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THE RADIO CONTROL CAR MAGAZINE

APRIL 2002

A TEAM LOSI FRANCIS EDITION TRUCK! WIN page 106

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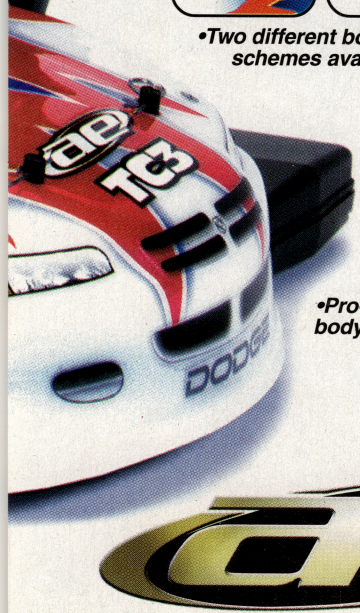

•Pro-Line Stratus body, painted and trimmed

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THE RADIO CONTROL CAR MAGAZINE
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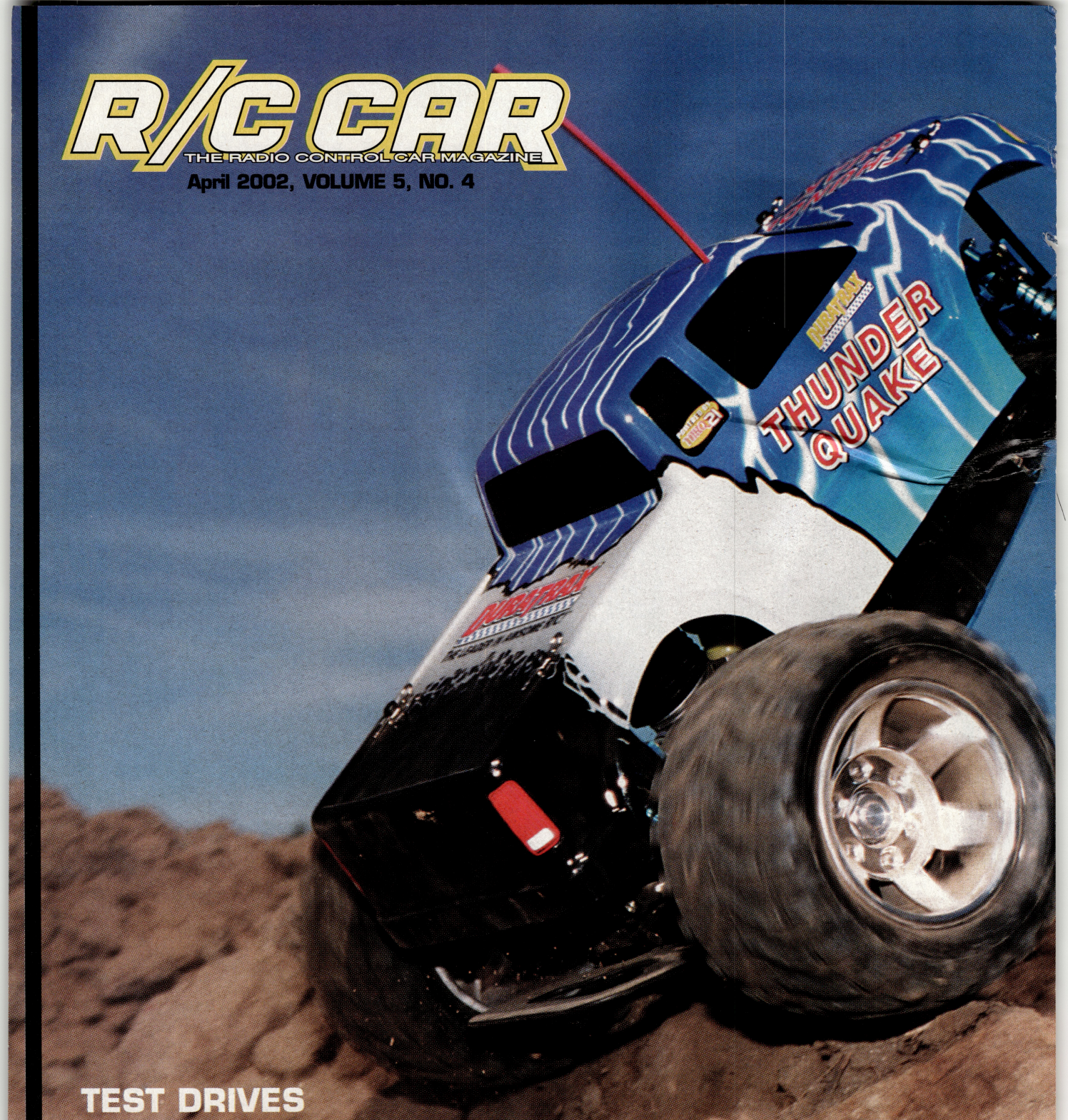

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On the cover: Associated's Nitro TC3 looks to take on all comers! Can the DuraTrax Thunder Quake or the Tamiya Terra Crusher bring it to the T-Maxx?
On this page: The Thunder Quake climbs some hills at R/C Car's secret test facility.



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THE RADIO CONTROL CAR MAGAZINE

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SMALL SIZE, HUGE PERFORMANCE!

Team Orion leads the way in developing new and innovative products for what is set to be one of the most popular cars ever released - the HPI Micro RS4. These new and innovative products are the result of over 15 years of experience in the electric motor, battery and electronics fields. Team Orion continues to make good things better!

Micro graphics

Team Orion Micro Graphics are Thunder Designs Internal Graphic Sets that have been re-sized to fit 1/18 - 1/24 scale models plus they look great on 1/10 scale off-road buggy and 1/12 scale bodies. Cool bodies have never been easier than with Thunder Designs Internal Graphic Sets.


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Micro Speed Streaks

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59202	Lightspeed red	$6.99	59206	Speed Streaks orange	$6.99
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ELITE micro modified

For serious racers or those that just have the need for speed; the Elite Modified is the most powerful motor you will be able to put in a Micro car! Because of its coreless design it will deliver 2 to 3 times the power of the original motor! Precision made in Switzerland, this high-tech power plant will give you unexpected power from its compact design.

20900 Elite Micro Modified $69.99

ELITE micro stock

Team Orion's Elite stock motor replaces the standard motor included with your Micro kit. This motor is ideal for use with up to 7.2 volts and will provide improved performance and long life.

20901 Elite Micro Stock $12.99

Suspension Tuning Kit



A sophisticated chassis like that of the Micro RS4 responds the same way as its larger counterparts. Team Orion's suspension tuning kit includes one softer and one stiffer spring set to complement the kit springs allowing a vast array of tuning possibilities. Two damper fluids are also included to help the Micro RS4 soak up the bumps and further enhance its handling characteristics. Spring sets and damper fluids are also sold separately.

48000	Suspension Tuning Kit	$14.99
48001	Spring Set	$8.99
48002	Damper Fluid Set	$6.99



Micro Pack 1100 mAh!!

It is no secret that more power and runtime equals more fun! Team Orion's 6.0v and 7.2v battery packs use the highest quality nickel metal hydride cells assembled to create powerful and reliable battery packs capable of creating more power and attaining higher top speeds. These packs are a must have for all micro cars.

13010	6.0 volt Micro Pack	$38.99
13020	7.2 volt Micro Pack	$45.99

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Reversible Speed Control

In a small vehicle such as the Micro RS4, a small, lightweight ESC is your only true option. Team Orion's Flash features a one touch set-up button, high frequency operation, forward, brakes, and reverse in an ultra thin, 5mm high package that is no larger than a standard steering servo. Team Orion proves that the best things do come in small packages!

65000 Flash ESC $59.99



Micro Pinion Gears

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48005	Pro Metal Pinion Gear 8T	$3.99
48006	Pro Metal Pinion Gear 9T	$3.99
48007	Pro Metal Pinion Gear 10T	$3.99
48008	Pro Metal Pinion Gear 11T	$3.99
48009	Pro Metal Pinion Gear 12T	$3.99
48010	Pro Metal Pinion Gear 13T	$3.99
48011	Pro Metal Pinion Gear 14T	$3.99

BIGBLOCK Micro Modified

Turn your Micro into a rocket with Team Orion's Big Block motor set. To make installing this large size power unit possible, a blue anodized motor plate, plastic spacers, screws, and detailed instructions are all included! With up to 30,000 rpm and measuring in at 24.4mm in diameter and 30.8 mm in length, this is the largest motor that can be installed into the Micro RS4!

20902 Big Block Micro Motor Set $44.99
The Big Block and motor plate can also be purchased separately



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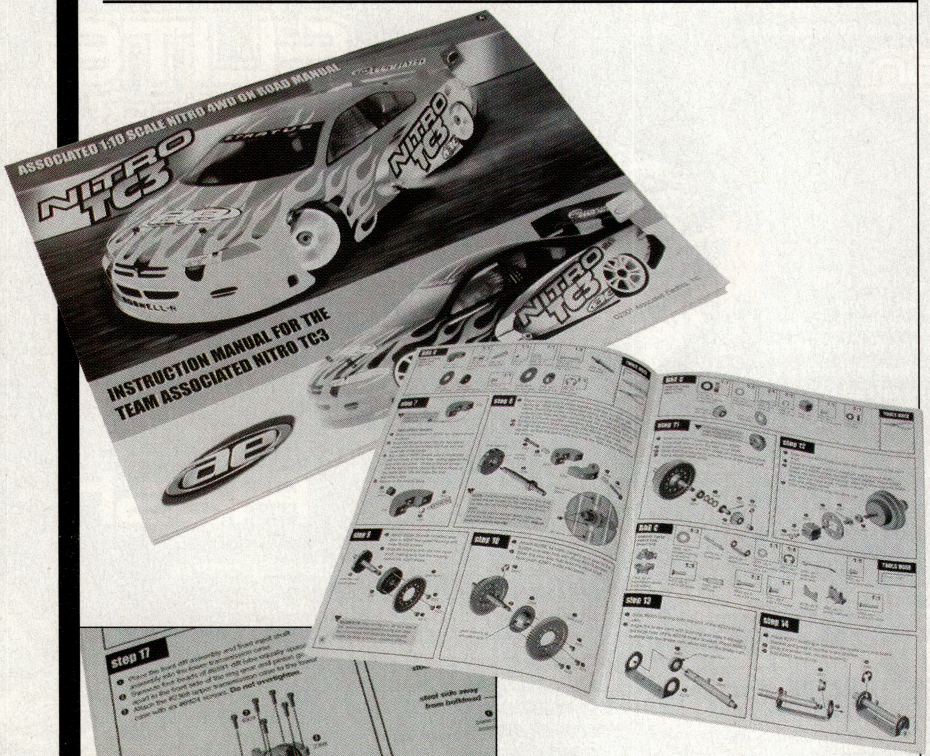
BY FRANK MASI

MODERN CONVENIENCES

Show of hands: how long have you been into the hobby? Two years? Five years? How many of you have been building R/C kits for more than 10 years?If so, then you can really appreciate how much more complete and convenient modern kits have become. If you've only been in the hobby a couple of years, then you probably have no idea how well-off you are. I'm here to remind you.



Team Associated hit a home run with its new Nitro TC3—and this includes the well illustrated instruction manual.

1) Instructions. Holy cow! Things have changed. To be fair, Tamiya and Kyosho have always (at least as far as I go back) had great instructions. But go look at early manuals from the American manufacturers; tons of text, a couple of dark photos and a whole lot of confusion. To their credit, companies such as Associated and Losi have matched and in some cases surpassed the quality of the best Japanese instructions. With incredibly detailed illustrations derived from 3D CAD drawings, these manuals make even the most complex assembly clear and understandable.

2) Hardware. A little thing, yes, but I can remember having to make several trips back to the hobby store to pick up a piece of linkage or a type of grease necessary to complete my kit. Today, when I open up a kit to find such things as a complete set of servo horns to fit any brand of servo, I weep. There's nothing like the feeling of knowing that the manufacturer wants to make the building process as pain-free as possible.

3) Radio boxes. If you're like me, how neat your chassis looks is as important as how well it performs. With gas cars, routing the wires is doubly important not only for aesthetics, but for safety, as an errant wire can easily get caught in a rotating gear or driveshaft. Radio boxes must have been sent straight from Heaven. Not only do they provide a safe harbor from dirt and spilled fuel for your receiver and battery pack, but they are big enough to store all of that excess wiring out of the way. Even if you just cram it all into the box, the finished product still looks neat and professional.

4) Engine compatibility. Five years ago, there were only side-exhaust, rotary-carb small block nitro engines. Now we have rear or side exhaust, rotary or slide carb and of course, pull-start or non pull-start. Fortunately, most 1/10-scale race kits now offer compatibility with virtually any type of small-block engine. Not only can they accommodate various flywheel diameters through special engine mounts, but kits can often provide clearance for both side- and rear-port manifolds. Also, many trucks and nitro sedans come with the hardware needed to operate both types of carb.

5) Threaded shock bodies. I love 'em! Forget clamping spring collars; I can't ever get the left and right sides equal without resorting to a set of calipers. And those little C-shaped preload spacers? I hate those things; not only do I never seem to have the right size, but I'm forever losing them in huge quantities. Threaded shock bodies allow for the most accurate ride-height settings imaginable, and you can't lose the adjustment nut without the entire shock coming apart. I want every car and truck from this day forward to come with threaded shocks.

6) E-clips begone. I hate E-clips, and so do you. Don't try to deny it. Those little suckers always shoot across the room when I'm trying to install them, and they're always coming off during a race. To you engineers who design cars that have captured hingepins, I salute you, sirs. Let's all do our part to make this an E-clip-free world. We'll all be better off!

the Ultimate Charge

NOVAK

ENTER THE CHARGE MODE WITH NOVAK'S NEWEST CHARGERS: THE MILLENNIUM PRO and the IONIC. Both chargers have a user-friendly interface, contain multiple charge modes, including Novak's new Triple Detection Ni-MH2, and both also feature a battery conditioning function for batteries that need extra care. Whichever Novak charger you choose, your batteries will receive the ultimate charge.

New Novak Ni-MH2 Mode

The Novak-developed Triple Detection Ni-MH2 mode utilizes a highly accurate charge algorithm that eliminates the possibility of false-peaking, which means you'll have a fully charged battery each and every time, without the possibility of overcharging.

MILLENNIUM PRO



Pit Wizard software built right in!

The Millennium Charger recently turned Pro! We've taken the Millennium design to a higher level. Improved software, easier user interface, and a new high-accuracy charge algorithm combine together to give your batteries the ultimate charge.

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The new IONIC AC/DC Charger has all the features you need for user-friendly, yet efficient charging—just plug it in and you're ready to charge!

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- integrated aluminum wheel axles
- Hudy Spring Steel hollow lightweight layshaft
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- 4-step externally adjustable racing shocks
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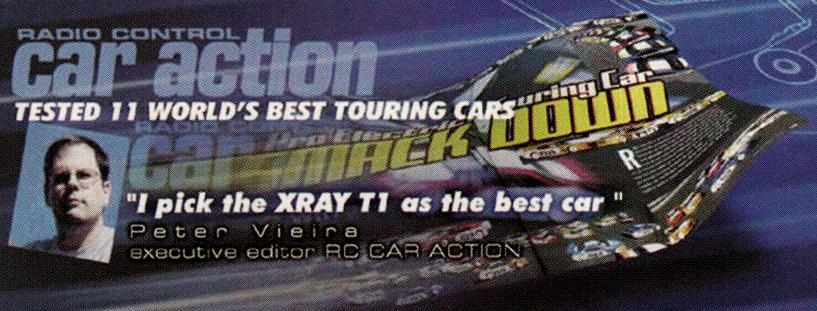

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UP FRONT





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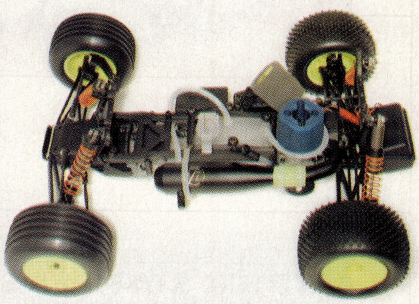
RC04



READERS' RIGS [PAGE 12]



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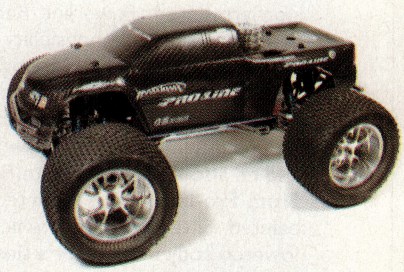

TRUCK COLUMN [PAGE 20]

Welcome to *R/C Car's* Readers' Projects. We receive many impressive "home-built" reader projects each month, so we decided to showcase some of them in each issue. How about you? Got a lot of pride in your ride? Snap some pics and send 'em to us here at *R/C Car* Readers' Projects, 25233 Anza Drive, Valencia, CA 91355. Hi-res digital images can also be emailed to tomh@hi-torque.com. Who knows, maybe you'll see your car or truck in an upcoming issue! And if we use yours, you'll receive a free one-year subscription!

TOUGH TC3



Mike Barker from Hampton, Virginia, sent us this photo of his Team Associated TC3 electric sedan. Mike first lightened his car by installing a full set of Factory Team blue aluminum screws in place of the stock steel ones. He then added a combination servo and transponder mount from Hardcore Racing. This not only mounts the servo more securely, but provides a better way of holding an autoscore transponder. Mike's TC3 gets its power from a Trinity Chameleon Pro 19-turn mod motor, and is controlled through a Futaba 2PC radio with a Futaba MC230CR speed control.

TRICK STAMPEDE

From Dave Deane of Gridley, California, comes this awesome Traxxas Stampede. Dave's truck features a custom-fitted heatsink to keep the 19-turn Trinity Chameleon motor running cooler. It also is equipped with a set of aluminum suspension arms from Powerline Racing. Turning this beast is the responsibility of a Cirrus 135 oz./in. servo (that's enough torque to steer a full-size truck!). Dave also installed a set of adjustable upper tie-rods so that he could adjust the truck's wheel camber, and he also added a graphite tie-bar brace. From Pro-Line, Dave mounted a custom-painted Silverado body, which sits atop lowered body mounts for a sleeker appearance. Finally, Dave's Stampede is shod with Pro-Line's Dirtpaw tires on Slingshot wheels. Nice truck!



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- Nitro Rustler's bellcrank steering geometry virtually eliminates bump steer for precise steering control. Add optional bearings for even smoother steering.
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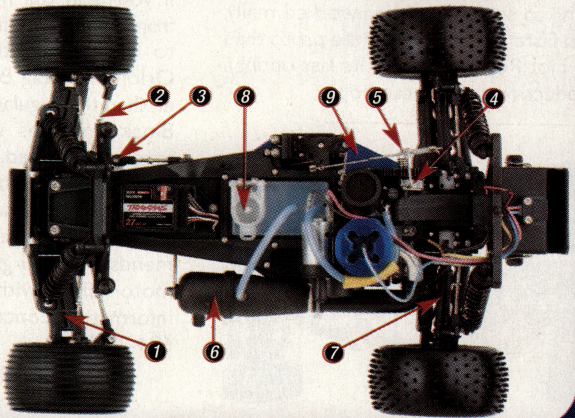
- Oil filled Ultra Shocks™ deliver silky smooth performance and precise dampening control with racing style clip-on spring pre-load spacers.
- The deep chrome beauty of the TRX Pro Star™ wheels provide stunning good looks at no extra cost.
- It's easy to make Nitro Rustler even more competitive with optional Traxxas accessories, including carbon fiber disk brake, on-board tempature gauge, pro ball differential and blue-anodized tuned pipe.



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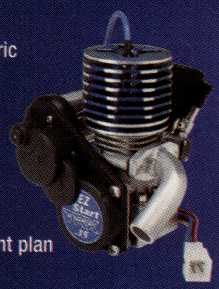



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The Nitro Magnum 281™ transmission is built nitro tough with 32-pitch gears, metal top gear, smooth running, long lasting ball bearings, slipper clutch and disc brake.



