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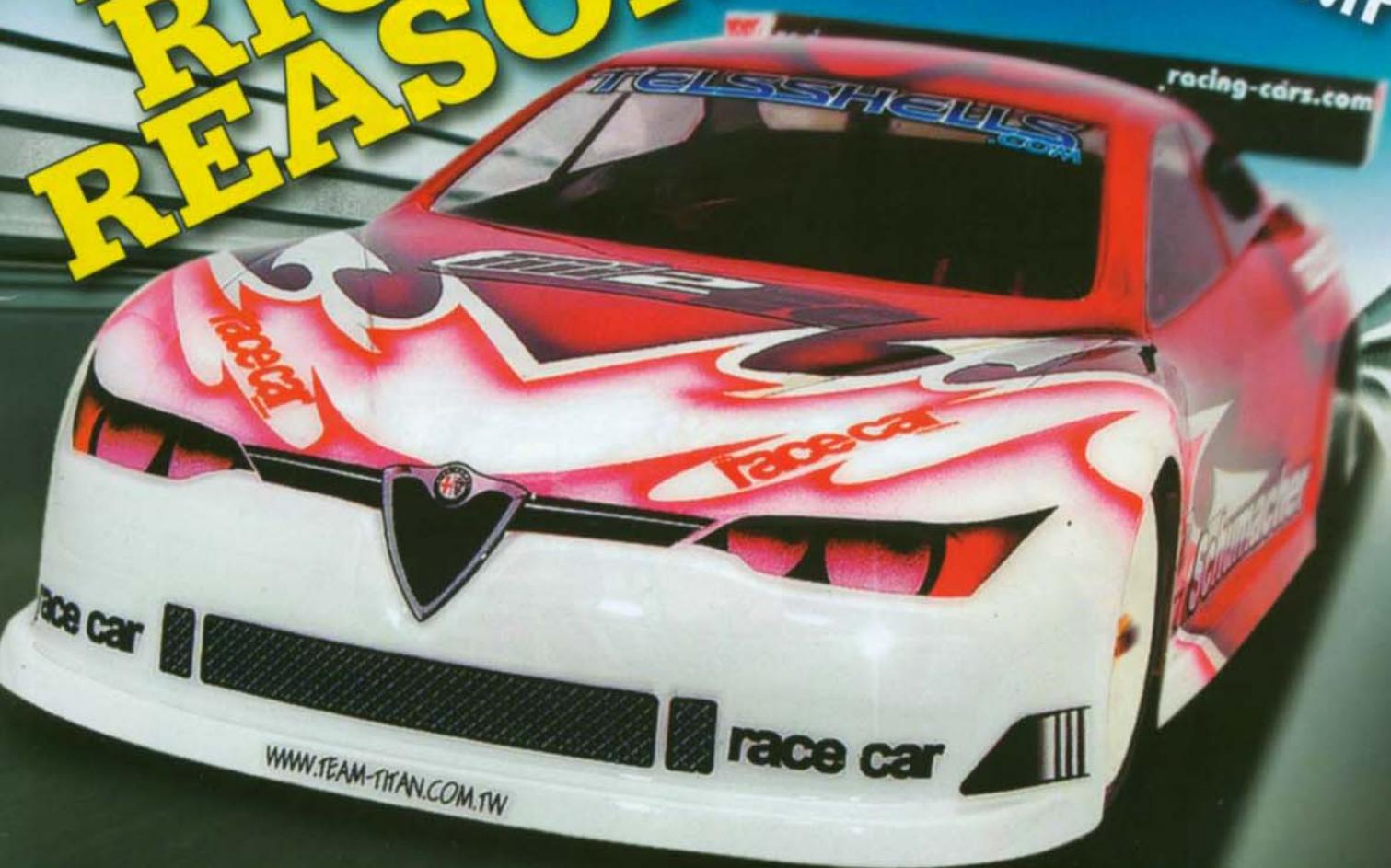
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# ALL THE RIGHT REASONS

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## MICRO NITRO - IS IT YOU? WHO WON THE XRAY NT18 COMPETITION?

