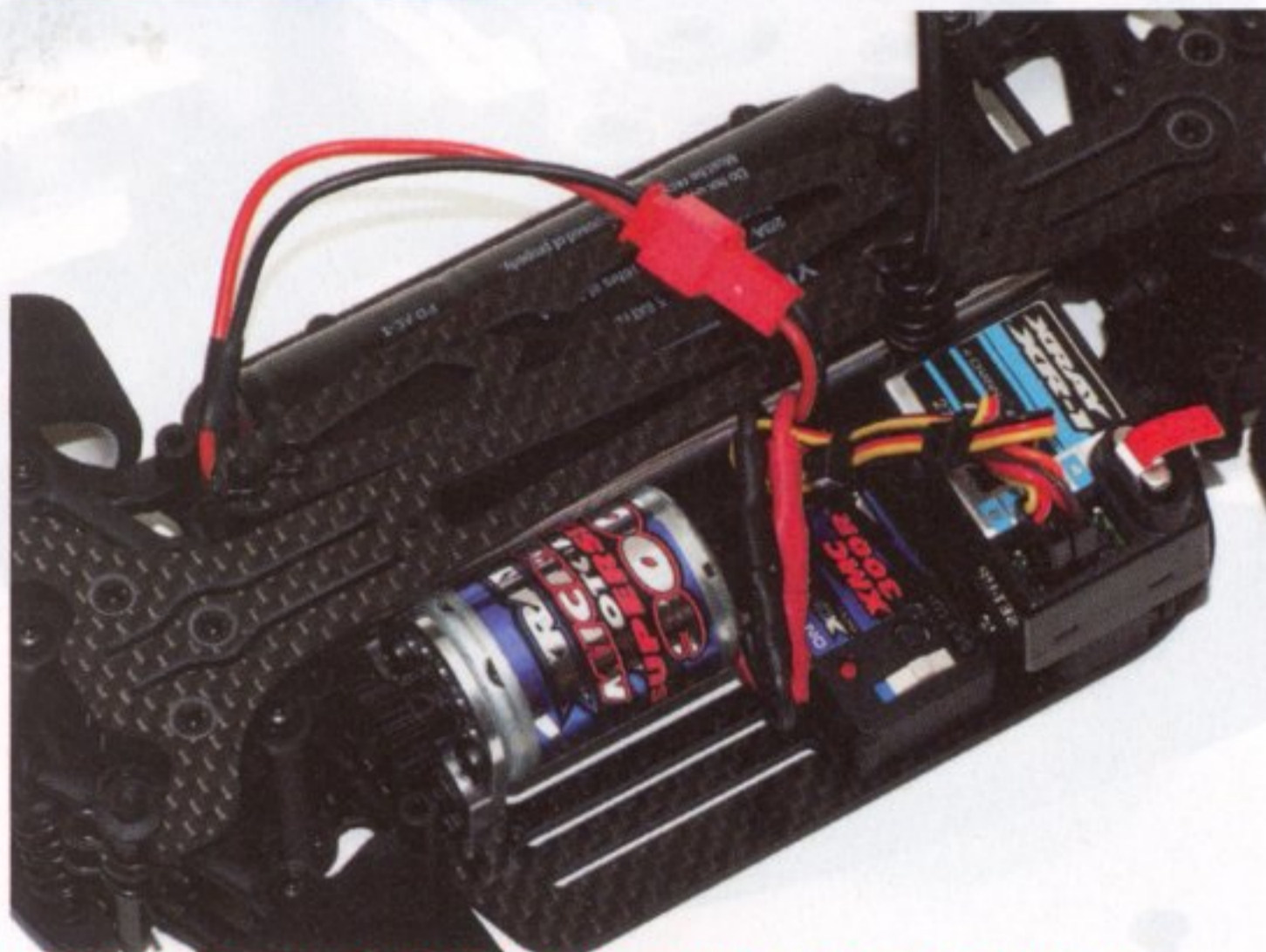
had many more laps under the 12 sec margin so my consistency had improved. Grip had improved all round and despite the slight understeer the improved rear grip had meant more predictable power on characteristics. This time I'd used just over 900 mAh from the pack which reflected the



**Adjustable alloy motor mount with cooling slots below**



**Wheel spanner is supplied for unique hex drive mounting**



**Even with standard size receiver installed there is room for everything**

grip meant I could concentrate on my lines and with the combined speed, drivability and strength of the M18 PRO I was able to take FTD with zero maintenance or tuning, though I did slacken off all the droop screws to increase the ride height a little when I figured out why the car was taking such a twitch over a certain corner. It turned out the wires running under the carpet for the AMB loop are enough to upset the little car, where a 1/10th would just soak it up. Top Tip, for 1/18th use a bridge loop!