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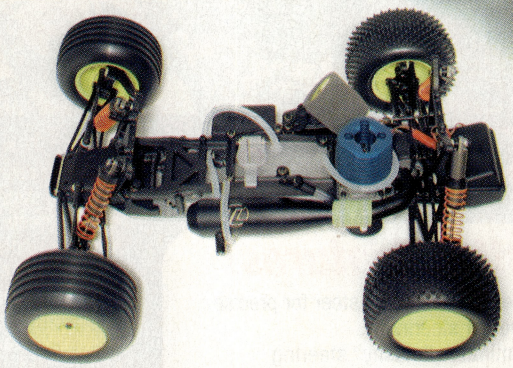
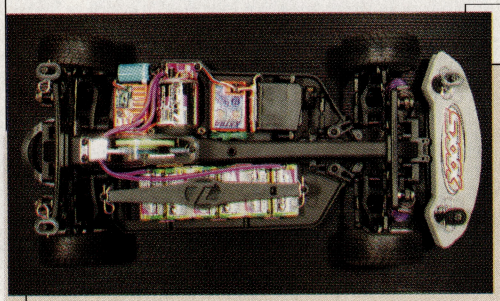
NEVER SAY NEVER

If Pops Losi hears the words "but you said you'd never come out with an RTR" one more time, we think he'll call it quits and pursue the yo-yo market full-time. So please, all of you, when you see Pops at a race, leave the guy alone. After all, Team Losi's new Triple-X NT Sport RTR is anything but an average ready-to-run. First, it's a sport-version of the current National Champion Triple-X NT. And if that's not good enough, consider this: it's the only RTR that we know of that comes with a computer-based, multi-model (you hear that? Multi-model!) radio system (a JR XR2). On top of that, it comes with a pair of the new JR Z-270 servos pre-installed. Of course, the Triple-X NT Sport comes with a complete set of ball-bearings, a nicely painted polycarbonate body, and a powerful pull-start .15 engine is also included. So whether you have racing aspirations or you want to rule the neighborhood dirt lot, Team Losi now has an RTR that can grow with your skills, all the way to the highest level of competition. For more information, contact Team Losi at (909) 465-9728.





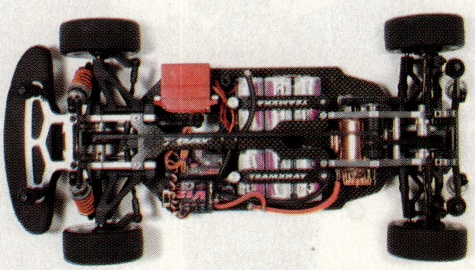


XXX-4: THE RUMORS ARE FLYING (AND SO IS THE CAR)

If you frequent the internet, you've no doubt heard the rumors about a "mystery" Team Losi 4WD buggy based on the new XXX-S sedan. Here's the truth based on somewhat reliable sources: there is a prototype buggy in existence. It is actually a car that was hand-built by Brian Kinwald. The car looked good enough for Gil Losi Jr. to accompany Brian to a secret test session at Hot Rod Hobbies in Saugus, CA. And according to sources, the car worked really, really well. So well in fact that Kinwald was able to turn faster lap times with the proto than with his production XX-4 (which was set up for the Hot Rod track from its last outing). No word yet on whether such a car will ever see production, but we can hope.

MORE RUMORS

Yet another reliable source of gossip has informed us that XRay is working on a nitro version of its high-end electric touring car. No word yet as to the features and changes that will be made, but we'll keep you posted. The electric XRay has received critical acclaim for its quality and finish, so we can only surmise that the nitro version will carry the tradition





GO BIG OR GO HOME

If you're in the market for more speed from your HPI Micro RS4, then you need to check out the latest from Team Orion—the Big Block. Substantially larger than the regular Micro motors, the Big Block promises vast increases in both torque and speed. The motor comes with a new blue-anodized motor-mount plate and all the necessary hardware for installation to any Micro RS4. Orion recommends that you glue your pinions to the motor shaft with this baby. For more information, contact Team Orion at (714) 694-2812.



WE'D LIKE TO THANK THESE **DRIVERS** FOR PUTTING US **IN** OUR **PLACE.**

First. Lots of times second as well. And often TQ-ing and filling practically all the top ten places. You name it– electric or nitro, on-road or off, stock or modified. These are just a few of the guys driving Team Losi cars who've won just about every event, trophy and honor in national and international RC racing last year. Of course that's nothing new– drivers have been putting us in the winner's circle for years. And that's the best place to be.

XX-4 Race Wins 2001

Jukka Steenari TQ – **EuroChamps**
ROAR Off-Road National Championships
Matt Francis – Modified, Jonathon Noon – Stock
Brian Kinwald – **Hot Rod Hobbies Shoot Out**
Jukka Steenari – **Winter Championships – Modified**
Brian Dunbar – **Midwest Off-Road Winter Championships – Modified**
Matt Francis – **Cactus Classic – Modified**
Mike Larsen – **Rumble in the Rockies – Modified**

XXX-S Race Wins 2001

David Spashett TQ/1st – **U.S. Indoor Championships**
David Spashett TQ/1st – **Trinity Touring Car Challenge – Modified**
David Spashett – **Orion/HPI Touring Car Classic**
Craig Xavier TQ/1st – **Trinity Touring Car Challenge – Stock**
ROAR National Championships
Paul Lemieux – Modified, Ryan Cavalieri – TQ Stock
David Spashett – **European Touring Car Championships**
Jason Corl TQ/1st – **Reedy Race of Champions**
Hitec Sedan Challenge
Brian Kinwald – Factory Modified, Mark Garvey – Expert Modified, Albert Guardado – Expert Stock

XXX Race Wins 2001

ROAR Off-Road National Championships
Brian Kinwald – Modified, Jason LaDow – Stock
Jukka Steenari – **EuroChamps**
Hot Rod Hobbies Shoot Out
Brian Kinwald – Modified, Dustin Evans – Expert Stock, Ryan Dunford – Stock
Brian Kinwald – **Winter Championships – Modified**
Midwest Off-Road Winter Championships
Matt Francis – Modified, Jason LaDow – Stock
Brian Kinwald – **Cactus Classic– Modified**
Rumble in the Rockies
Matt Francis – Modified, Brian Westerman – Stock

XXX-NT Race Wins 2001

Adam Drake – **Golden State Championships**
Adam Drake – Expert – **So-Cal Nitro Championships**
Davis Moran – Sportsman – **So-Cal Nitro Championships**
NORRCA Off-Road National Championships
Matt Francis – TQ, Adam Drake – Expert, Theo Capitanis – Sportsman
Adam Drake – **NORRCA Truck World Cup**
Brian Kinwald – **Silver State Nitro Challenge**
Hot Rod Hobbies Shoot Out
Travis Amezcua – Expert, Theo Captanis – Sportsman
Adam Drake – **Nitro Challenge**
Jesse Robbers – **Midwest Winter Gas Championships**

XXX-T Race Wins 2001

Reedy Invitational
Steve Chamberlan – Stock, Doug Scripture – Open Modified
Matt Francis – Factory Modified
ROAR Off-Road National Championships
Matt Francis – Modified, Eric Clark – Stock
NORRCA World Cup
Adam Drake – Modified, Travis Amezcua – Stock
Hot Rod Hobbies Shoot Out
Matt Francis – Modified, Doug Scripture – Stock
Midwest Off-Road Winter Championships
Brian Dunbar – Modified, Rob Schaffer – Stock
Winter Championships
Jukka Steenari – Modified, John Walters – Stock
Cactus Classic
Brian Kinwald – Modified, Brian Westerman – Expert Stock
Rumble in the Rockies
Jimmy Babcock – Modified, Randy Brockman – Stock

engineering wins

ENGINEERING WINS

Team Losi
ENGINEERING WINS
www.teamlosi.com

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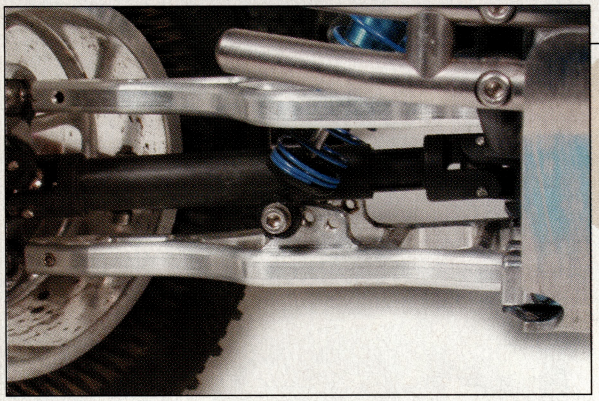
HORIZON HOBBY



NEW MAXX ARMS FROM HARDCORE

Hardcore Racing, the originator of the mega-dollar, mega-metal T-Maxx, has recently produced updated suspension arms for the T/E-Maxx trucks. The new arms feature revised profiles and a new set of shock-mounting holes that allow you to alter the angle of the shocks without affecting the truck's ride-height. Now you can change the shocks' lever ratio without having to install or remove bothersome travel limiters. Contact Hardcore Racing at (661) 295-5032 for more information.

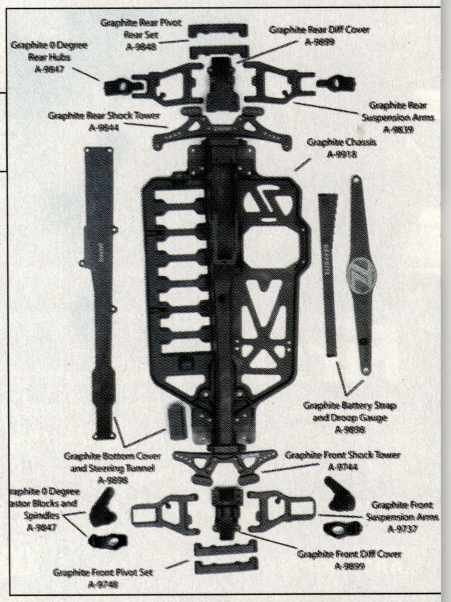
ON THE BLOCK

Want to know if your old kits are worth any money? Here are some collectible R/C kits that are being auctioned on eBay.

- **Tamiya 4x4 Toyota Bruiser**, new-in-box—$1199.00 with two days until auction close. Among collectors, the Bruiser is the Holy Grail of Tamiya kits. This one is about the best example we've seen, and we expect its final selling price to be in the neighborhood of $1,300.00.
- **Tamiya 4x4 Toyota Mountaineer**, new-in-box—$901.00 with four days until auction close. The Mountaineer is a later version the Bruiser, so although it doesn't quite have the rarity of the Bruiser, it is nonetheless a highly sought-after collectible.
- **Kyosho 1/9-scale Nissan Pathfinder**—$395.00 with four days until auction close. The rare gem from '91 features a CCVT continuously variable transmission (with reverse) and .10 sized engine. This example is unbuilt and in the box.
- **Team Associated RC10**—$111.00 with three days until auction close. Among American kits, the original RC10 seems to be gaining collectible status. This example is a built-but-unused original "gold tub" version. The only thing missing is the body.
- **1/12-scale Jerobee McLaren**—$77.00 with one day until auction close. This is one of the very first production R/C race car kits. It comes with a Cox glow engine stamped "1970," and soft foam-rubber tires and rigid injection-molded plastic body with large rear wing. A rare find.

XXX-S GETS LIGHTER AND STRONGER—AND YOU CAN EAT WHATEVER YOU WANT!

Team Losi is now offering all of its high-tech graphite/carbon-fiber composite chassis parts all in one handy kit (#LOSA9650, $119.95). The Graphite Conversion Kit contains everything needed to shed weight and add strength to your XXX-S, including a chassis, suspension arms, shock towers, diff covers, rear hubs, front spindles and carriers, battery strap and even a droop gauge. Contact Team Losi at (909) 465-9728 for additional information.



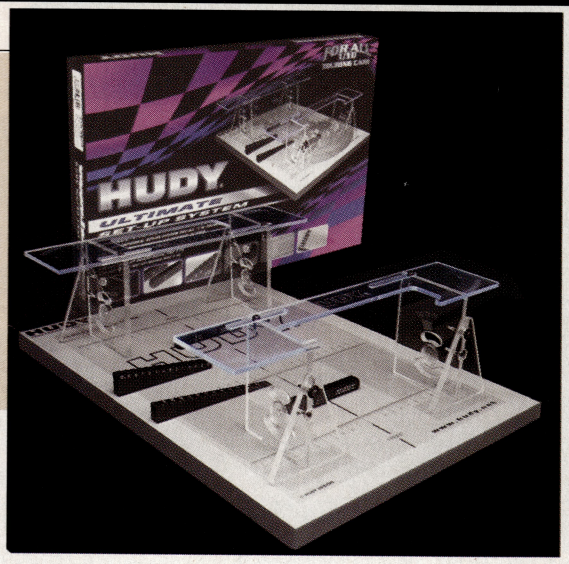


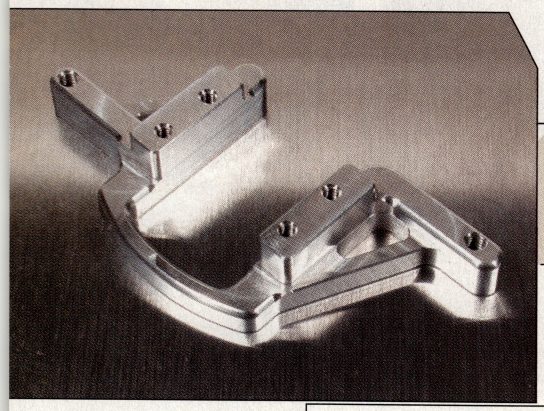
MINI DONAHUE

The latest entry into HPI's ever-increasing lineup of Micro RS4 kits is the new Dodge Stratus. A replica of the car that won the short-lived North American Touring Car Championship (and a pint-sized replica of the most popular body in 1/10-scale touring car racing), the Stratus features an adjustable racing wing and full detail and sponsor logo decals. As with all Micro RS4s, the kit includes a complete rolling chassis featuring a powerful electric motor, independent front suspension and the added traction of full-time 4WD. Contact HPI for more information at (949) 753-1099.

GET THE ULTIMATE SETUP

You've invested in the best racing chassis, the fastest hand-wound modified motors, the most complex computer radio and the highest voltage battery packs. So why are you still using that Coke can to set your car's camber? Gas racers have known for years that when it comes to making precise adjustments to your chassis, nothing beats the Hudy Setup tools. Now, Hudy is offering its Ultimate Setup Board for 1/10-scale nitro and electric touring cars. Every tool you need to accurately tune your suspension is included. You get the Setup board and decal, Hudy's Universal Setup system, droop gauge with chassis support blocks and a ride-height gauge—all in one package and at a cost savings when compared to buying all of the pieces separately. Contact Hudy's U.S. distributor, Serpent USA, at (305) 639-9665 for more information.





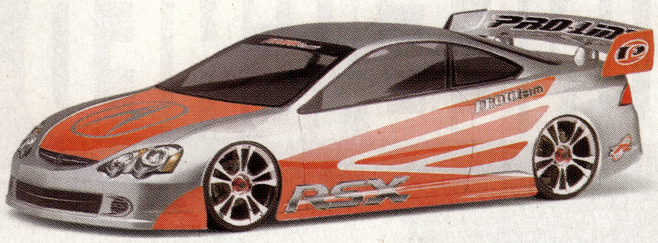
BILLET ENGINE MOUNT FOR THE GT

Attention RC10GT owners: this new engine mount from Hardcore Racing is machined from solid billet aluminum, so it's not only stronger than stock, but lighter, too! Save some weight and strengthen a vital area of your truck's chassis. Of course, the mount is available in all Hardcore anodized colors: silver, blue, green or purple. Contact Hardcore Racing at (661) 295-5032 for more information.

AVOID SKID MARKS

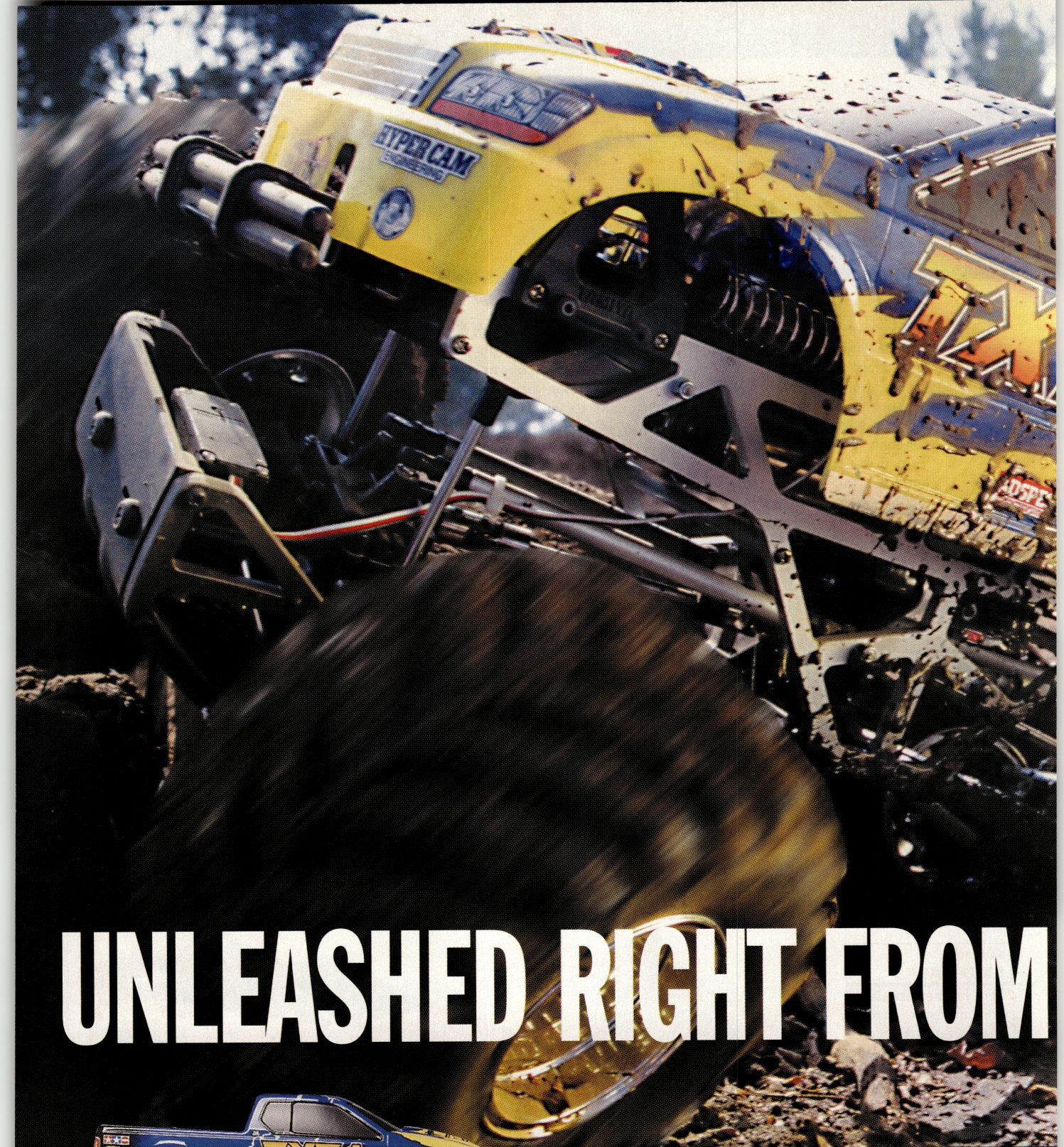
Tamiya's newest electric monster truck, the TXT-1, has barely hit the hobby store shelves, and already the aftermarket has taken a shine to it. One accessory that adds as much in the looks department as it adds to the truck's durability is this new center skid plate (#2003CL, $12.95) from Ballistic Stupidity. Made from a resilient 5032 aluminum, the skid is available in a variety of colors, and provides much-need protection to the "soft underbelly" of the TXT-1 (directly beneath the gearcase. So the next time you case a big rock, you'll know that you've got nothing to fear. For more information, contact Ballistic Stupidity at (604) 209-7710.