## COMING RIGHT UP BTCC & EURO CUP SEASON PREVIEWS

## "HOW TOO..." DIFFS EXPLAINED

## 9 RACE REPORTS 9 REVIEWS





**TEXT:** Dez Chand  
**PICTURES:** Dez Chand

# SMALL AND JUICY

The NT18 Micro Nitro Is Latest Fruit To Fall From The XRAY's Tree

**S**ome lucky punter is going to walk off with a Micro Nitro NT18, so let's have a look at what made so many of you enter our free competition!

## COME ON HEAR THE NOISE

It has to be said, your eyes are immediately drawn to the engine, it's all about the engine! The M18 is a great little car, a race thoroughbred in every respect, but the little nitro motor in the NT18 is a jewel. The XRAY .05 Glow engine was stripped and inspected for you here, I measured a bore of 10.4 mm and a stroke of 9.66 mm, so you actually get a real 0.05 cubic inch, or 0.85 cc engine. Wow it's hard to imagine an engine so small making this much power!

Please note, that with no pull or roto-start, you will need to build the smallest bump box you can imagine or purchase the dedicated HUDY starter box from your nearest dealer (RRP £59) in order to get it fired up! You can try wrapping string around the crankshaft if you like, and waste several hours trying to do it the hard way, but don't say I didn't warn you!

Should you ever need to disassemble the engine, you'll find the cylinder liner isn't pegged to the

crankcase, so you'll have to pay careful attention to the small notch in the top lip that needs to point exactly forwards to line up the exhaust and transfer ports correctly with the bypass channels in the cast cylinder block.

The piston has a small notch in the skirt on one side which indicates the direction of its connection to the crankshaft, this notch needs to clear the counterbalance so be careful if removing and replacing the con rod and piston. Turn the motor over gently after rebuilding to make sure it clears; if it locks you have the piston in backwards.

The exhaust port is sealed to the manifold by an alloy gasket, a much tighter gas seal than a fibre gasket, over such a small distance a fibre gasket wouldn't cope so well.

The clutch bell rotates very freely on its twin ball-races and is retained to the crankshaft by a single circlip. The clutch is a true twin shoe centrifugal spring loaded clutch, little alloy shoes are retained by very soft hair

*Quality components, micro size*



springs, which will allow an early bite point required due to the very low weight of the clutch shoes themselves.

Removing the cooling cylinder head will offer better access to the engine mount screws, allowing you to use the supplied Philips screwdriver in an almost direct line for a better tightening and less chance of rounded the heads off.

The alloy engine mounts have a couple of milled grooves running across them, these should face down towards the chassis, they afford the mounting screws a little more recess so that they miss the road beneath and remain serviceable.

Having a true slide carb will enable a much more accurate carb setting than a cheaper rotary carb, so once again XRAY prove that they refuse to cut corners, always ensuring you get the Rolls Royce treatment. I found that rotating the carb end fixing to 90 degrees, and drop-

ping the linkages under the servo horn I got a much better installation, giving more clearance to the bodysell when at full throttle, keeping your paint job tidier for longer and negating the need to cut yet another orifice in the already minuscule shell.

## DRIVE LINE LIKE A SWISS WATCH

Building the diffs requires some dexterity, the planetary gears are minute, and getting all four aligned in their spur is fiddly, so take your time. Once assembled with main bearings and output over cups in place the diffs and their input shafts drop neatly into the cases with a real feeling of accuracy, they don't need shimming, they fit perfectly. I had to trim a little flashing from the lip of the output cup re-inforcement rings; they rotate with the diff obviously and were catching the diff cases. Be sure they are smooth

*Pivot Balls A, B and C, don't get them mixed up!*





The orifices required to clear are substantial



Here you can see just how much of Terry's hard work is missing

all the way around before continuing with the build, you wouldn't want any restriction in a system this tiny.

### DIAL-A-FLEX CHASSIS

The main chassis plate has large sips cuts either side of the front gearbox mount to induce more chassis flex and generate grip as a consequence. The amount of flex and roll is controlled by a cross-link that has an 'O' ring captive between the centre point and the chassis. By adjusting the clamping force of the centre screw you can affect torsional stiffness and hence handling by altering the balance of grip front to rear.