A full range of spare and options parts are listed on the Xray website, including a roll over front diff, alloy hubs, alloy drive shafts, adjustable toe links front and rear, and nickel plated pivot balls for a longer lasting suspension solution, in fact everything you could wish for so you can take your M18 PRO to the limit.

The Xray M18 PRO may be small in scale, but has a huge specification and just shouts its intentions for all to hear. I'm hear to win, catch me if you can. **RCI**



**The optional power pack has everything you need to get going**



**The XT1 and XR1 27 MHz radio set dwarfs the final assembled vehicle**



**TelsShells roll out another winner, the effort is totally justified on the M18 PRO**

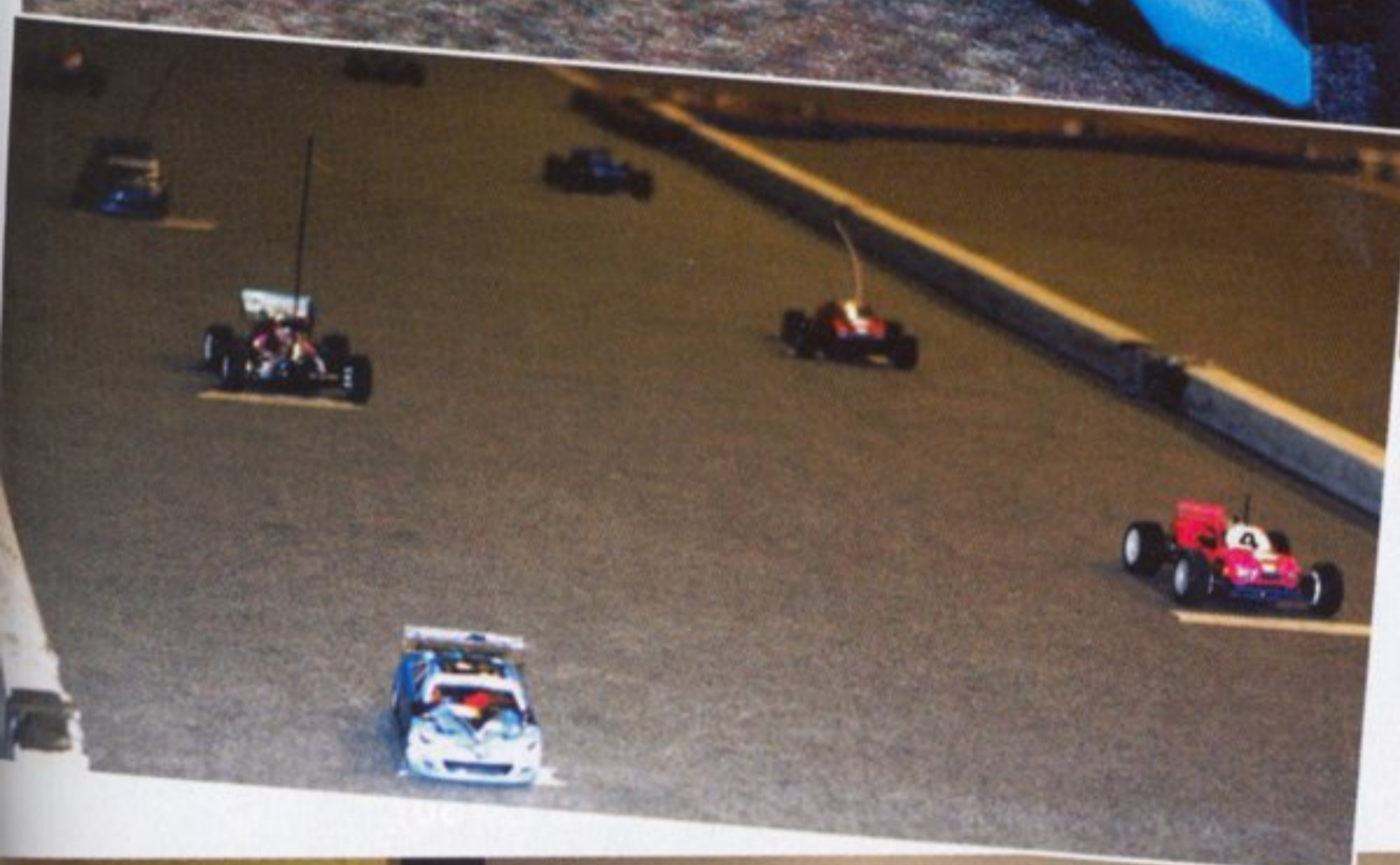


**Rear end set soft, screws are exaggerated, only need a quarter turn**



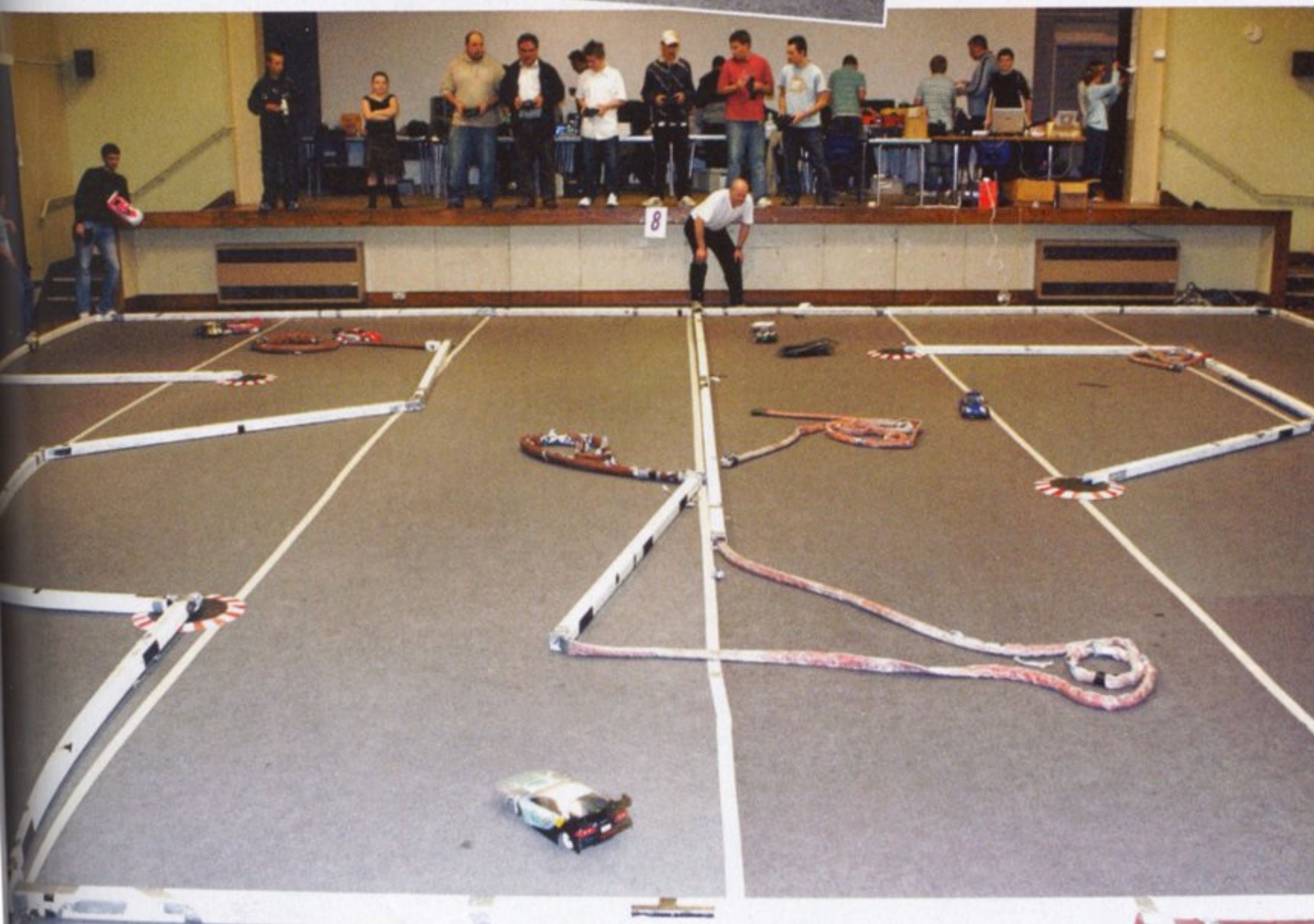
**Rear end set stiff, all three screws down tight**

*Smaller 1/18th make so much more sense on a smaller track*



*On pole in the 'A' Final, power to weight ratio is king!*

*Wednesday night warriors still trying to get 1/10th around such a small venue*



## quick spec

**Class:** 1/18th 4WD Micro Touring

**Type:** Self assembly chassis kit

**Manufacturer:** Xray

**Price:** £124.99 RRP

### REQUIRED AND RECOMMENDED

Radio system: Xray XT-1 27 MHz

Tx Batteries: GP2700 NiMH AA

Lexan Paint: TelsShells.

Motor: 7.2 V battery,

Speed Controller: 86511 Power Pack

PRO all in £79.99 RRP

### DISLIKES

Kit front tyres are very hard  
Hard to reach rear body clips under wing

### LIKES

Quality of components  
Swift build process  
Pre-built ball diffs  
Speed, handling and performance  
Easy to dial a tune with 'Multi-Flex'

### CONTACT

For more information contact Mirage RC Enterprises, Telephone 01283 226570 or visit [www.mirageracing.com](http://www.mirageracing.com) and [www.teamxray.com](http://www.teamxray.com)