A TUNER'S DREAM FOR YOUR TOURING CAR

Acura is once again setting the pace with the all new RSX Coupe. It's only natural that PROTOform would be quick to introduce a 1/10 version (#1439-00, $23.00). From its unique headlights to its raised wing, this is a "tuner's" dream. This highly detailed body will fit all 190mm sedan chassis, and comes with a wing, mounting hardware, detailed sticker sheet and window masks. Serious racers as well as enthusiasts will love the aggressive shape of this body as well as its handling characteristics. Contact your PROTOform dealer or phone (909) 849-2968 for more information.



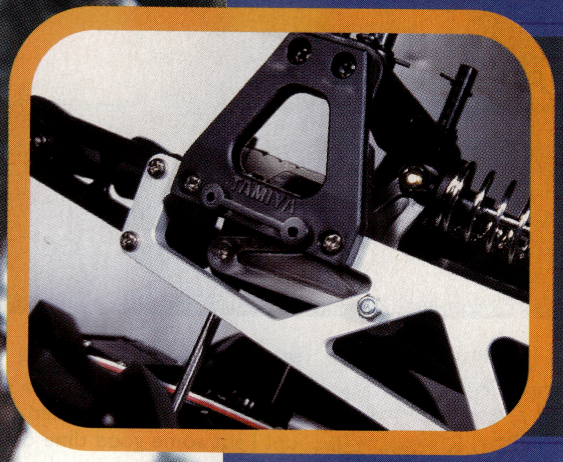
UNLEASHED RIGHT FROM



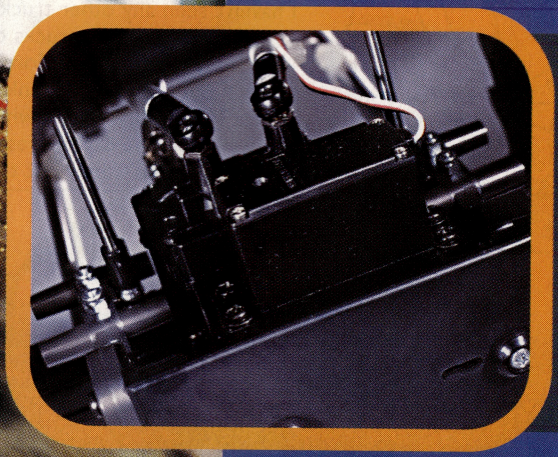
TXT-1 TAMIYA XTREME TRUCK
with Aluminum Ladder Frame **Kit Number 58280**



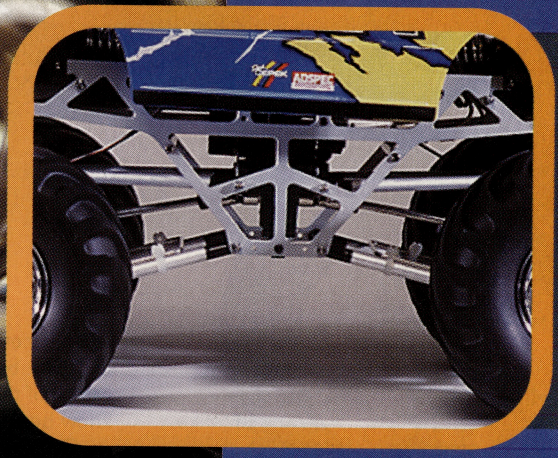
THE BOX



Multi-link solid axle cantilever suspension: Maximum articulation is made possible with the solid axle configuration borrowed from proven full-size monster trucks.



Includes hardware for either two-wheel or four-wheel steering with servo locations by the axles for the best possible steering response and precision.



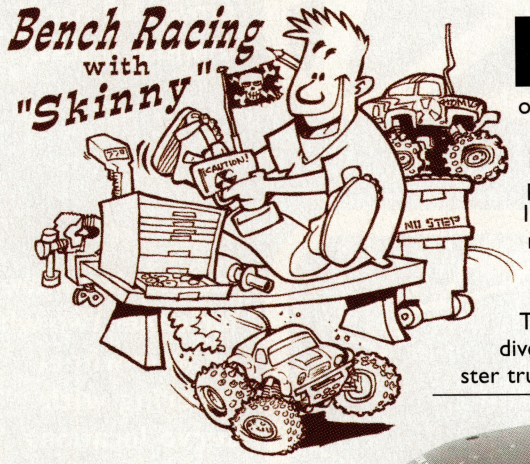
Realistic aluminum ladder frame chassis: Provides not only a true-to-life monster truck appearance but it also adds unmatched durability and rigidity.

One hundred percent rock crushing, dirt eating Monster Truck. You asked for it and Tamiya delivered. Hey, we heard you! We understand your need to own the biggest, baddest truck on the block, true to its own Monster Truck heritage. We can empathize, so we built a truck that rocks from the box, everything you need to humiliate the souls that didn't do their homework. We even included a pre-painted as well as a clear polycarbonate body if you want your personal flair represented. And if you want to make a "whole different Monster", your TXT-1 is ready for a full arsenal of after-market parts geared to help you dominate. The TXT-1 is ready to do your dirty work, get to the Tamiya web site WWW.TAMIYA.COM and do your homework. All that's left is to demand it from your local hobby retailer. Then, and only then, you are ready to unleash the monster.

TAMIYA

©2002 Tamiya America, Inc. 2 Orion Aliso Viejo, CA 92656 1-800-TAMIYAUSA-A

WWW.TAMIYAUSA.COM



I spent the remaining days of last year racing at the local tracks, testing stuff and getting faster! We have a new track out here in SoCal. A new huge 1/8-scale-sized course that you can really ring out a T-Maxx on! I got some good time on it and put some hurt to some new stuff.

The really neat thing I saw out at the track after Christmas was a big increase of T-Maxxes on the starting line, along with some happy people and some good racing! It looks like the "T" still is *the* truck to get! I haven't seen any other trucks showing up. It could be that the companies did not get their trucks out in time for the holidays; I was the only person racing a Mega Force out there at the tracks (more on that later). But this year I think we will see more Kyoshos and the new Tamiya Terra Crusher out where we play! I can't wait! It's good to have diversity. Maybe one day the rest of the R/C world will think that we monster truck people aren't that "out there" after all! But do we want that?



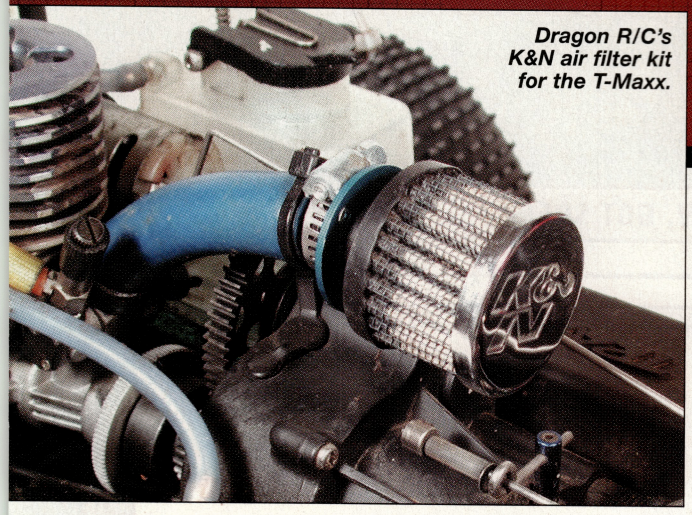
CARBON FIBER & SOME PEOPLES' CHILDREN

And I thought my running a double body was chi-chi! Check this out! This comes from one of our readers in Wisconsin, a state known for cheese, not carbon fiber. The T-Maxx body comes from Jason, and he has a start-up company called Action Fiber. Not happy with regular bodies that fell apart after a few crashes, Jason wanted something more (apparently he wasn't happy with my two body idea!). He one-upped me and went to the extreme. He was on a quest; he wanted something unique, and something nobody else had! So being from the cheese capital of the world, he went with what he knew best—carbon fiber!

Carbon fiber is cool stuff; you can make things that are as strong as steel or even titanium, make it into any shape you want, and if done right, will be stiffer and lighter than if you used metals! Besides this, carbon fiber looks sooo cool when done! I'm sure you have seen products that have carbon fiber in it. I'm not going into detail of how it's made and the use of directional material, resins, blah, blah, blah. That would fill this whole article up! Trust me, it's good stuff.

Now where were we? Yes, the body, as you can see, looks way cool. The sample I got is one of only four and is totally hand made and takes a lot of work. You can tell from its prototype-ish appearance that it still needs a little finishing work, but by production time, these bodies will look oh so good.





Dragon R/C's K&N air filter kit for the T-Maxx.

The body is made from a three-ply carbon and is much thicker than a regular body. Think of two to three Lexan bodies together and you get an idea of the thickness. The weight is about the same as three bodies too (not bad at all)! But what you get is a very stiff and tough body. By running this on your truck it will stiffen the whole truck and will absorb the majority of impacts. When you wad a stock body, it will flex and push in and that's how all those inside parts break. This thing just hits the ground and slides. Remember, this body is up to five times stronger than a regular body!

Sadly, I could not take it through a total torture test like I do other products, because Jason needed it back to show. It was nice being the coolest kid on the block with my carbon fiber body, even if for a little while. I'm sure he will send me one and I can be cool again and let you guys know the low-down too! By spring Jason will be doing limited "handmade in the USA" productions of the body, and will also be offering a carbon-fiber skid plate for your T. I can't wait! If you can't wait either, give him a call and tell him you want some! As far as the price for this beautiful body—I'll say this: it won't be cheap! Contact Action Fiber at (414) 607-8739 or visit online at *www.actionfiber.com*.

FROM THE GREAT WHITE NORTH

Yes, it's true: R/C monster-truck mania has spread to our friends up north! Those fun loving, beer drinking, R/C racing Canadians are just as into this as we are in the U.S. I got a package in the mail the other day from Canada, and I thought that perhaps one of my buddies had sent me some beer from up north. But no, it was a care package from Total Custom Industries, a new company making parts for our big trucks.

Being fans of this column, the folks at TCI knew I was into racing T-Maxxes. So they sent down a set of new lightweight aluminum rims to trash. Out of the box, the rims seemed light, and man they looked wicked! Just to let you know, my critic crew at the track agreed. Sorry to say my digital scale is on the fritz, so I can't give you an actual weight, but the hand test said they were *very* close to the stock plastic weight! I have seen other aluminum rims around the same price that were much heavier than these. The cost is around $125 for a set of four. I have a few races on them and can't feel a weight change, so that is good. Give TCI a call (403) 358-2120 or visit them on their web page (*www.totalcustomindustries.com*) and tell them Skinny sent you!

UPDATE TIME!

Time is an important issue for editors. Yes it's true; all magazines fall victim to time! Most of us have such little time: time to test and time to think about the test. And finally, not enough time to test! Scary, isn't it?

Well my friends, Old Skinny here has found a way to fool Father Time, and no, I did not sit in my garage and invent some time machine. Although I did work on Spielberg's new "Time Machine" flick.

As it turns out, I figured a way to expand the testing time on the products we get in here. I can't tell you how because the other mags would love to know my secret [*editor's note: you mean turning in your stuff two weeks late, Skinny?*]. From time to time. Or if you ask me, I will run updates on stuff I think needs to be told after long term testing. Quite often, magazines can't put in a lot of time testing things, so we can't always tell you what will happen in the long run. Now at least for us "Big Truck People," I can tell you what happens after weeks or months of thrashing. Cool beans, huh?

• Update: Kyosho Mega Force. I have a solid month on the truck now, and have used it "as is" since the original test in last month's issue. I'm still running it with the broken front skid (still waiting for the part) and that doesn't even faze it! Cool. The truck has grown on me; I like it! It really is fun to bash and race! I have done zero maintenance on it and have even been running in the full-on rain. The thing is like the Energizer Bunny; it keeps going and going! One thing, though: watch the throttle arm, when it gets really dirty, it will stick! Other than that, I have raced the thing about ten times now and have beaten some of the most powerful Maxxes!

• Update: Dragon R/C K&N air filter set. Love it! Not one problem yet! I have two months on the system and the K&N filter is just starting to get to the point where I need to clean it. The less work the better! Consider this air cleaner next time you need one.

• Update: Tune & Tote Work Stand! It's a little pricey, but after using it for the last two months, I can't see not having one for my monster truck! It has been so useful for me when I'm out testing or bashing. For our big trucks, it's a true tool to have. Sorry!

No negative reports yet. I'm trying though!



Total Custom Industries' aluminum Maxx wheel.

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Hard Drive

Race Secrets

COOL RACER, FRIDAY, GOT SPEED?

GOT SPEED?

From: COOL RACER (fastguy@gotspeed.com)
To: JOE RACER (joeyr@racenut.com)

YO JOEY,

Bro, at the next club race, get ready to see how it's done. I got the new "SPEED SERIES" body from DEANS. That's right they're finally here!!!

Here's the view I'll be seeing during the race. You'll see it in the pits. Sorry dude, I didn't get a shot of your view, you know THE BACK OF MY TRUCK!

Gotta charge bro – Gotta make room on the shelf for this weekend's trophy.

Later,
Cool Racer



deans

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www.wsdeans.com • deansco@earthlink.net

Trash

E-mail your letters direct to the editors! You can get ahold of Frank Masi at evaone@pacbell.net or Doogie at doogie@hi-torque.com. If you're going the old-fashioned route, send along your letters to R/C Car at 25233 Anza Dr., Valencia, CA 91355. Check us out on the Web at www.rc-car.com

NEEDLE IN A HAYSTACK

I have a Trinity/Picco engine, and in the owner's manual it says the carb settings should be 1-1/2 turns out on the high and 3 to 3-1/2 on the low. But on the bottom of the box it says that the settings should be 2 on the high and 2-1/2 on the low. I tried what the box says and it doesn't start. I did what the book says and it started. But I noticed the difference in adjustments is big. Which is the right one? Help!

Sanka
via *rc-car.com*

The right settings are the ones that got your engine to start. In general, most engines come pre-set from the factory, and this is where you should always begin. Only make changes if the engine fails to start, or after you've got the engine running. More than likely, the instruction sheet has been updated with new carb settings, while the box art remains with the original settings (it's a lot more expensive to alter the box than the instruction sheet).

WINDY TURNS

My question is about electric motors. I am very confused about how an electric motor is rated. I know that there are doubles and triples, but I have no idea what this means. I am doing a presentation on electric R/C cars but this is the one area that I have not become familiar with yet.

Michael Miner
via *rc-car.com*

The electric motors we use have three-pole armatures. Each armature pole is wrapped with copper wire. The number of times the wire wraps around the pole dictates the motor's power characteristics, and the fewer times the wire is wrapped around the pole, the faster the motor will be. This is why a 27-turn stock motor isn't as powerful as an 11-turn modified motor. Now, motor builders learned that the motor's performance could be further altered by the diameter of the wire that wraps the pole. A "single" wind would be when one large strand of wire is used to wrap the pole. A "double" is when the motor builder uses two intertwined strands of smaller diameter wire to wrap the pole. The more strands, the more mellow the "hit" of the motor. A single wind would have more snap than would a double or triple. Not that one would be faster overall than the other, but each wind makes its power in a slightly different manner. Some motor builders get creative and use several strands of varying diameter wire.

SORRY, BUT NO

I have a question about dyeing some parts on my new B3 buggy. I have been wanting to dye my arms on my buggy for awhile now, but no one seems to know how to do it. I tried the Rit dye but that didn't work.

A.J.
via *rc-car.com*



A.J., fabric dye such as Rit only works on nylon parts such as wheels (and the white suspension pieces from the original RC10). It also works best on white or virgin nylon parts. The suspension parts on your B3 are made from a high-tech reinforced composite material that won't accept fabric dye. In other words, there's really no way (other than painting) to change the color of your B3 parts.

LOOKING FOR SNOWMOBILE

Does anyone make radio-controlled snowmobiles? If so, where could I find them?

DeepnSteep
via *rc-car.com*

A company called Nitro Elements makes a really nice looking R/C snowmobile called the ArtAttack, which is powered by a .21 big-block nitro engine. Although it's a little pricey, the ArtAttack is by far the best and most complete snowmobile kit we've seen. You can contact Nitro Elements by calling (877) 257-0983.

WHO WEARS THE PANTS IN MIKE'S HOUSE?

The mag is great! I am a 31-year-old who has always loved R/C cars and trucks, but I have never really had the money to get into it. Back in January '01, my wife and I were in a hobby shop and I was looking at a Traxxas Stampede—a good fun truck for newcomers. So at my wife's command, we got one. I love it! I went to watch some of the races here, and I would like to get into the scene, but the stamp is still haunting the old Mastercard (plus my wife doesn't let me drive the Stampede when she's around—she drives as good as me). My only hope on my budget is a Rustler RTR kit that is $58 at Tower Hobbies. Can these be race-worthy trucks? (Other kits are $250 and I can't afford that).

Mike Painter
via *rc-car.com*

The Traxxas Rustler and Stampede are good trucks for having fun, but as racers they leave a bit to be desired. However, of the pair, the Rustler definitely has the advantage on the track, and both can be hopped-up as your budget allows. Why don't you get that Rustler and race against your wife and the Stampede? As she seems to be in control of the purse strings, we suggest that you let her win.

COLLECTIBLE KYOSHO

I just got a new DuraTrax Evader. In the package, I got a Tower Power Charger and a Tower Hobbies 1500 6-cell battery pack. After I discharge the

battery pack, and when I go to charge it, after a while the charger gets very hot. I was wondering what the problem was, and even though I am only 13, I know a lot of information about R/C cars. And one more question: my dad has an Ultima II, and I heard they don't make them anymore. So, how much would it be worth?

Zach
via *rc-car.com*

Zach, it's fairly normal for chargers to become hot during charging, especially AC/DC chargers. A bit of heat is okay, but should the charger ever become too hot to touch, shut it off immediately. Most lower-priced chargers will get hotter than their more expensive counterparts, and often the manufacturer will caution against charging more than one or two packs consecutively to prevent overheating. Regarding your dad's Ultima II, we haven't seen these demand collectible prices as of yet, but who knows—hold on to it and see what happen

WORKIN' AT THE CAR WASH

I have just purchased a 1/8-scale buggy and want to know how to clean it. Do I put nitro degreaser and hose it off? Can someone help me please.

Anthony
via rc-car.com

Anthony, it all depends on how dirty the car is. If we've just raced our nitro buggy on a dry and dusty track, then all that's needed is a few shots with an air compressor and a little work with a toothbrush to remove the more stubborn deposits. If the track is a bit muddy, or if there's a lot of fuel and oil residue on the car (which attracts and holds dirt like a magnet), we will actually remove the radio tray and all electronics, remove the engine, and spray the entire chassis with a light mist of water. If you do this, be extra careful not to use too much water pressure, and don't spray directly at the bearings and suspension hingepins. A little degreaser can also be used to float away oil residue. Once the car is clean, we dry it quickly using an air compressor. Finally, a misting of WD-40 helps displace any remaining moisture (which would cause rust) and gives the car a like-new appearance.

WHICH '03 IS FASTER?

Assuming that straight-line speed would be the same, is there a significant performance advantage between the Tamiya TA03 chassis with the motor mounted up front and the TA03 chassis with the motor mounted in the rear?

Ryan Syndar
via rc-car.com

Aside from the obvious weight distribution differences, the front-motor TA03F is a longer wheelbase chassis than the mid-motor TA03R car. In essence, the short wheelbase chassis is what racers preferred for tighter, more technical tracks. The front-motor chassis is more stable and is better for faster, larger tracks. You would think that because it's motor was up front, that the TA03F would have more steering, but actually, when the car turned, it had to "swing" the extra weight of the motor at the same time. Like a mid-engined NSX, the TA03R has less weight up front to change direction, so it can transition quicker.