Suspension ball pivots are divided into two groups, 'A' and 'B', denoted by 'A' having a shoulder that 'B' is missing. All the 'B' fitments are on the outboard end

while the 'A' fit to the inboard pivots. The instructions are specific in this respect, with a close up picture of each ball type so you have no excuses for building it wrong.

The usual high quality, clear and specific instructions, come in the form of the XRAY glossy booklet, which will be useful to keep in good condition to help when it comes to serving and maintenance.

Fitting both arms to the hub carriers then inserting the UJ driveshaft and screwing into the wheel carriers is the simplest method, before attaching the arms to the gearboxes, making the installation a lot less fiddly, because you have to find the flat on the driveshaft 'D' section to slide into the wheel carrier stub axle that protrudes through both ball bearings.

In side profile the engine and tank look enormous



'Tels Shells' have worked miracles on our Micro Nitro

At the rear on the lower arms, and likewise at the front but in the upper arms, is an orifice into which a top hat bung is inserted. This acts as a bump stop, limiting the suspension movement drastically, keeping the chassis from touching the deck on full bump in an attempt to keep the wheels doing all the work instead of inducing a drift action when the alloy chassis plates touches down. Be sure to insert these into the arms before assembly as they are impossible to insert once the front and rear drive sub assemblies are complete.

A racing tip is to remove these bump stops and replace with 3 mm grub screws so you have an adjustable droop setting to fine tune the handling.

The wheel carriers are wider at the rear so be sure to assemble them in the correct locations. Each wheel carrier has a double mounting position, so you can stretch the wheel track width for more stable handling, simply by sliding the tyres off and rotating 60 degrees and reinstalling.

Assembling the brake calliper is a simple job. Adhere the brake material to each metal pad with CA adhesive, and while that's setting knock the two pins into the calliper housing that the pads will slide upon, making sure they travel to a flush condition with the back of the moulded housing. Slide the pads onto the pins facing each other ready to accept the brake disc, and then insert the activation cam through the housing, which is a little tight but is the only retention the pads have to keep them located, so the close fit is essential.



The brake caliper sports Ferodo pads...



...but you have to glue them on yourself

The assembly mounts to the chassis by two small screws, the housing curving around the propshaft upon which the brake disc is mounted on a 'D' fitment.

There is a noticeable amount of fore and aft free motion in the prop, which is necessary due to the amount of chassis flex built in. An upper brace links the centre of the chassis plate to the top of the front diff housing, allowing the chassis to twist but not to flex lengthways.

The four spring mounts (I can't call them shock absorbers because they contain no oil nor friction device), mount via ball cups in the front and rear bumper mounts. The suspension has to be ultra light to support the miniscule mass of the NT18, so if oil filled shocks were fitted they'd have to have a 0.5 weight



**T6 7075 CNC milled and as precise as everything XRAY**

**Fully Ball-raced for high speed and precision running**



**A proper little alloy clutch and enormous pinion on clutch bell**



oil or similar and it just isn't worth trying. All four shocks are identical but the fronts have a small pre-load spacer to give the front a firmer ride and induce a little understeer to improve stability at speed. The shock lower mounts have a choice of two positions, and changing between them is as simple as gripping the shock lower with a pair of needle nose pliers, pushing it up and across into the other cup.

Foam tyres come pre-mounted and trued, noticeably a firmer compound on the narrower fronts than the softer rears, again pushing towards a steady understeer condition for a smoother more predictable drive.

The radio tray is assembled separately, both supplied metal



**Enormous polished alloy silencer**

geared servos mount in specified locations, the steering mounts incorporating the aerial base. With the servos installed and throttle/brake linkages connected, all that remains is to install the 4-cell 700mAh NiMH receiver battery pack with two cable ties through the chassis plate and then choose a receiver and transmitter, the only part of the kit that isn't included.

A regular sized receiver can be accommodated, snugly between receiver pack and steering servo, which is great news. We used a 27 MHz Xray XT1 radio set and receiver pack that was perfectly suited for the job, and having four channels meant I had a spare slot for my PT, no way I'd spoil this little model with a bulky handout transponder!

Mounting the tiny fuel tank on its three 'O' ring bases, from underneath with 6 mm self tapping screws, you can't but wonder

just how little fuel the engine must use whilst running. With such a small capacity on board the economy must be amazing, especially considering it has a claimed top speed of over 50 kmh.