FASTER TYCO?

I was wondering about the difference in speed between electric cars with the same motor. I want to mention that I have never had a REAL R/C car except ones from Nikko and Tyco. I have noticed a difference in speed when I increase the voltage, but I want to know if a Nikko Predator with a RS-540SH goes as fast at a Nikko Dodge Viper with a RS-540SH motor? I also want to know if I can upgrade the motors or any parts to get these cars to go 30 to 40mph? I'm 18 and I go to Baruch College in New York and I'm really short of cash. I am just curious of how I can get high speed for little cash.

Martin S.
via rc-car.com

Martin, although our experience with the types of R/C vehicles sold in large chain toy stores is limited, we aren't aware that any company makes hop-up parts for these cars that would produce the type of results you're after. You are on the right track about voltage; the higher the voltage, the faster your motor will be. However, it's a safe bet that your Nikko cars have been designed to handle a limited number of cells, so it's doubtful that you will be able to go hog-wild without either blowing up the car or voiding your warranty.

HEAVY METAL CELL QUESTION

I am a nitro freak, and I am currently using 600mAh receiver battery packs for all my vehicles. I am thinking about getting the 1100mAh Ni-MH packs for them. The problem is, what kind of chargers out there specialize in receiver Ni-MH batteries?

Peter Schindelbeck
via rc-car.com

Peter, most modern race-type chargers feature some type of charge mode specifically for Ni-MH cells. It all depends on how much money you are willing to spend. If you only plan on racing nitro, then you really won't need a high-end charger that is intended mainly for charging sub-C NiCad and Ni-MH cells. Look for a budget-priced charger such as the Novak Ionic (reviewed in this issue) or the MRC Super Brain 959. Of course, there are plenty of other quality chargers in this category, but these are two with which we've had some experience. You can of course "get away" with using any type of charger for your Ni-MH packs. Just be sure not to exceed the manufacturer's specified charge rate (usually around 1 amp), and never let the cells become more than mildly warm to the touch.

DON'T WASTE YOUR MONEY

I just bought a stadium truck from a friend of mine, and it had no crystal. If I just buy a new remote with a new receiver, will the car run that way?

Nick Steele
via rc-car.com

Nick (great name by the way; have you considered a career in action films?), unless there's something wrong with the radio system you have, there's no need to buy a new one. All you need are new crystals. You'll need to know the brand of the radio, the band it's on (27 or 75), and which frequency you'd like. If you're at a loss, take your truck and radio to a hobby shop, and they'll hook you up.



SERPENT IMPACT / VECTOR GS SONIC, SMP SLIDE CARS

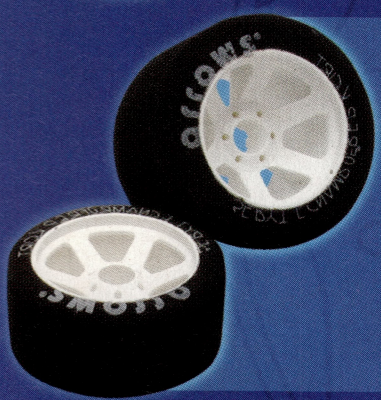
Used by top drivers from around the world, Arrows are the fastest tires for your 1/8-scale GS Sonic, Serpent Vector/Veteq, SMP Slide, and for your 1/10-Scale Serpent Impact. Arrows tires use only the highest quality foam rubber and come pre-mounted and pre-trued on attractive yellow BBS-style wheels. There are three compounds to choose from to fit your exact needs – "Racing Compound" is Arrows' top-of-the-line tire, "Multiring Compound" offers greater side-to-side stiffness, and "NRG Compound" offers similar performance as the "Racing Compound" at a reduced price for the budget minded racer. Racing and Multiring Compound tires are available in 25-45 shores, while NRG's are available in 30-40 shores.



PICCO 1/8, 1/10 INTEGRA

Increase the performance of your high-performance Picco Integra 1/10-scale and 1/8-scale cars with Arrows tires. Pre-mounted on original white multi-spoke Picco wheels, the Arrows tires are a direct replacement for your Integra. With three high-performance tire compounds and a large variety of shores to choose from, you are sure to make the right choice for your car. The winner's circle will be closer than ever.

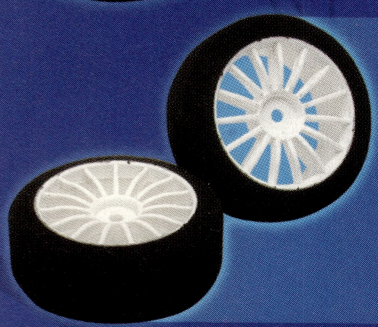
MULTIRING SYSTEM uses multiple strips of rubber glued across the entire width of the wheel to produce a tire with superior side to side grip and longer wear.



MUGEN MRX 3 / K2 X

Run the fastest tires in the world on the fastest cars in the world! The compounds used in Arrows tires are a perfect match for your 1/8-scale Mugen MRX-3 and 1/10-scale K2-X Avance cars. Arrows Mugen tires come pre-mounted and pre-trued on original white 6-spoke wheels, and are ready to hit the track. All compounds and shores are available to help put your Mugen car in the winner's circle.





TOURING FOAM

Introducing Arrows Touring Foam tires. Using the same Racing Rubber compound found on original Arrows tires. Arrows Touring Foam tires offer the best grip and longest wear at a competitive price. These tires come pre-mounted on high-quality white multi-spoke wheels, and include axle spacers to change the offset. Arrows Touring Foam tires are 26mm wide and will fit virtually any electric or nitro touring cars.



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HPI RTR Nitro RS4 3

Giving belts the shaft

The latest news to come out of the HPI camp is that it has completely redesigned its RTR Nitro RS4 by abandoning the triple-belt drivetrain that has existed on HPI nitro cars for nearly a decade. The new car, called the RTR Nitro RS4 3, uses a variation of the shaft-driven 4WD system employed by HPI's off-road Nitro MT and Nitro Rally chassis. According to HPI, their goal in this redesign was to eliminate the potential for belt damage caused by rocks and other debris. Customers who buy RTRs are more likely to run their cars in ungroomed areas where the likelihood of damage is higher.



TALKIN' 'BOUT SHAFT

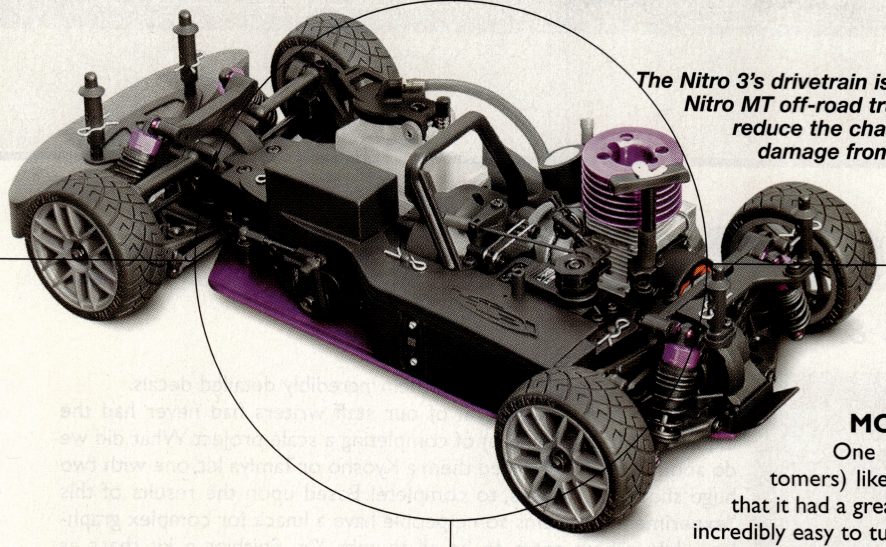
In terms of durability, there's little doubt that shaft drive is vastly superior to belts. The RTR 3's drivetrain features sealed gearboxes front and rear, joined at the middle of the chassis by a pair of steel driveshafts. As with the Nitro MT truck, a centrally located spur gear spins the driveshafts and the diffs. HPI has a two-speed transmission for the RTR 3 waiting in the wings (it should be released at the same time as the car), and packages the car with a limited-slip front differential.

Along with the increased durability, HPI also claims that the RTR 3's shaft drive accounts for an increase in both acceleration and top speed. The RTR 3 will also come with a full set of 18 rubber-sealed ball-bearings for reduced maintenance and lowered drivetrain friction.



SPECIFICATIONS

Type: 1/10-scale RTR nitro touring car
Engine: HPI 15FE pull-start
Drivetrain: shaft-driven full-time 4WD
Diffs: sealed metal gear diffs (limited-slip front)
Suspension: independent lower A-arms with fixed upper links
Damping: composite oil-filled shocks
Part no.: 579 (Camaro SS); 582 (Dodge Stratus)
Retail price: $489.00



The Nitro 3's drivetrain is based on that of the Nitro MT off-road truck. HPI's goal was to reduce the chances of belt/pulley damage from rocks and debris.

MORE POWER

One of the reasons we (and thousands of HPI customers) liked the last generation of the RTR Nitro RS4 was that it had a great engine, the 15FE. This pull-start powerplant was incredibly easy to tune, and it always ran like a clock during our tests. The new RTR 3 will come with an improved version of the 15FE that has a new purple-anodized aluminum heatsink for cooler operation, and a collet-style flywheel for greater durability. The engine is also fitted with a new one-piece cast manifold (which eliminates vibration and heat issues compared to the old two-piece manifold), and HPI's dual-chamber tuned pipe.

Among the many changes to the Nitro 3 include a revised 15FE engine and a thicker 2.5mm aluminum chassis.



BETTER BACKBONE

The RTR 3 also benefits from increased rigidity thanks to a thicker 2.5mm aluminum chassis (the old car's chassis was 2mm thick). This not only helps the car to handle more consistently, but will reduce the chances of damage during a crash. Up front, a new foam bumper sits higher to prevent snagging and to better protect the front of the chassis.

BUILT BETTER

According the HPI, the RTR 3 is assembled by professionals in a special factory to exacting standards. The car's oil-filled shocks will come pre-filled, and all metal-to-metal hardware connections will receive an ample dose of strong thread-locking compound to prevent them from coming apart due to vibration. The car will also have a pre-installed TX-2 radio system, which is made by Airtronics (and backed by Airtronics for warranty claims). Unlike the old car, the RTR 3's receiver and battery are both housed in protective compartments. HPI even conducted rain tests to ensure that the system was adequately protected from the elements.

OTHER IMPROVEMENTS

Along with a full set of HPI's Split-6 wheels and high-grip M-compound X-pattern radial tires, the RTR 3 gets one-piece foam tire inserts rather than the unreliable foam strips. And although the RTR 3 is essentially an all-new car, it is compatible with several of HPI's existing hop-up parts. And we are told that HPI will soon be introducing a host of specific option parts for the RTR 3, including a Super Chassis (73914) and an aluminum exhaust header (86037).

If all this sounds good to you, we've saved the best for last: HPI tells us that the new RTR 3 will actually be priced lower than the car it replaces!



The RTR Nitro 3 will be available with your choice of Chevy Camaro or Dodge Stratus bodies. An Airtronics radio system also comes pre-installed.

SOURCES

HPI, 15321 Barranca Pkwy., Irvine, CA 92618 • phone (949) 753-1099; fax (949) 753-1098

Sticker Shock

Avoid those pesky bubbles & wrinkles!



There are two types of body: racing bodies and scale bodies. Racing bodies are the type that you'd put on your off-road buggy or truck, or your touring car. Usually, most of the detail work on these types of bodies is done using a custom airbrush scheme. The sticker work applied to the outside is basic at best: a couple of headlights and taillights and a whole bunch of "sponsor" logos, i.e., manufacturer stickers. Scale bodies, such as those that replicate full-size racecars, are just the opposite: their paint jobs are usually simple (one or two colors), but the secret to their scaled-down good looks lies in their incredibly detailed decals.

Believe it or not, several of our staff writers had never had the experience (or nightmare) of completing a scale project. What did we do about this? We assigned them a Kyosho or Tamiya kit, one with two huge sheets of stickers, to complete! Based upon the results of this "experiment," it seems some people have a knack for complex graphics, while others seem to be all thumbs. Yes, finishing a kit that's as detailed as it is fast is very satisfying, but how can you avoid the common pitfalls, bubbles and wrinkles that are associated with complex stickers? By following these simple tips, of course.



TOOLS OF THE TRADE

Applying decals doesn't take a lot of equipment; just a few basics, and a deft hand. Here are a few items that make the job easier.

- A good sharp hobby knife (we use an X-Acto with a number 11 blade)
- Curved scissors (such as those used to trim Lexan bodies)
- A cutting board for trimming the decals with the knife
- A blow dryer to soften up decals that must conform to curves, ridges etc.
- Windex or a mixture of mild soap and water. This helps you to position large decals



SMALLER STICKERS

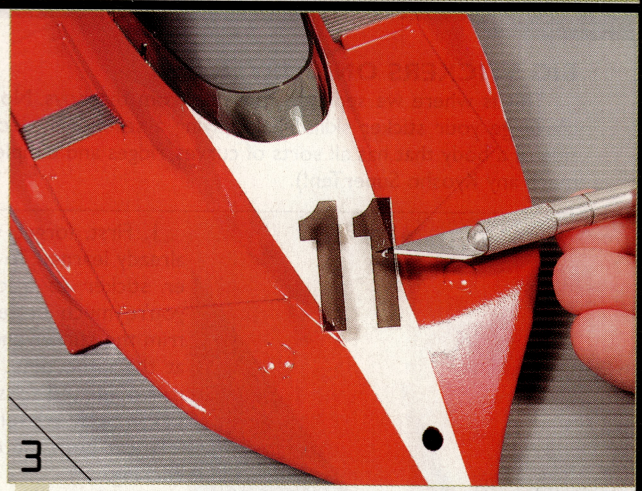
These are relatively easy to apply. By far the best way to deal with small to medium sized decals is to cut them from their backing rather than trimming the decal and backing with scissors. Here's how:

1. First, lay the sticker sheet on a cutting board. Using a very sharp X-Acto knife (we prefer a number 11 blade), trace the outline of the sticker. The trick here is to press only hard enough with the knife to cut through the decal, not the backing (this makes it easier to lift the sticker from the sheet). The reason we recommend a sharp blade will become apparent as soon as you try this technique with a dull one! For the best looking results, try to cut as close to the sticker's outline as possible—nothing looks worse than a whole bunch of extra clear material surrounding the sticker.

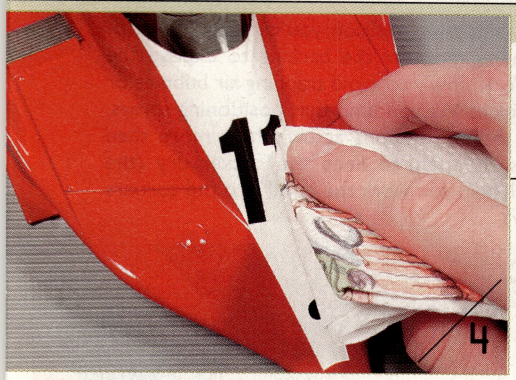




2. Carefully lift one edge of the sticker using the tip of the knife blade. Lift slowly to avoid tearing the sticker in the event that you hadn't cut deeply enough. If you notice a snag, don't try to pull the sticker away from the backing anyway. Go back and retrace the cut.



3. Whenever possible, avoid touching the adhesive side of the sticker with your big greasy mitts. The fingerprints will show through the decal once it's been applied. Instead, position the decal using the tip of the knife blade (stuck to the adhesive side).



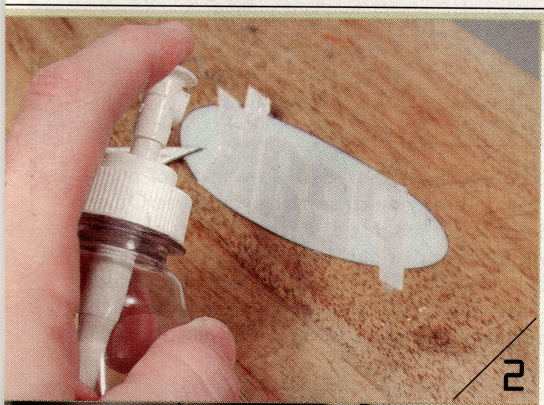
4. Once the decal is in position, carefully rub it into place beginning from the center and working your way out to the edges to remove any trapped air.

BIG STICKERS ON FLAT AREAS

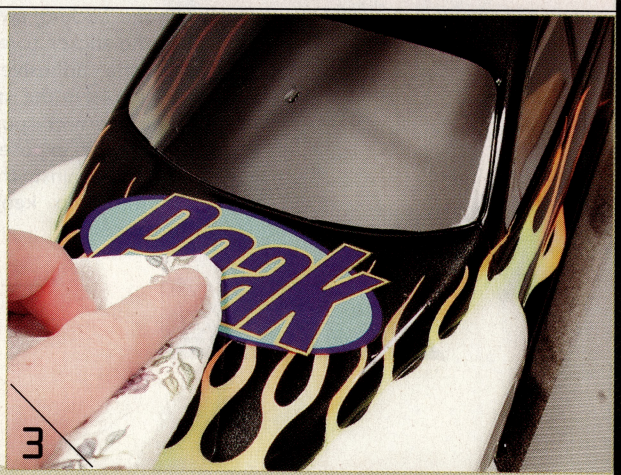
If bodies were flat, applying stickers would be a walk in the park. Unfortunately, many bodies have complex curves and sharp ridges to contend with. The good news is that most racing bodies provide plenty of large, flat "billboard" space, such as hoods and roofs, to accommodate your big sponsor props.

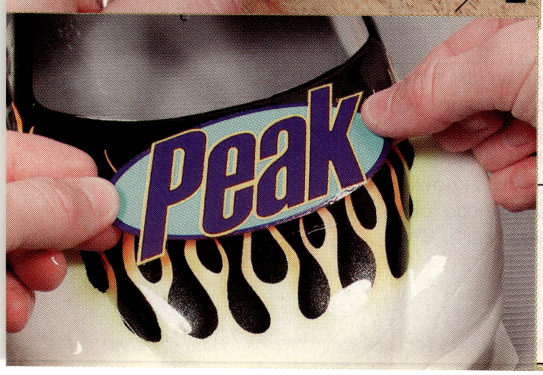


1. If you have a large sticker to apply, and your body has a large enough flat surface, you can follow the same steps as when applying smaller stickers. Cut the decal away from the backing and gently peel it up.



2. You may have noticed that it's a lot harder to position a large sticker than a small one. No matter how careful you are, some part of the decal will always stick to the body exactly where you don't want it to be! To make it easy to position a big sticker, first spray its adhesive side with Windex or a mild mixture of soapy water. Once the adhesive is wet, you can even grab the sticker with both hands and slide it into position!

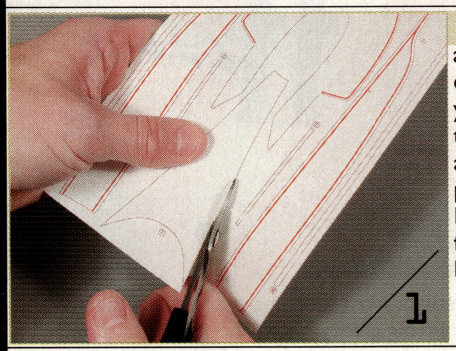




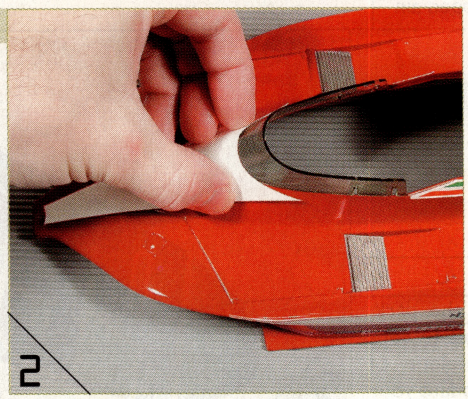
3. After the sticker has been placed, "squeegee" out the excess Windex or soapy water using a paper towel. Begin at the middle and work your way to the edges. After the moisture has been squeezed out from under the decal, you'll be amazed at how quickly the stickiness returns.

BIG STICKERS ON CURVES

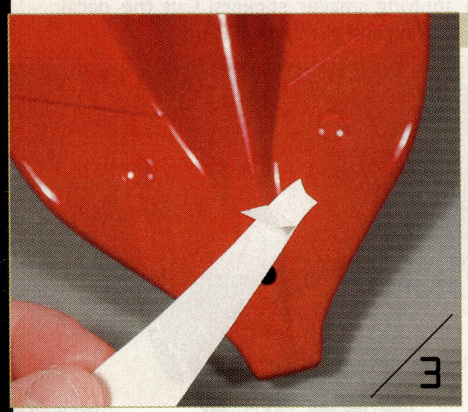
This is where we separate the men from the boys. Nothing will challenge your sticker skills like applying a seven-inch decal to the side of a body that has all sorts of curves, ridges and dimples (pretty much any Kyosho SuperTen!).



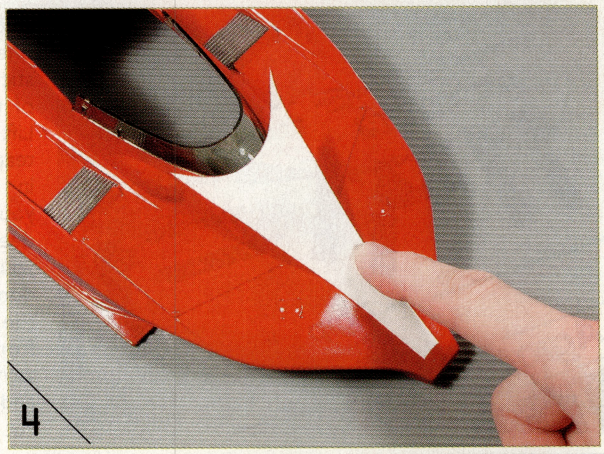
1. First, forget what you've already learned. To apply a larger sticker to a curved area, you're much better off if you trim the sticker and its backing at the same time. Use a good pair of curved scissors (such as Lexan body scissors) and carefully cut both the decal and its backing.



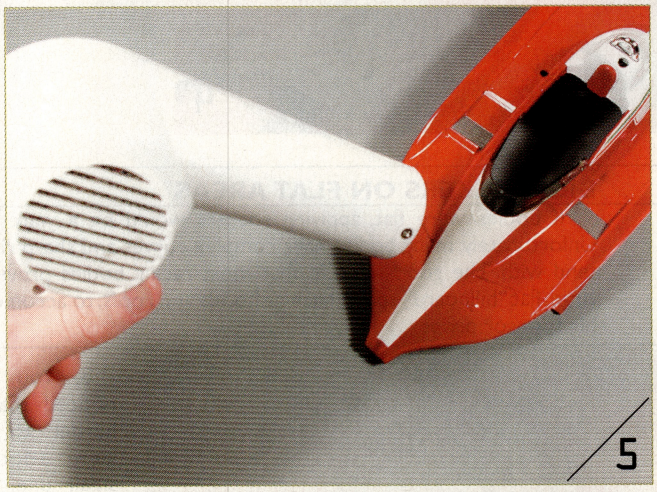
2. Lay of the land: before anything else, it's a good idea to see exactly how well the decal will fit the area. A test-fit is in order. Some companies are simply amazing, and their decals fit every nook and cranny perfectly. Others leave a lot to be desired (and trimmed away later!).



3. Peel a corner of the backing away from the sticker to expose a little adhesive. Once you have the sticker in its correct spot, pressing the exposed adhesive against the body will help keep it in place.



4. With the decal in position, you can begin to gradually peel away more of the backing to expose the adhesive. Work slowly to avoid trapping air bubbles or causing wrinkles. We've found that positioning sprays, Windex or other solutions actually hurt more then help in this situation, so keep the sticker dry (the adhesive will help you work the decal into the corners of the body).



5. Do the do: Some companies' decals are made of premium vinyl that will do pretty much anything you tell it. Others cheap out and make your job that much harder. But you're not counted out yet. Get out that old blow dryer that you haven't used since the days of Travolta and use it to heat up the decal. Use the low-heat setting *only* (you don't want to melt the decal); you'll be amazed at how a warm decal will stretch and conform.

CONCLUSION

If for you R/C is more than just a game of who can go the fastest, then looking good is an important factor. The right application of decals can make or break your finished body—even if you're a serious racer. With just a little knowledge, some Windex and a hair dryer, you too can achieve a stunning look (not you, your car!).

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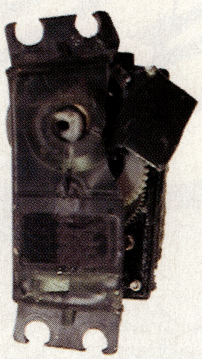

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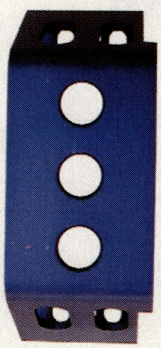

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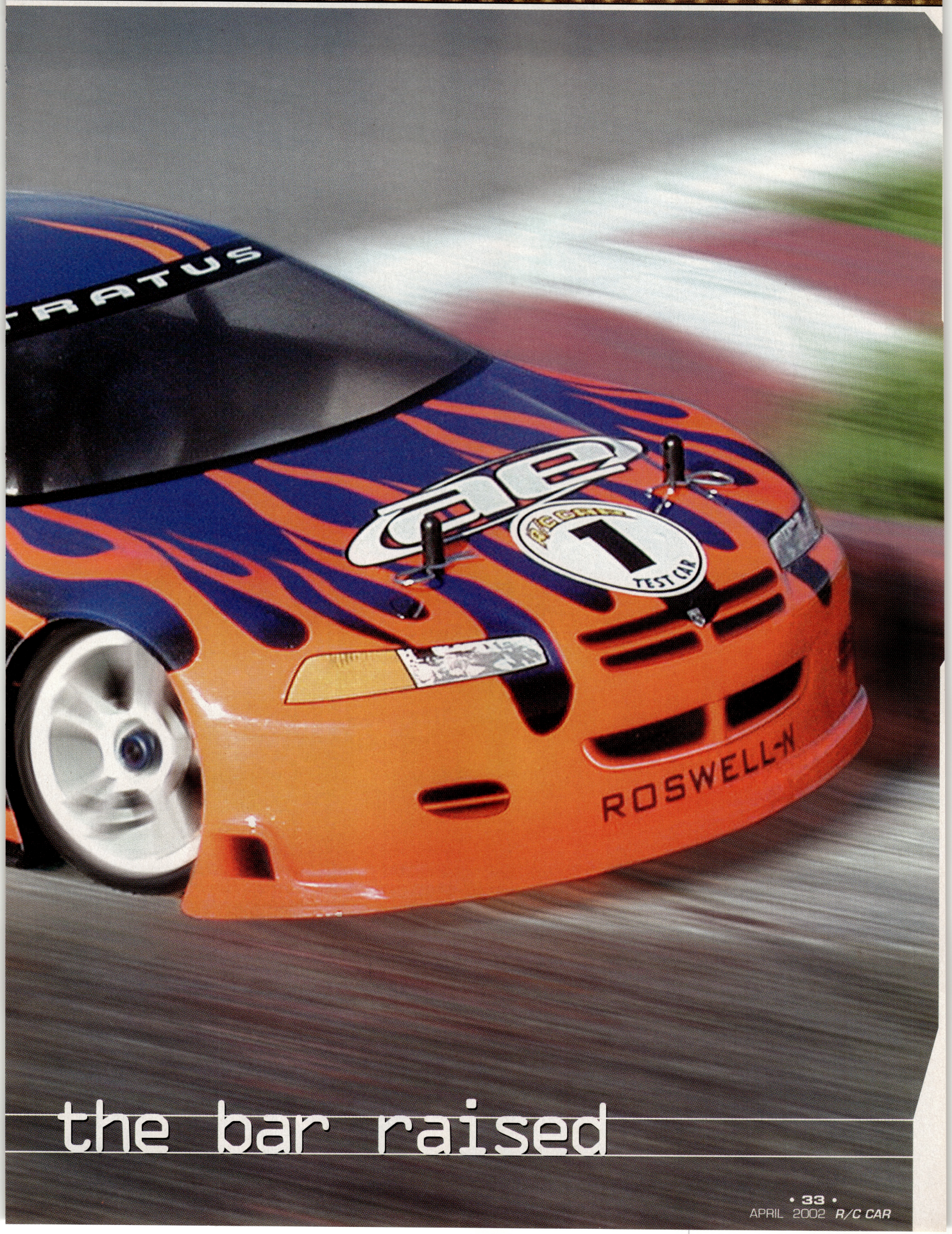
Team Associated Nitro TC3

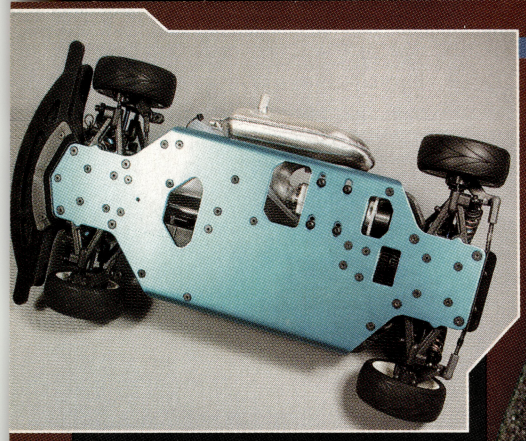
When Associated decided to get into the touring car business, they knew from the onset that they would design one basic platform that could support both nitro and electric power. One look at the similarity between the electric TC3's drivetrain and that of the nitro version confirms that very little needed to be changed to accommodate the nitro engine in place of the battery pack. We were shown our first glimpse of the Nitro TC3 in October of '00 at the Chicago Hobby Show. You may recall that original prototype used suspension pieces that were essentially carried over from the electric car. Since that debut, Associated has had the time for extensive testing, and has re-thought much of the prototype's original suspension design. Hence the reason why the full production Nitro TC3 bears such little resemblence to that earlier prototype. Although the basic layouts are identical, the suspension and some of the drivetrain have been completely altered to better suit the rigors of nitro racing.

We know that Associated has a well-earned reputation for designing, re-designing and then re-re-designing until they feel that the product is as perfect as it can get. The problem with this philosophy is that we, the enthusiasts, have to endure the torturous period of time between Associated's initial announcement and when we actually get to hold the kit in our hands! Such was the case with the electric TC3 and now the Nitro TC3. Well, the agony is over. It's here, and it's time to find out if it was worth the wait!

Consider



the bar raised

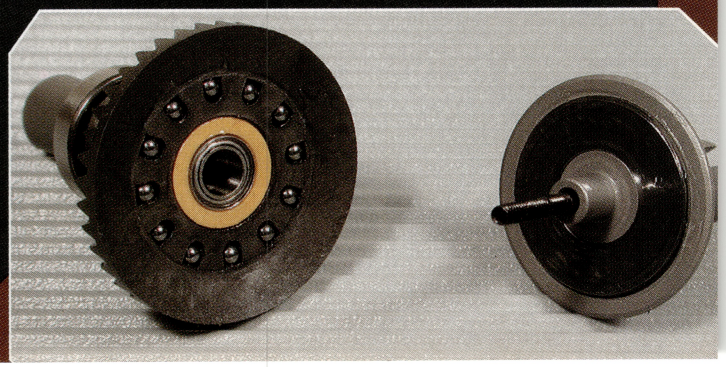


The basis of the Nitro TC3 is a stamped chassis made from 2.6mm-thick 6061 aluminum. T-6 heat treating and raised sides increase the stiffness of the chassis even further. A molded grab handle allows you to hold the car while it's running, and the handle is situated on the chassis to provide a slight nose-high attitude to aid in fuel feed. A "reversed" version of Associated's flip-top fuel tank sits just to the left of handle (this tank will surely be a popular option for the RC10GT gas truck). As the stock tank is slightly larger than the legal 75cc capacity, Associated provides an insert that displaces just enough fuel to keep you from a disqualification at your next race. A large cutout just below the engine location allows the Nitro TC3 to accommodate both pull-start and non-pull-start engines (with different engine mounts and flyweel).

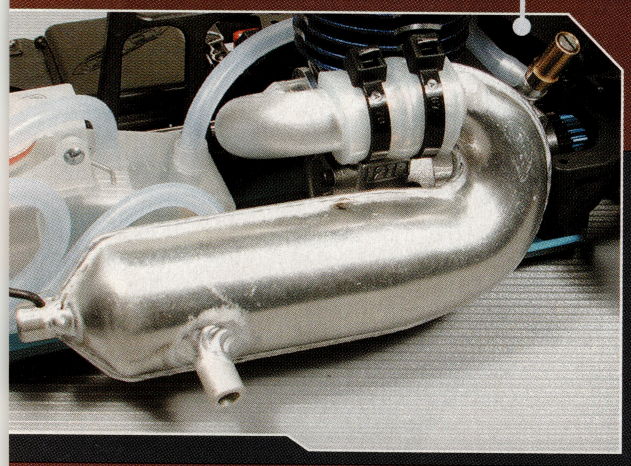
OUTSTANDING FEATURES

When we received our test car, the first thing we asked ourselves (and Associated) was "what happened to the gear diffs?" All during the Nitro TC3's development, we had been told that it was going to be fitted with sealed gear differentials—the staple of all current nitro racing sedans. Associated's response was that they had in fact designed gear diffs for the car, but every test driver preferred the car with ball diffs. The only problem with ball diffs is that they don't fare too well under the stresses of nitro racing. Associated fixed the problem by redesigning its TC3 ball diff and adding an internal slipper pad that helps absorb some of the drivetrain shock that would otherwise overstress a regular ball diff. The obvious benefits to having ball diffs is that they are lighter than gear diffs, and when you want to change their operating friction, you only have to stick a 5/64" Allen wrench into the drive cup and tighten a screw—no messy oil to drain, no gears to clean and much less hassle.

The remainder of the Nitro TC3's drivetrain should be pretty familiar to anyone who has seen an electric TC3; the final drive ratio is still 2.5:1, and the front and rear ball diffs are housed in sealed gearboxes and are driven by Gleason-system barrel-cut bevel gears. The gearboxes are linked by a longitudinal driveshaft, but not the hollow carbon shaft of the electric car. Instead, the nitro version gets a machined aluminum center shaft that is better balanced to handle the extreme rpm of nitro engines (the epoxy that holds the carbon shaft together can drip inside the hollow shaft and cause minute balance issues).



Team Associated Nitro TC3

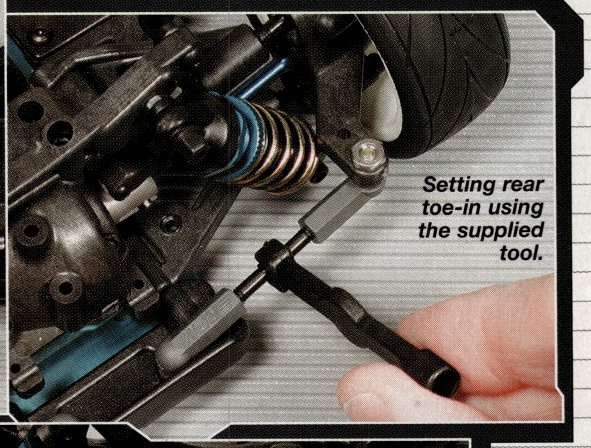


The layout of the Nitro TC3 presents some interesting problems with exhaust routing—specifically with rear-port engines. Associated addressed this by designing a complete exhaust system consisting of a U-shaped aluminum manifold and a two-piece seamed pipe made from aluminum stampings. The pipe provides a good blend of low-end grunt and top-end scream. For those without rear-port engines, Associated also offers a version of the Nitro TC3 that can accommodate most standard side-exhaust .12 and .15 engines (although the pipe is a different model).

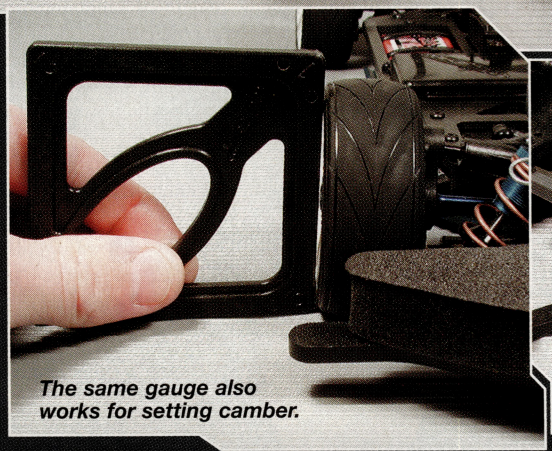
Team Associated Nitro TC3



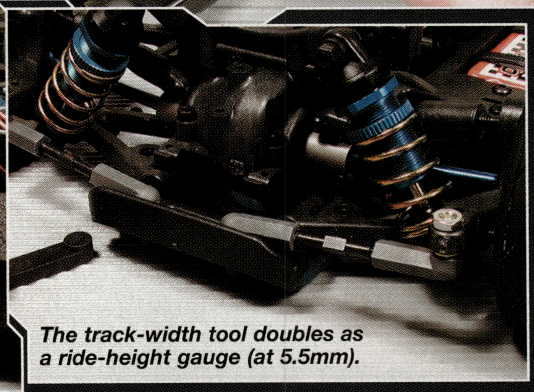
A flat rear bumper allows for easy rear toe-in adjustment using the included gauge.



Setting rear toe-in using the supplied tool.



The same gauge also works for setting camber.



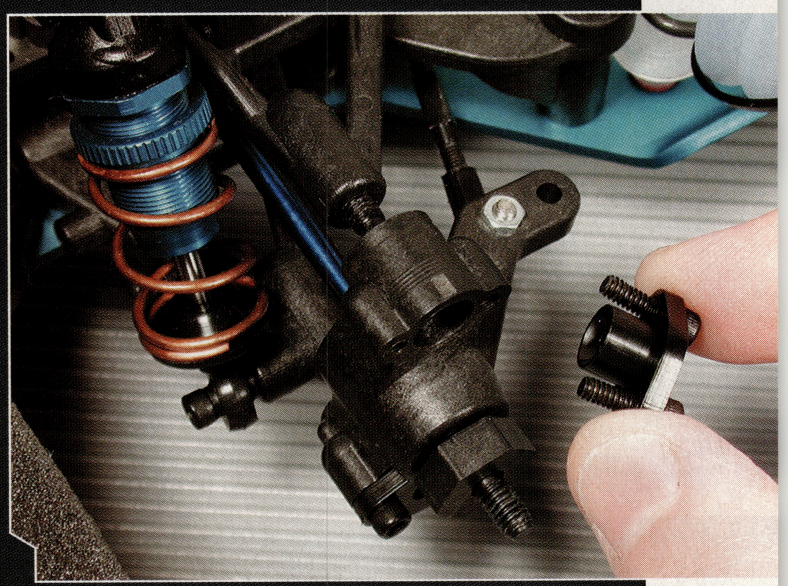
The track-width tool doubles as a ride-height gauge (at 5.5mm).