**SMALL BUT PERFECTLY FORMED**

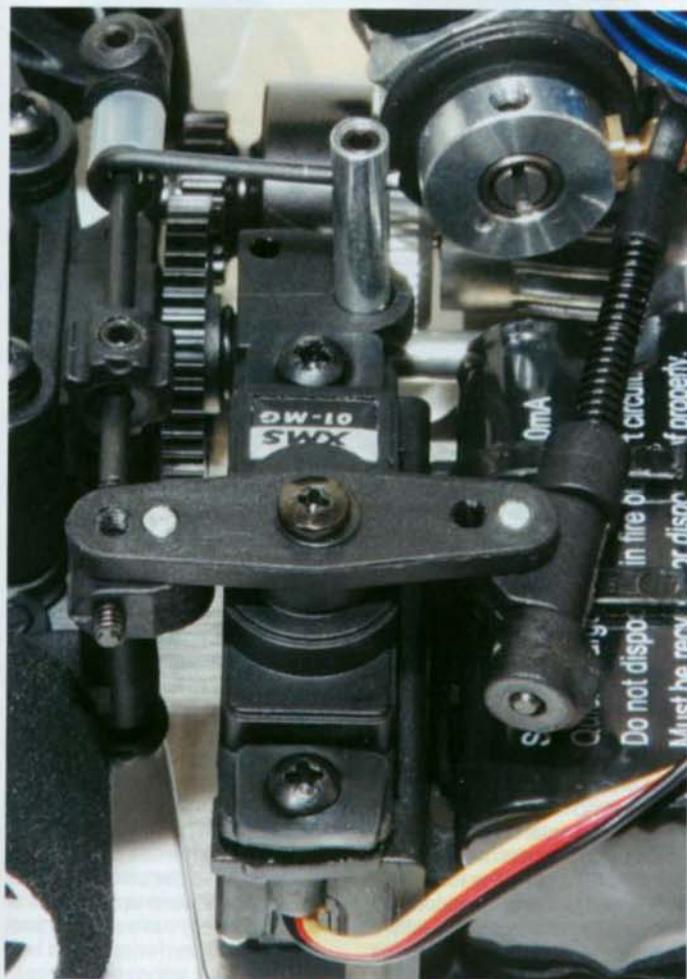
Such a small bodyshell is hard to make look dramatic, my fingers are just too big to make a decent job of it so I enrolled Terry of 'Tels Shells' and he's surpassed himself to produce a fabulous colour scheme well in tune with the nitro theme. What a marvellous job, isn't she a beauty!

The beautiful little Ferrari F360 bodyshell is assisted by an over-size rear wing, which I've cut purposely long and high for extra grip at high speeds. I can always cut it shorter should I find it pushes too hard. It seems a

**Two sides of the coin, note proper slide carb but no pull or roto-start**



**Nothing to hide, a real Swiss watch**



**Drop the linkages and rotate the carb end for more clearance**

shame that I now have to cut lots of holes in Terry's hard work, but the air filter needs clearance in the rear windscreen, the main jet right next to it may as well use the same orifice simply elongated. The fuel tank needs an access through the windscreen, a hole for the cylinder head heat sink needs cutting into the roof and the exhaust must exit through the left door. Use a dremel and do it tidily, before applying a choice from the decal sheet that also includes the "brake discs" decals to apply to the wheel hubs for that extra touch of realism.

Choose the smallest logos you can and help the car feel bigger, go slapping massive stickers all over it and the NT18 will soon disappear!

I found the exhaust was too close to the paintwork, and wanting to keep it in good condition for as long as possible I sourced some heat deflection tape from HPI (Pt No. HP9009) and that seemed to sort the problem and saved Terry's artwork. The Mazda bodyshell and all subsequent XRAY body releases will incorporate a better clearance to the exhaust for sure.



**This version comes with the power pack, and metal geared servos no less**



**In a word, snug. 4-channel XRAY XR1 receiver just fits nicely**

The optional dedicated HUDY starter box is a little gem, containing a single 540 motor and belt driven flywheel, it just requires a fully charged, single 7.2 v stick pack to get it started. The chassis locator pegs came readily aligned for my NT18, which was amazing, I expected to mess about with it for half an hour but no, straight on and perfectly aligned for that all important, highly exciting, first fire up!