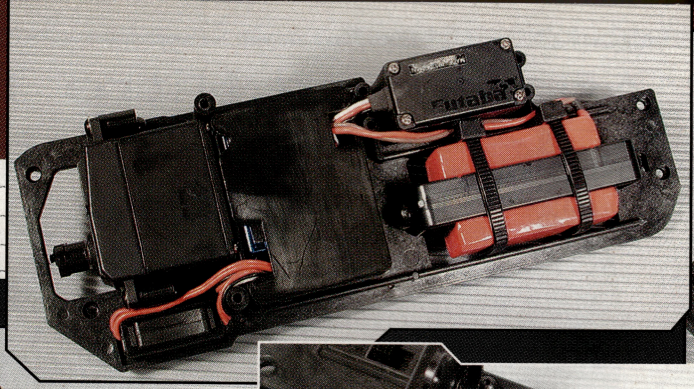
The most pronounced change made from prototype to production was the adaptation of pillow-ball suspension. After testing the original car's lower A-arm/upper link design, Associated felt that the suspension simply wasn't up to the task of handling longer races and the higher speeds that go with gas racing. The Nitro TC3's pillow-ball suspension uses symmetrical upper and lower wishbones, which means that the left arms are the same as the right in case you break one. The lower wishbones are longer than the arms of the electric TC3, which raises the car's roll-center and compensates for the nitro car's higher CG and increased weight.

Another example of Associated's "streamlined" parts design is that all four hub carriers are identical. Again, this comes in handy if you snap a hub, and if you're a hobby dealer, you need only stock one part to cover four potential breakage points. The hubs are attached to the wishbones with 5/64" high-carbon chromoly steel pillow balls, which have fine threads for a wider and more precise range of adjustment. Unlike other pillow-ball designs, the Nitro TC3 doesn't rely on screw-in retainers to hold the pillow balls. Instead, Associated designed a molded retainer that is held to the hub by a pair of 4-40 cap screws. This design eliminates the chance of beginners overtightening the retainers and binding the suspension.

Up front, a pair of molded C-clips allow the upper wishbone to be slid fore or aft to alter the car's caster angle from between 6, 9 or 12 degrees. In back, the hub carriers are held in position by a pair of turnbuckles that allow for the adjustment of the rear toe angle. The turnbuckles use oversized RPM ball ends, which are less likely to pop-off during a collision. The rear hubs also feature 0 degrees of anti-squat. After months of testing, Associated's team drivers decided that the car simply worked best without anti-squat.

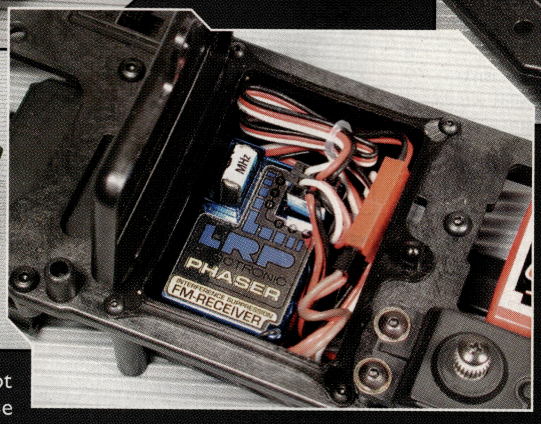
Each lower wishbone incorporates a setscrew that is used to adjust the amount of suspension droop. The setscrews are large in diameter and have rounded tips for prevent them from digging into the chassis. And although currently available TC3 roll bars will fit the Nitro TC3 (there are molded ball-studs on each lower wishbone), Associated also has a Factory Team adjustable blade-style bar available.



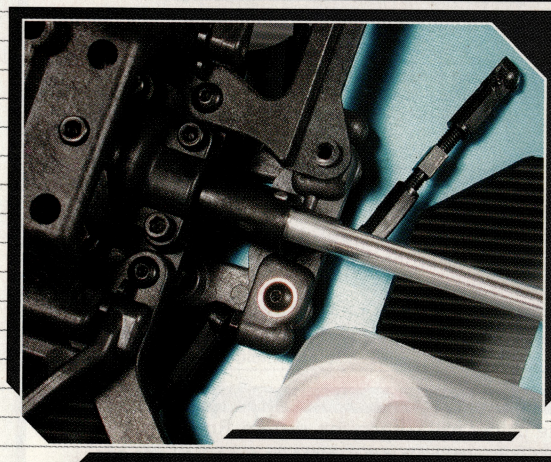




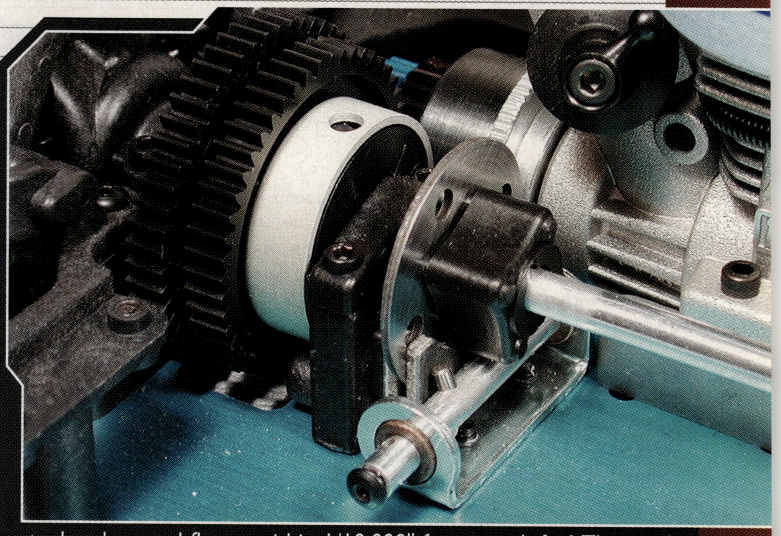




The Nitro TC3's radio tray not only provides a safe haven for the delicate receiver, battery and servos, but also serves as an integral structural member of the chassis. As far as radio trays go, this has to be the best one we've seen; it has an incredibly low-profile—it's only as tall as a servo. It also has a spacious protective box that will accommodate just about any sized receiver. Beneath the box are several cutouts through which the servo, battery and switch leads are passed and stored inside the box for a tidy appearance, with no chance of any wires becoming tangled in a moving part. The battery holder is equally innovative, and accommodates virtually any type of cell and configuration of pack—from a four AA-cell holder to a five-cell Ni-MH flat pack. And the packs don't just fit; the holder has been specifically engineered to hold each type of pack securely.



One look at the front the Nitro TC3 and you'll notice that the electric TC3's innovative sliding ATAC (Associated True Ackerman Concept) steering rack has been replaced by a conventional dual bellcrank setup (well, it's sort of conventional; the bellcranks face backwards). The official word from the AE camp is that they felt the sliding rack would require more periodic maintenance than nitro racers would tolerate. Any dirt and debris in the rack causes binding, and nitro cars are infamous for such things. The new bellcranks have the same unique built-in servo-saver device, and they are reported to provide "perfect" Ackerman angle by the Associated press department. What's more, you can make the car steer more aggressively by installing the optional 6270 ball ends, which reduce the Ackerman.



Between the center driveshaft and the rear gearbox lies a clutch-type 2 speed transmission—a designed that was actually pioneered by Team Associated for its 1/8-scale RC-500 on-road car. This type of tranny provides smoother and more consistent shifting than the finger-style 2-speeds, and is also much more durable. The 32-pitch spur gears are manufactured by Kimbrough, and a range of sizes (48, 50, 52 and 54 teeth) are available as options (the stock gear ratios are 22/54 for first, and 26/50 for second). The clutch bell is threaded to allow for easy pinion swaps, and Associated currently offers optional pinions from 20 up to 27 teeth.

Instead of the venerable 2-shoe free-floating clutch we've come to expect on every Associated nitro vehicle, the Nitro TC3 receives an all-new 2-shoe clutch that has top-loading tension springs for easy adjustment of the clutch's stall rate (optional springs will be available for this purpose). The shoes themselves are made from molded Teflon® for improved durability and smoother engagement. Also, the supplied flywheel will fit both threaded and pilot-shaft style cranks.

When you look at the Nitro TC3, you can't help but feel that someone, somewhere, sweated over every single detail 'til the wee hours of the morning. This is certainly true of the brake system, which features a rotor made from high-carbon steel and ground flat to within 1/10,000" for smooth feel. The steel pads are pre-laminated with lining material that's the same as that used in full-scale NASCAR brakes, and are clamped via a spring-steel lever arm that helps to provide a more progressive braking feel. The rotor is allowed to float on four hardened steel dowel pins so that it will be far less likely to bind against the pads and slow the car when the brakes aren't engaged.

Associated Nitro TC3

REPORT CARD

Test location: SVM Microspeedway, Sun Valley, CA
Track type: Huge permanent asphalt roadcourse. Ultra-smooth untreated pavement. Wide lanes and tall curbing.

Acceleration B-

Although the feeling is less immediate than with a belt-driven car, the Nitro TC3 accelerates hard, but with a smoother overall sensation. Some owners complain that their cars have a tendency to pull to the side under hard acceleration, but our test car exhibited little if any drivetrain twist. If the car isn't tweaked, it won't pull to the side. Stiffer springs would also help the car to square-up better out of the turns.

Top speed A+

If there were a higher score, we'd award it to the Nitro TC3. Associated's Cliff Lett swears that gear-driven cars operate with less drag at speed than belt cars, and after testing this car, we agree. With the stock gearing, our Nitro TC3 pulled all the way down the 250-foot-plus SVM back straight. Every belt car we've tested—regardless of gearing - has hit its limit before the end of this straight. The car was so fast that the rear wing's downforce caused the back of the chassis to spark against the pavement at speed.

Braking A+

Associated has designed a flawless disc brake system. It doesn't fade, and the brakes are so sensitive that one percent of brake EPA adjustment can be felt on the track.

Steering A

Of course tire selection plays a major role in any car's overall steering feel, but regardless of the tires, every car's inherent steering traits can be felt. Equipped with soft-compound Medial Pro IAS 26mm tires, the Nitro TC3 had perfect left-right balance. It also drives as if equipped with a one-way; negotiating the majority of the SVM high-speed track required little if any braking to get the car through the tighter sections. Coming off the wide-open back straight at 60-plus mph into a 110 degree right hairpin could be accomplished without brakes. The Nitro TC3's drivetrain is so free off-power that the car can carry immense speed through the turns, with none of the mild drag of the belt-drive cars.

Shifting A

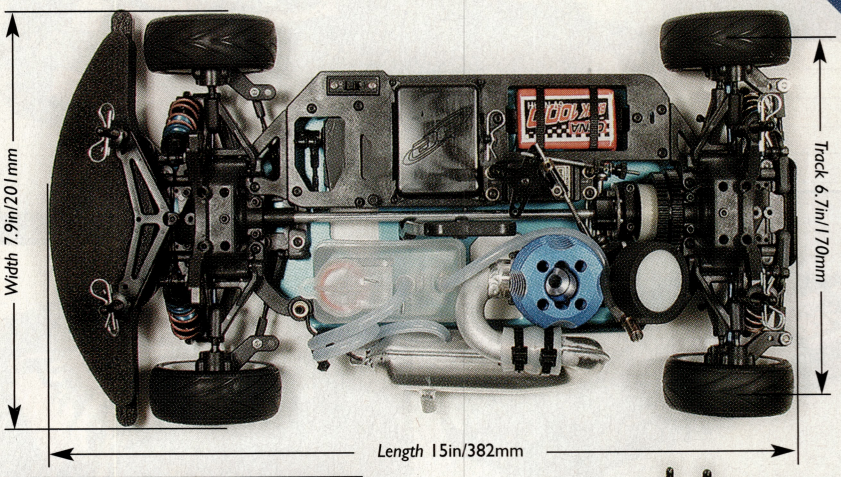
The Nitro TC3's two-shoe clutch-type 2-speed required a few tanks to break-in, but after this, shifting was flawless and as consistent as with any car we've tested. The shift-point adjustments are very sensitive, with a very wide range to suit any sized track.

Maintenance A+

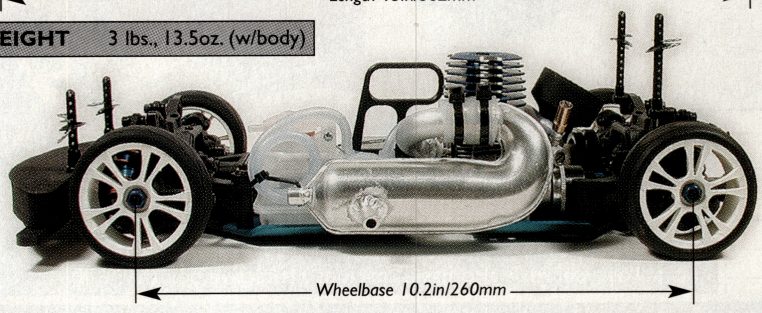
This car is as easy to work on as the electric TC3. Six screws allow removal of either diff, and another six screws stand between you and the complete removal of the radio tray. No messy oil-filled diffs, either.

Durability A

So far, so good. We gave the Nitro TC3 an "A" here simply because it has performed perfectly during our test. We launched the car over the track's curbing several times at speed, and it came through with nary a scratch. Only time will tell if this score is deserved or not.



WEIGHT 3 lbs., 13.5oz. (w/body)



SPECS

TYPE	1/10-scale nitro touring car
PRICE	$289.99 (non p/s); $274.99 (p/s) (street prices)
CHASSIS	
Type	2.6mm plate w/raised sides
Material	6061 T-6 aluminum
SUSPENSION	
Type	Independent upper/lower wishbones w/pillow-ball hubs
Damping	threaded-aluminum oil-filled shocks
TRANSMISSION	
Type	Shaft-driven 4WD w/2-speed
Drive shafts	MIP blue CVD shafts
Bearings	Shielded ball-bearings

Final Score

Highs: Rugged and easy-to-tune pillow-ball suspension system. Routine maintenance is simple and easy compared with belt-driven nitro sedans. Ballistic top speed provided by the gear-driven 4WD system. Stock factory setup is nearly spot-on for rubber tires. Associated has become the leader in clear and thorough instructions. Not an E-clip in sight; the lower suspension pins are captured by their mounts, while the upper pins are secured with tiny button-headed screws.

Lows: The rear toe-in linkage interferes with the use of Hudy Set Up gauges. The kit tires (Pro-Line V-Rage radials) don't compliment the chassis (the car felt numb with these tires). Firmer stock inserts would help.

The verdict: As it did with the electric TC3, Associated has been able to maximize the benefits of its shaft/gear drivetrain (durability, low friction) while minimizing the shortcomings (drivetrain twist). The Nitro TC3 exemplifies all that we've come to expect from Associated: innovation, performance and ease of use. This car will cause other manufacturers to re-think their designs. This is the new benchmark in nitro sedans.

SOURCES

Airtronics, 1185 Stanford Ct., Anaheim, CA 92805 • phone (949) 978-1895; fax (949) 978-1540

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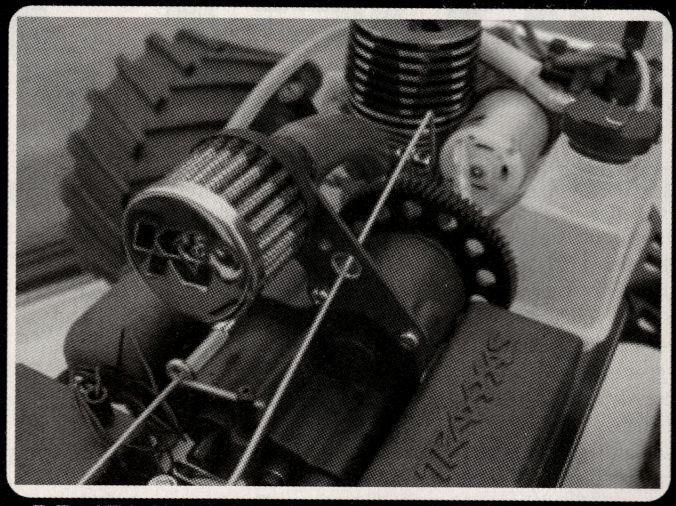

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Tool Time

Getting set up with the basics

When you built your first kit, it's likely that you had very few tools aside from the various Allen wrenches that the manufacturer kindly included in the box. Maybe you had the right sized Phillips screwdriver and the correct socket wrench, but it's also possible that you had to resort to using pliers to tighten the wheel nuts. You know the saying "the right tool for the job"? This applies to R/C as well. And whether you're a racer or a backyard bomber, having a well-stocked toolbox is a must. Here is a list of "essential" tools that we wouldn't be caught dead without.

Screwdrivers

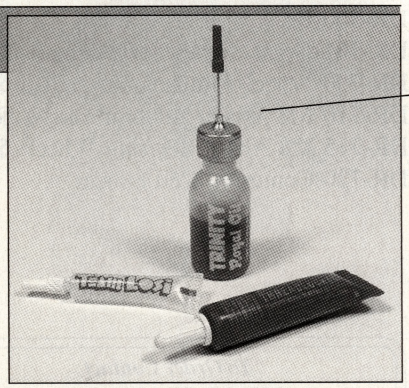
You'll need at least two Phillips head screwdrivers. One should be medium-sized (what's commonly called a #1 size), and this will fit just about every screw on every vehicle known to man. You'll also need a smaller screwdriver (such as a #0) for such things as servo-gear screws and those little 2.6mm screws Kyosho uses to attach wings and such.

You can easily get away with owning just one flat-bladed screwdriver. If you plan on owning a nitro car or truck, then you'll want a screwdriver that's small enough to access the engine's needle valves. Generally, a #3 or #4 driver will perform just about every task imaginable.

Cutting tools

Everyone needs a good knife, and our weapon of choice is the trusty aluminum X-Acto with the #11 blade in place. Trimming flashing from plastic parts? How about shaving that suspension arm that's been binding? The X-Acto can do it all. Also on our list is a body reamer. Of course this could be considered an optional item, but we've found so many uses for it that go far beyond simply creating perfectly round body-post holes. Hudy makes the best one, but the Factory Team version from Associated (shown) is also pretty good (and it has a cool removable blade cover).

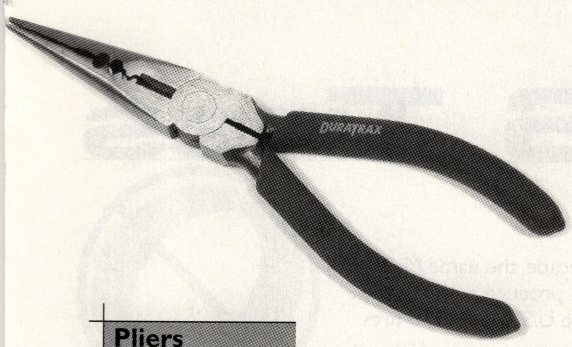
Lubes and oils



It's always a good idea to carry at least some form of bushing or bearing oil. This stuff not only works well on your motor bushings, but for any sticking or squeaking part that may requires attention. We also keep a tube of diff lube around for emergency rebuild situations. And last but not least: what self-respecting nitro racer would be caught without some Loctite? We prefer the milder blue formula over the "never coming off" red stuff.

Nut drivers

If you keep using pliers to tighten your wheel nuts, you'll round off the nuts' hexes. For building standard U.S. kits, you'll want to have a 5/16-inch socket for most wheel nuts, a 1/4-inch socket for 4-40 sized nuts, and a 3/16-inch socket to install those tiny suspension ball-ends. In metric sizes, you'll need a 7mm socket for touring-car wheel nuts, and a 5.5mm socket for those 3mm nuts. The good thing about modern kits is that most now come with some type of metal or molded nut drivers. Tamiya, Kyosho and HPI have for years supplied their kits with metal four-way wrenches. Some of the 1/8-scale kits also now come with multi-wrenches. American kits from Losi and Associated also come with molded drivers for such things as wheel nuts and shock nuts.