The carb came supplied with 1 3/4 turns out on the main, 3 3/4 out on the slow jet, just under flush. Tick-over is hard to judge, but approximately 2 1/2 turns in from

initial contact with the carb slide. Being sure to oil the air filter before ever starting the engine, XRAY thoughtfully provide a clear white bottle of filter oil, specifically for this purpose. Be sure to wash the filter and re-oil regularly, such tiny components will demand ultimate cleanliness to provide a long operating life cycle.

So let's fire it up and see what it's like, running it in carefully of course, as slow revving as possible, with as rich a mixture as it'll drink without choking. Bursting into life on the starter box, I immediately reduced tick-over



**Kit fully built, showing tidy layout**



**Servos installed on radio plate, easily removed for cleaning**



**Fully assembled rear end, note two sets of wheel attachment slots to alter track width**



**Simple shocks have two positions for balancing the handling**



**Cross link under diff input joins steering together, chassis brace limits flex**



**Trued and glued, foam tyres for ultimate performance**

by first a quarter turn, then to a half turn out from box settings, bringing tick-over down to a sensible level.

It may be small but boy is it loud and livid! Running 16% Tornado fuel suits it best, and once half a tank had been consumed and the engine started to free up a little the revs crept up predictably. Turning the tick-over out yet a further 1/4 turn to now 3/4 out from stock setting, dropped the revs, but richening the tick-over mixture by a quarter also dropped the revs and temperature to a sensible 120°F, and the tank of fuel lasted just over 10 minutes. Allowing the engine to cool fully, I ran another tank through like this, followed by another. Being such a small tank it is hard to judge the running in time, so I'm doing it purely on the stop watch, heading for a half hour tick-over with the occasional blip to clear the pipe of drizzle to be nice and kind to the internals before going out for a first thrash test.

The next tank full I turned the tick-over screw back in to stock settings, lifting the revs slightly, a cleaner engine note resulted, and the temp sat around 150°F throughout.

Another tank full and I'm off to the local car park for some gentle trundling, body off, while I get the final run in procedure finished over a couple more tanks, gradually leaning and fine tuning the

crab for a clean crisp response without overheating.

The final carb settings worked out to be pretty much as supplied, which shows the XRAY flow bench is accurately set up. They have done all the hard work for you and supplied the engine ready to race, just be sure to log any changes you make so you have a base setting to come back to.

The Hudy starter box really is a top bit of kit, it revs the engine higher than the tick-over so is real keen to start, which is surprising from just the one battery pack. More so the box makes a lovely stable warm up platform, preventing any run away incidents while the engine is run in, and in future while it warms up prior to

**Our chosen radio gear, the XRAY XT1 27 MHz set**





The Hudy starter box...



...Just one battery pack but plenty of punch...



...and fits the car a treat, right out of the box, wheels clear to spin

each run. The locator pegs do a fabulous job of clenching the chassis plate, no way for it to jump off or wriggle free with help from the engine vibrations, there's just no escape.

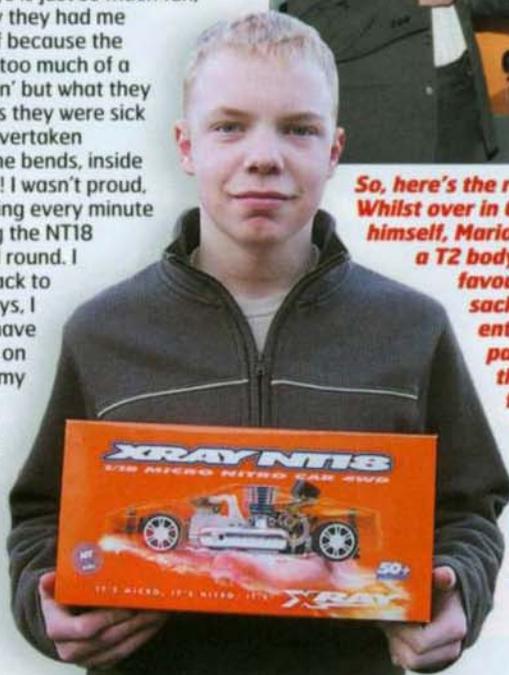
With all four wheels free to rotate it has also given the diffs and their pinions a chance to bed in, off load and free of stress, taking off the high points as the engine occasionally reaches enough revs to grab the clutch and spin the wheels feverishly. This can only be a good thing, a smoother drive-line will not only run freer, faster, but also survive the rigours of performance driving, as the high spots removed can't cause any vibrations or rhythmic knotchiness.