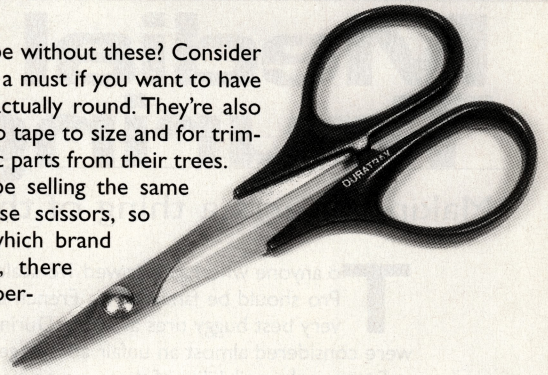


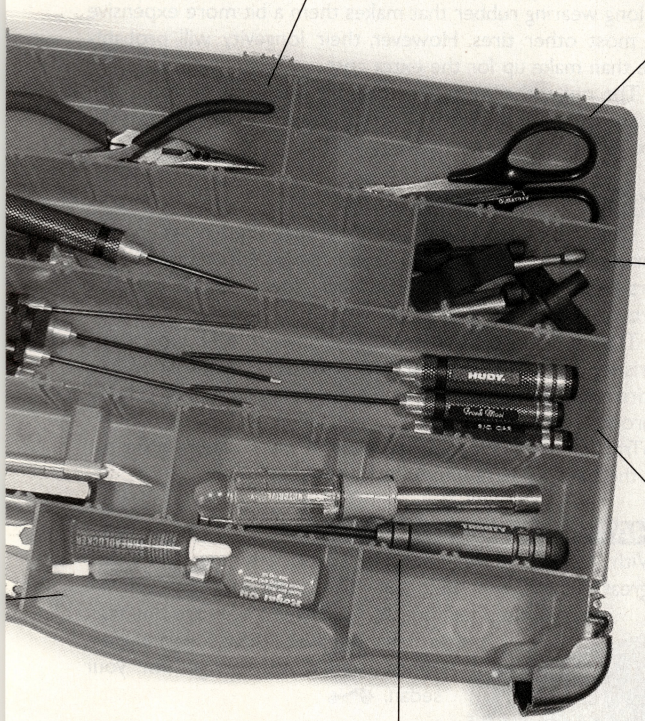
Pliers

We know that we've been bagging on all you guys who use pliers like MacGyver uses chewing gum, but there are some jobs that cry out for brute force, and there's no more suitable tool than pliers (except for maybe a hammer). We use medium-sized needle-nose pliers for such jobs as snapping ball-cups onto ball-ends. They also help hold nuts that are in nearly inaccessible areas.

Lexan scissors

Where would we be without these? Consider these curved scissors a must if you want to have wheelwells that are actually round. They're also great for cutting servo tape to size and for trimming very small plastic parts from their trees. Everyone seems to be selling the same basic version of these scissors, so don't worry about which brand to buy. Somewhere, there must be a very prosperous "curved scissors" factory.

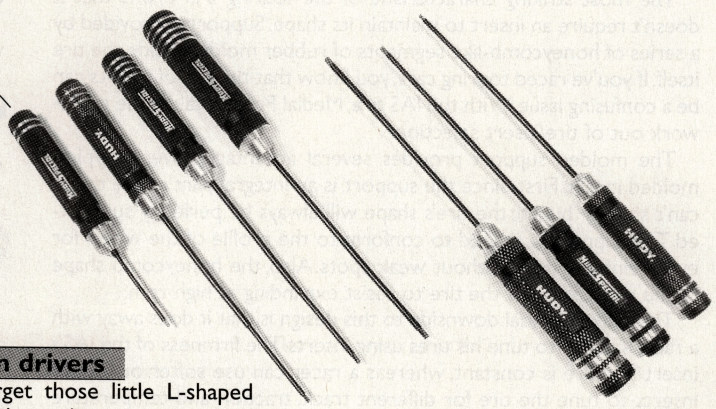






Miscellaneous necessities

If you've built a lot of kits, you'll notice that you've collected quite a few "specialized" tools. These are often included in the kit to ease the building process. Keep them all. You'll never know when you'll need a turnbuckle wrench or a certain odd-sized socket wrench.





Allen drivers

Forget those little L-shaped Allen keys; they are easy to lose and they have a tendency to strip screws (and become stripped themselves). We recommend that you invest in a set of good Allen drivers, at least in the sizes that you'll use most often. In metric sizes, we recommend that you get a 2.5mm (the size for motor screws), a 2mm (this also stands in for a standard 5/64 wrench) and a 1.5mm (this fits just about all of the little setscrews on any Japanese or European car). In standard SAE sizes, you'll need a 3/32-inch (used for all of those 4-40 cap screws), a 5/64-inch (fits Associated diff screws as well as 2mm metric screws), a 1/16-inch (fits 4-40 sized button-headed screws and most pinion setscrews) and a 1/16-inch (for nitro linkage setscrews).

Medial Pro Touring IAS Tires

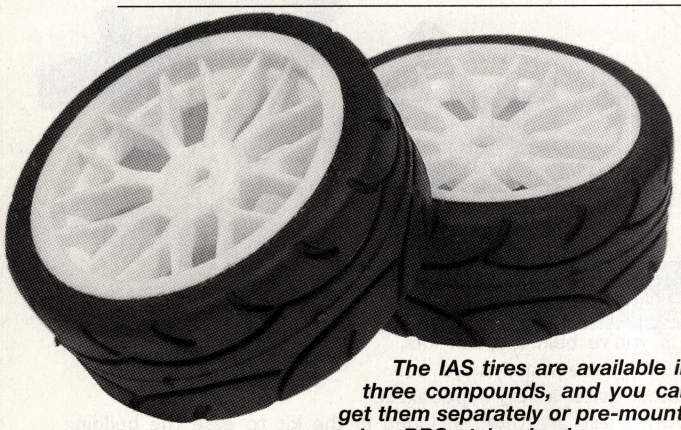
Making inserts a thing of the past

To anyone who has followed 1/8-scale off-road racing during the past decade, the name Medial Pro should be familiar. This French tire company has and continues to produce some of the very best buggy tires available. During the earlier days of 1/8 scale in the U.S., Medial Pro tires were considered almost an unfair advantage—if you could get them.

Fortunately, availability of these exotic tires is no longer an issue, thanks to General Silicones, who is now the exclusive U.S. importer of Medial Pro. With the increasing popularity of 1/10-scale touring cars, Medial Pro has decided to produce a line of tires specifically for both nitro and electric sedans, and like their off-road tire line, the new Touring IAS tires are of the highest quality and are different from anything else we've seen to date.



Medial Pro's new Touring IAS tires do away with the need for separate inserts.



The IAS tires are available in three compounds, and you can get them separately or pre-mounted on BBS-style wheels.

INSERTS NEED NOT APPLY

The most striking characteristic of the Touring IAS tire is that it doesn't require an insert to maintain its shape. Support is provided by a series of honeycomb-like segments of rubber molded inside the tire itself. If you've raced touring cars, you know that the use of inserts can be a confusing issue. With the IAS tire, Medial Pro has taken the guesswork out of tire/insert selection.

The molded support provides several advantages over a typical molded insert. First, since the support is an integral part of the tire, it can't shift or bunch; the tire's shape will always be perfectly supported. The support is shaped to conform to the profile of the wheel for even reinforcement without weak spots. Also, the honeycomb shape of the support helps the tire to resist expanding at high rpm.

The only potential downside to this design is that it does away with a racer's ability to tune his tires using inserts. The firmness of the IAS's insert and tire is constant, whereas a racer can use softer or harder inserts to tune the tire for different track, traction and temperature demands.

HAVE IT YOUR WAY

The Touring IAS tires are available separately at $12.49 per pair (list) or pre-mounted to medium (26mm) nylon BBS-style wheels for $19.99. Considering that a good set of wheels will set you back about $5.00, the pre-mounted tires make plenty of sense. There are also three rubber compounds—soft, medium and hard—from which to choose. For our test, we chose the and medium compounds.

WHAT WE DIDN'T LIKE

1) The Touring IAS tires are molded from an exclusive high-grip, long wearing rubber that makes them a bit more expensive than most other tires. However, their longevity will probably more than make up for the extra cost.

2) The only other negative point we can think of is that you can't change the firmness of the insert, but that would defeat the entire purpose of the tire's design.

WHAT WE LIKED

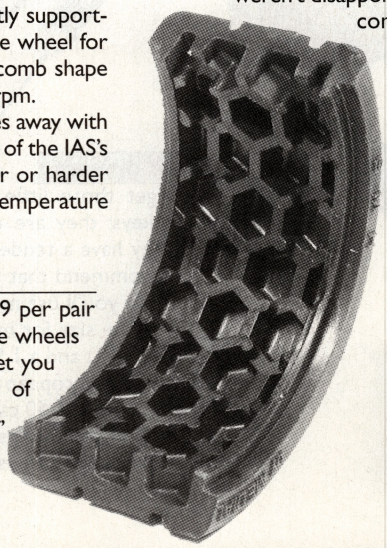
1) Obviously, the convenience of the integrated insert and the pre-mounted option make the Medial Pro IAS tires attractive to racers who would rather drive than spend hours selecting inserts and gluing tires.

2) The design of the IAS tire provides more even wear characteristics than with conventional tire/insert combinations. As the tire is supported evenly throughout its profile, it won't develop pronounced wear spots.

3) Traction on untreated pavement is very good—on a par with the best Japanese and American rubber.

WHAT WE REALLY THINK

With Medial Pro's reputation in the tire business, we expected great things from their new 1/10-scale on-road line. We weren't disappointed. The Touring IAS tires are the most convenient, longest-lasting high-performance rubber you can get for your sedan.



The secret lies on the inside of the IAS tire, where a honeycomb of ribs provides support to the tire's contour.

SOURCES

Medial Pro, distributed by General Silicones Group, Inc., 14120 Live Oak Ave., Unit A-2, Baldwin Park, CA 91706 • phone (626) 338-3815; fax (626) 338-3875

EVADER ST™



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We dare you to compare the Evader ST with any other electric RTR vehicle when it comes to Completeness, Convenience and Performance. We're confident you'll find it to be the BEST VALUE for the money. For the location of the dealer nearest you call 1-800-682-8948 and mention code 2941U or visit us on the web.



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- Steel Universal Driveshafts
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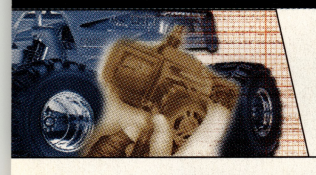


ABC Hobby DTM SP 1:24 Pocket Racer

By Lito Reyes

Small is big again, and in a huge way! From Tamiya's early Tamtech line (which now fetches very high prices on eBay) to the current line of HPI Micro RS4s and Kyosho Mini-Z, subminiature cars are now attracting as much attention as the big cars. Maybe it's because they can be run just about anywhere. Or maybe it's because of the super-long run times (hey, for a racer, anything over six minutes on one pack/tankful is a long time). Maybe it's just because they are so cute—make that COOL looking. And don't forget the hop-ups; there's no shortage of those for these cars.

Horizon Hobby is now importing the DTM SP 1:24-scale "Pocket Racer," made by ABC Hobby in Japan. About a dozen different bodies, ranging from sedans to GT cars to racecars, are available here in the States, and a few dozen more over in Japan, so you're bound to find one to your liking (or just about all of them, like us). Like the pioneering Tamtech cars from years ago, the DTM is 1/24 scale—a split between the 1:28 Mini-Z and the 1:18 Micro RS4.

One thing that stands out; the DTM SP looks just like a micro-size 1:10 or 1:12-scale classic pancar. The steel RWD axle, the T-bar, the spring-supported steering kingpins, the rear pod dampening plates, the battery slots (decorative, in the case of the DTM SP)—all these features are reminiscent of the tried-and-true pancar design. And just like a pancar, it shares the same handling attributes—good and bad.

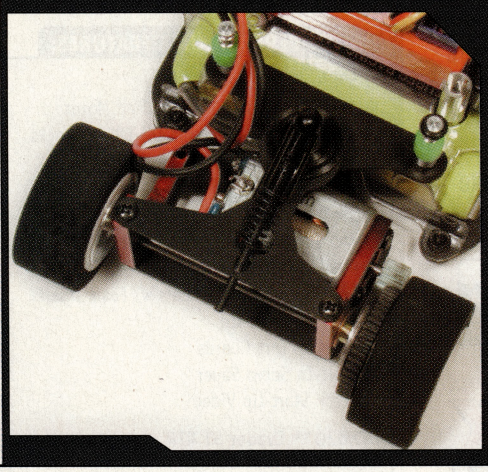


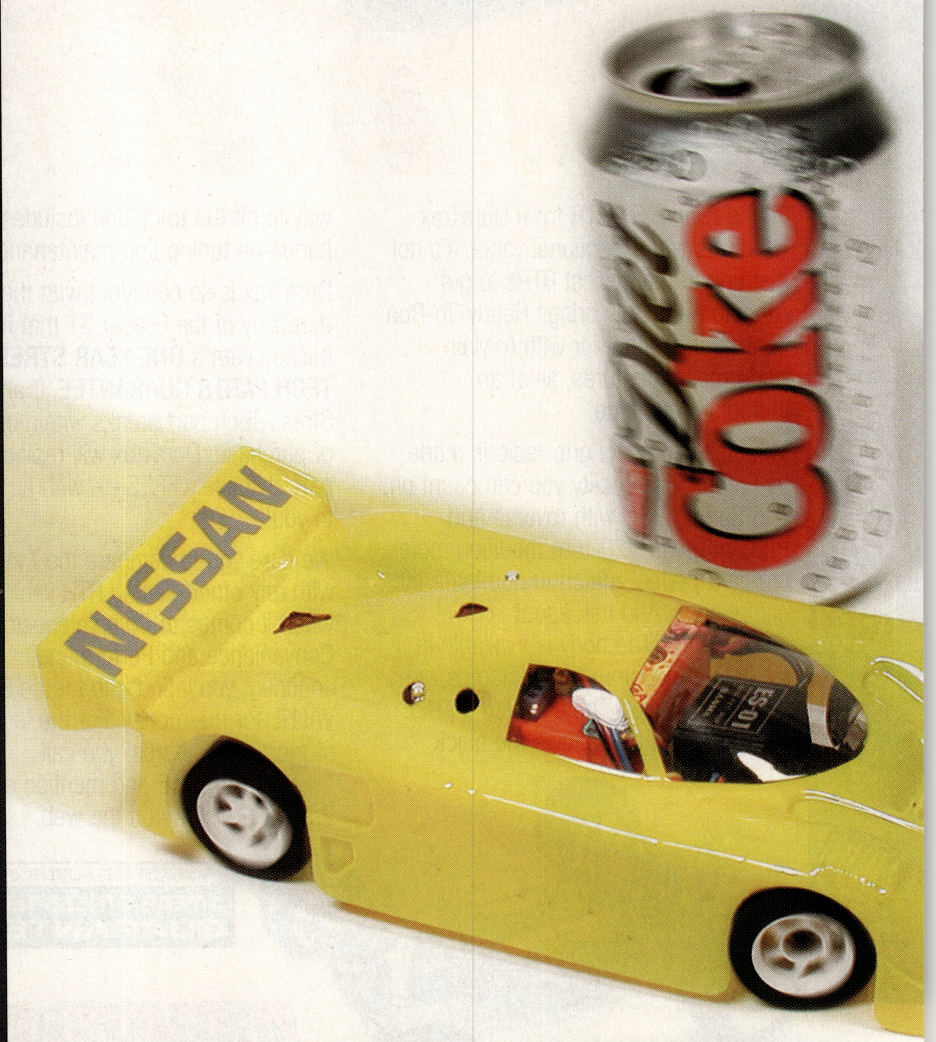
Two red-anodized aluminum side pieces make up the motor pod/motor mount. The aluminum material assists in keeping the motor cool, as well as making a stiff foundation for the pod assembly. And the red color just plain looks good.

The pod is supported on top by a clear polycarbonate upper deck, which doubles as a battery holder. A pivot post and two nylon pucks serve to dampen and support the T-bar's fore/aft flexing. Also notice the machined aluminum antenna mount.

A Mabuchi 130-size motor comes standard, but a faster 180SH and an array of pinions are optional.

Part of the steel rear axle is an adjustable precision ball differential, again, designed very similarly to the DTM SP's larger cousins. Proper tuning is critical to the performance of the car. The rear hubs are also machined aluminum and are finished with a high gloss. The rubber O-rings around each one give the wheel enough grip to keep them from coming off, yet make the wheels easy to change.





Honey,



I Shrunk the Pancar!

Test Equipment

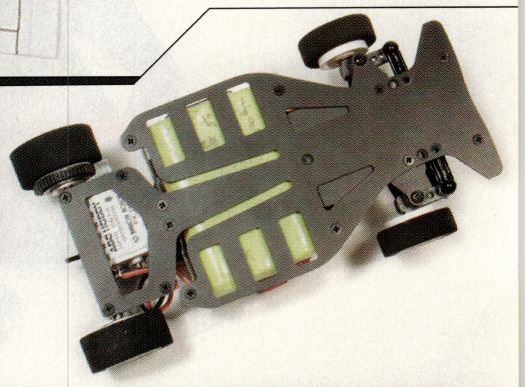
- Hitec HS-81Sub-Micro Servo
- Airtronics ES-01 Mini Speed Controller
- Airtronics M8 Radio
- Novak Xxtra Synthesized Receiver

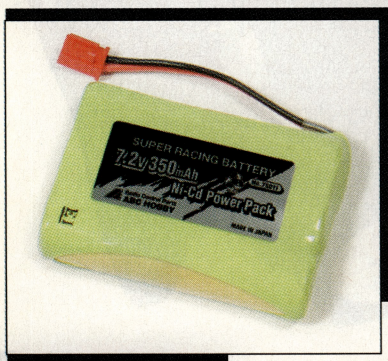
The DTM SP can be set to three different wheelbases (105mm, 110mm, 115mm) to match the body used. The electronics must be carefully chosen and placed to fit under the body without causing any binding.



OUTSTANDING FEATURES

The chassis plate is made from 1.0 mm-think black FRP (fiber-reinforced plastic, similar to fiberglass). The T-bar is incorporated into the main chassis plate, and gives the rear end enough flex to maintain traction for the rear tires. The front sub-chassis, steering brace, and upper motor pod are all made of the same material. A graphite chassis is optional.

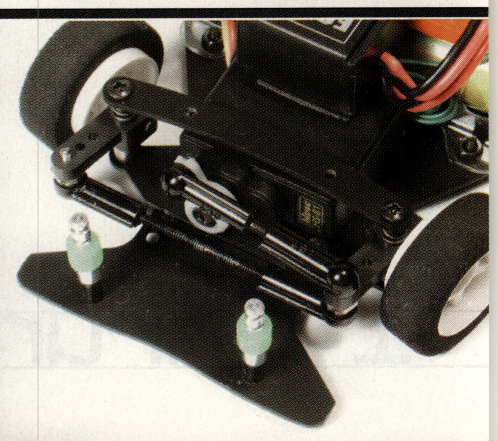




Six 350mAh NiCad cells are contained in the battery packs. That means high voltage and lots of runtime for a car that weighs only 225g ready-to-run.



The front steering blocks ride on steel kingpins, which are supported by small springs to give some suspension action. A little bit of heavy grease can be used to smoothen and slow down the steering action. The foam tires (front and rear) are secured to the rims with extra thin double-sided tape.



ABC 1:24 Pocket Racer

REPORT CARD

Test locations: Various thick and thin-pile carpets in offices and homes, asphalt parking lot.

Speed and acceleration: A

This is probably the fastest stock sub-mini class car right out of the box. Even in stock form, there is more than enough power and speed for indoor use or even on a driveway roadcourse. Pretty much the only time you might want more power is when running the car in an open lot. In that case, the available 180 motor and taller gearing will do the trick.

Low-speed steering: A

The DTM SP reacts just like a pancar — let off the throttle and steer for a gentle turn, or give it a bit of throttle to get the rear end to come around for a tight turn. But be extra-careful on the throttle because the stock motor has plenty more torque than the rear tires have grip.

High-speed steering: B

In stock form, there is a noticeable amount of pushing when turning at high speed. With such a small form factor, proper adjustments are critical, though there really are only a few to be made. One of these it the tightness of the differential, and it is critical in getting the car set up properly. Once we spent some time trying different settings, we were able to find a balance between high-speed and low-speed steering.