So what's it like to drive? Crazy in a word, this thing is way too fast for its own good! A race track looks huge when you are used to seeing 1/10th and 1/8th cars struggling to find room to pass each other. You could run a grid of twenty NT18's and still have room for a clean pass! On the gas the car pushes predictably, the foam tyres scrabbling for grip but the lack of weight just can't supply any ballast. As you turn in and come off the gas it gradually leans towards oversteer allowing

a good sharp entry to corners and some quite stunning lap times, enough to shock a few 1/10 th boys into trying harder.

As the car is so small the track feels much less tight and twisty, more of a motorway than the country lane you are used too, allowing nice sweeping lines through corners where larger cars need to dab the brakes to get it turned in. Harassing the bigger boys is just so much fun, eventually they had me thrown off because the NT18 was too much of a 'distraction' but what they meant was they were sick of being overtaken through the bends, inside or outside! I wasn't proud, just enjoying every minute of blasting the NT18 round and round. I left the track to the big boys, I guess I'll have to go pick on someone my own size from now on! Who's coming out to play?

RRCI



## quick spec

**CLASS:** 1/18th Micro Nitro Touring Car  
**TYPE:** Self Assembly Kit (with Power pack)  
**MANUFACTURER:** XRAY  
**PRICE:** £179.99 Chassis kit only (without electrics)  
 £219.99 Chassis kit with power pack (no receiver or transmitter)  
 £59 (Optional) Hudy Micro Start Box

### WHAT YOU GET

Full Rolling Chassis Kit, 4WD, Shaft Driven, .05 (0.85 cc) Side Exhaust 2-Stroke Glow Engine, Polished Alloy Exhaust Silencer with Integral Manifold, 30 cc Fuel Tank, Steering Servo, Throttle Servo, Receiver Pack, Alloy Propshaft, Gear Differentials, Fully Ball-raced, Swiss T6 7075 Alloy Chassis, Double Wishbone Suspension, Inboard Coil Over Friction Dampers, Adjustable Motor Mount, UJ Driveshafts, Mounted and Trued Foam Tyres, Ten Spoke Wheels, Clear Lexan Ferrari 360 Modena Bodyshell

### WHAT YOU NEED

- Radio Tx Rx
- Fuel
- Glow Starter
- Starter Box

### WHAT WE USED

- XRAY XT1/XR1 27 MHz
- Tornado 16%
- C Cell Glow Starter HB62507
- HUDY 1/18th Micro Start Box

### LIKES

- ✓ Quality of components and literature
- ✓ Simplicity of build
- ✓ Outrageous speed, 50 kmh+
- ✓ 10/10 'Must Have' gadget factor
- ✓ Jewel-like .05 (0.85 cc) engine
- ✓ Ease of starting

### DISLIKES

- ✗ Proximity of exhaust to bodyshell
- ✗ Having to cut away so much beautiful bodyshell to clear power plant

### CONTACT DETAILS

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

## COMPETITION WINNER!



So, here's the result of our XRAY NT18 competition. Whilst over in Germany for the Toy Fair, I had Mr XRAY himself, Mario Hudy and Brano Bulko pick a winner from a T2 bodyshell containing our top 30 hand picked favourite tie breakers selected from literally sacks full of mail and hundreds of correct entries. And the winner is... Chris Lovey, a paperboy from Louth, Lincolnshire. You are the lucky winner of an awesome micro nitro from XRAY, well done.

Chris's tie-breaker was "Radio Race Car International is my best buy of the month because... "once you pick it up, you can't put it down." Congratulations to you Chris, I hope you have many happy hours blasting the XRAY NT18