Straight Line Tracking: A–

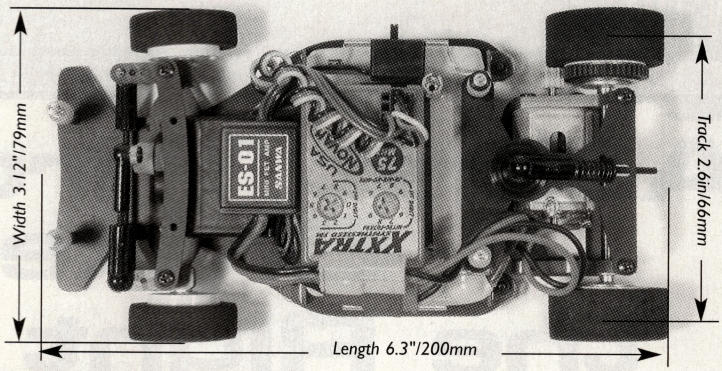
Small cars like this are notoriously twitchy. So during assembly we dialed in a bit of toe-in (about 1-degree) as our starting point, and we never changed it. However, we did make some shims out of folded paper to keep the battery pack from sliding side to side. The DTM SP tracks straight after every turn.

Adjustability: B–

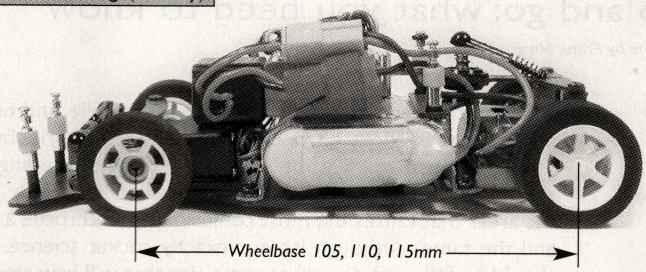
The things you can adjust (wheelbase, tire compounds, gearing, differential, toe, front springs) are just enough to tune with. However, we would like to see a couple more adjustments, especially different rear dampener springs and different caster steering blocks. The chassis looks like it was designed to be raced, so why aren't these available?

Durability: A

We ran the DTM SP into many walls, with and without the body, and never using the optional foam bumper, and there's nary a scratch to be found. I can't say if it would hold up to a full speed run into a wall, but I think it is safe to say that it is a very durable car, mainly due to the high-quality materials used.



WEIGHT 225g. (w/body)



SPECS

Type	1/24-scale electric pancar
Price	$74.95
Chassis	
Chassis Material	fiber-reinforced plastic (FRP)
Chassis Type	flat plate
Steering System	direct servo connection
Suspension	
Front	spring-supported sliding kingpins
Damping	coil springs
Rear	flexing T-plate
Damping	spring damper
Drivetrain	
Type	direct drive
Driveshaft	rigid steel axle
Differential	adjustable ball diff
Bearings	oilite bronze bushings

Final Score

Highs: From start to finish, the DTM SP is a pleasure to work on. The quality of the materials and the fit and finish are quite outstanding, especially considering the small size. It drives well, once tuned properly, and can take everyday bashing without any trouble. And it is very fast straight out of the box.

Lows: Getting a body to fit right might be a bit difficult, due to the limited electronics mounting options. Some hand preparation is required of the FRP chassis parts. Also, due to the nature of the scale, tuning changes affect the car a lot more than in larger scales.

The verdict: "DTM" stands for "Driving Trainer Machine," implying that is for beginners. I would definitely not give this car to a beginner, as the small scale can be a bit harder to work on and tune than a larger car and the RWD power isn't as easy to control as a 4WD sedan. But that certainly does not stop it from being an extremely fun car for those that have some experience under their shop aprons. Racing a pair of these cars requires as much skill and is as exciting as racing any other class. So if you're a racer who's looking for a superbly-designed and sub-miniature racecar, the DTM SP would be an excellent choice.

SOURCES

ABC Hobby, Distributed by Horizon Hobby Distributors, Inc., 4105 Fieldstone Rd., Champaign, IL 61821 • phone (217) 355-9511

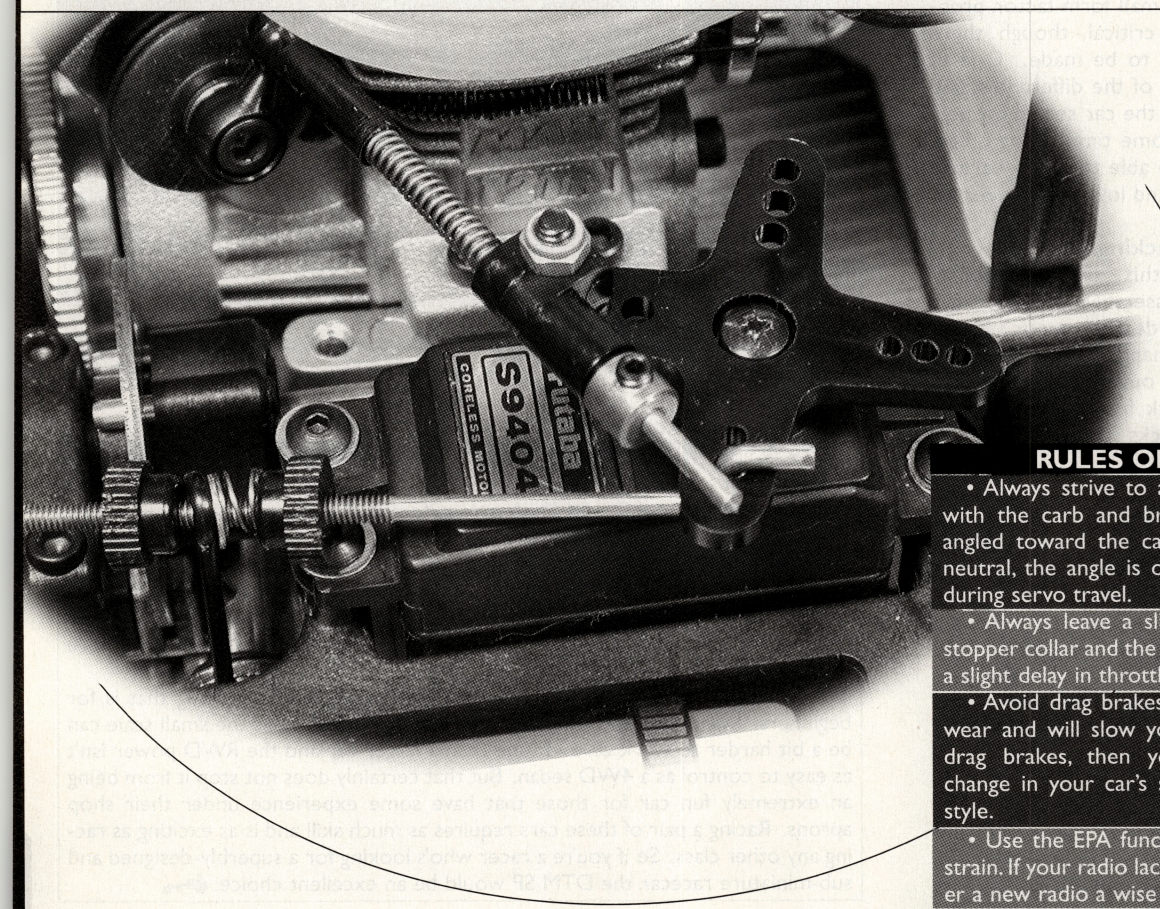
Hitec, 12115 Paine St., Poway, CA92064 • phone (858) 748-6948; fax (858) 748-1767

Adjust Throttle & Brake Linkage the Right Way

Stop and go: what you need to know

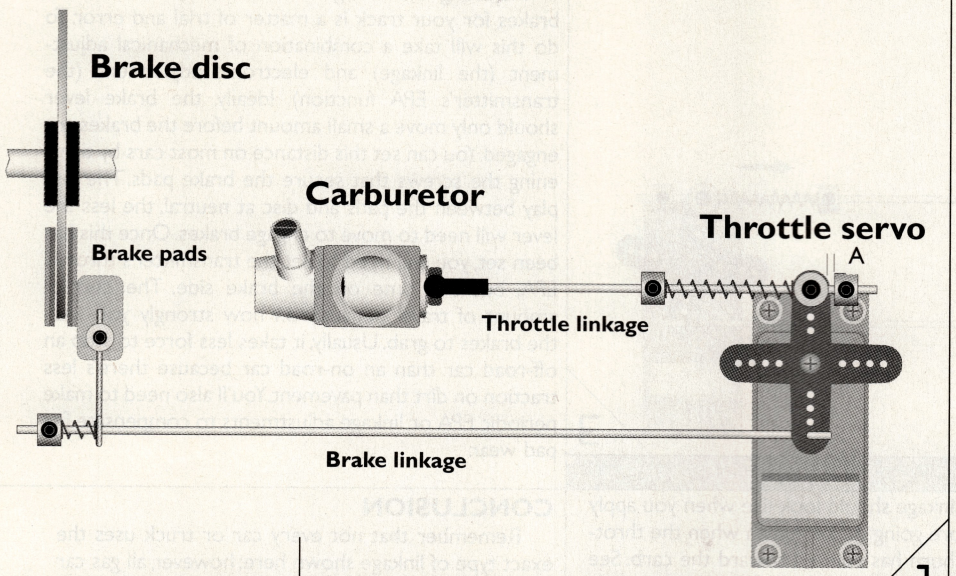
Illustrations by Frank Masi

You've been racing electric cars for a while, and now you want to find out what all the buzz is about nitro. Or, you're new to the hobby and want to get straight into nitro because you like the sound and smell of the engine. When you decide to go gas, you should know that setting up a nitro vehicle takes a little more finesse than an electric. One of the areas that causes the most confusion is the throttle and brake linkage (which is actually one and the same). Although it's not exactly rocket science, there are some basic guidelines that should be followed, as well as some tips that will have your new car up and running in no time.



RULES OF THUMB

- Always strive to align the linkage rods with the carb and brake. If the linkage is angled toward the carb or brake lever at neutral, the angle is only going to increase during servo travel.
- Always leave a slight gap between the stopper collar and the servo horn to provide a slight delay in throttle movement.
- Avoid drag brakes. This only speeds up wear and will slow you down. If you need drag brakes, then you should pursue a change in your car's setup or your driving style.
- Use the EPA function to prevent servo strain. If your radio lacks this feature, consider a new radio a wise investment.
- Don't forget to use threadlock on all the little stopper-collar setscrews to prevent the collars from falling off.
- Avoid excessive brake travel. The longer it takes the brakes to engage, the longer it will take you to stop your car.



1

THE BASICS

There are only three major components that concern us when we set our linkage, and they are the carb, the throttle servo and the brake or brakes (depending on the type of car). The illustration shows a typical linkage setup that's in the neutral position, i.e., the throttle barrel or slide is closed and no brake is being applied. Note the position of the servo; the servo horn's arms are aligned with the brake lever and the carb slide. Of course, this isn't always possible due to chassis layout, but you should always strive to "square up" the servo horn with the brake and carb.

Also note the gap between the furthest collar on the throttle linkage and the servo horn pivot (A). This provides a slight bit of play in the linkage when the carb is closed (when your transmitter is in neutral) and it will compensate not only for any slight changes in throttle trim, but for a heavy trigger finger. You will also notice that there is a gap between the brake pads and the brake disc. This prevents the brake from dragging, which slows the car and causes premature brake fade due to wear.

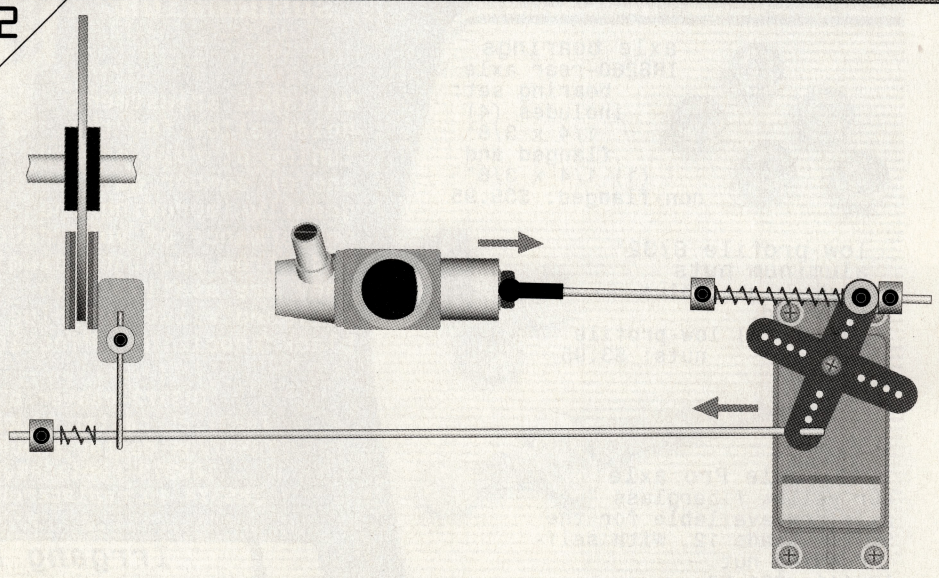
If you're wondering what the little springs are for, they perform different duties. The longer spring on the throttle linkage has two jobs: first, it allows the servo horn to rotate towards the carb when the brakes are used. It also serves to keep the carb slide or barrel closed when the servo is in the neutral position. The smaller spring on the brake linkage provides a bit of "give" to the linkage during braking. This not only helps prolong the servo's life, but can help give the brakes a more progressive feel. Some people may use a small piece of fuel tubing in place of the small spring, but both perform the same task.

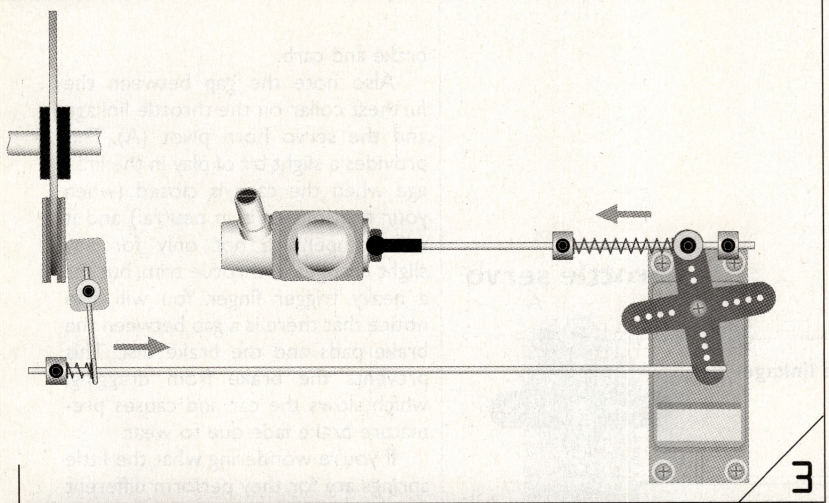
WIDE OPEN

The next illustration demonstrates what your linkage should look like when you pull full throttle. Note that the brake linkage does not engage the brake disc during throttle operation. This can happen if the brake linkage rod snags the brake lever and pushes it too far. The brake lever should always float on the linkage rod (unless your kit uses a different type of linkage setup).

To set your linkage for wide-open running (assuming that you've already established the correct neutral setting), all you need to do is use your radio's EPA (end point adjustment) feature to match the servo's travel to that of the carb's slide or barrel. You only want the servo to travel just enough to fully open the carb—any additional servo movement will just cause unwanted servo strain.

2





3

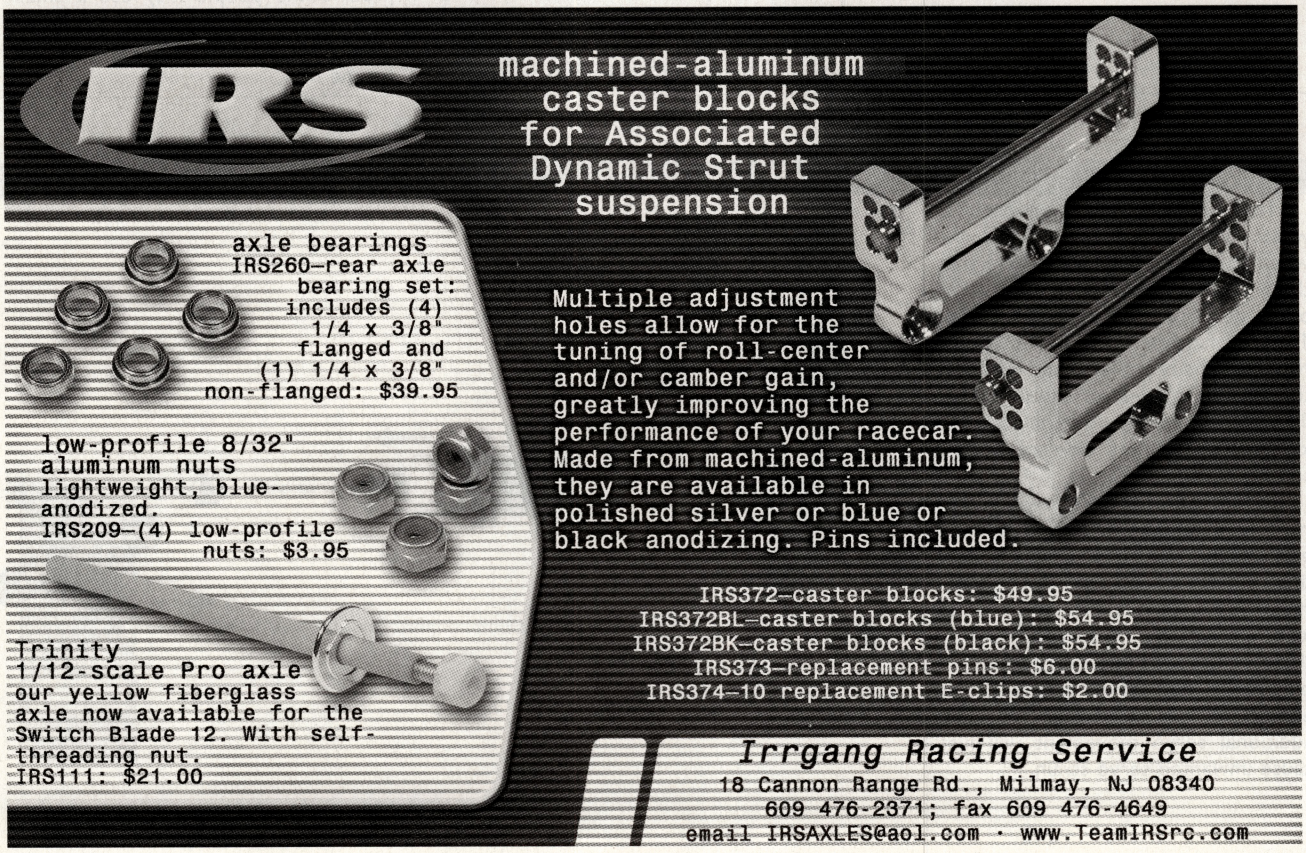
STOPPING ON A DIME

The final illustration shows what your linkage should look like when you apply the brakes. As you can see, there's a bit more going on here than when the throttle was applied. First, note that the servo horn has rotated toward the carb. See how the spring has been compressed to accommodate the movement? It's important that the spring have enough compression to allow sufficient brake movement, yet be taut enough to keep the carb closed at the neutral position. Also note that the brake linkage has pulled on the brake lever and that the brake pads have now clamped down on the disc. This is your stopping power.

Adjusting the linkage for the correct amount of brakes for your track is a matter of trial and error. To do this will take a combination of mechanical adjustment (the linkage) and electronic adjustment (the transmitter's EPA function). Ideally, the brake lever should only move a small amount before the brakes are engaged. You can set this distance on most cars by tightening the screws that secure the brake pads. The less play between the pads and disc at neutral, the less the lever will need to move to engage brakes. Once this has been set, you will need to set the transmitter's throttle EPA, but this time on the brake side. The correct amount of travel depends on how strongly you wish the brakes to grab. Usually, it takes less force to stop an off-road car than an on-road car because there's less traction on dirt than pavement. You'll also need to make periodic EPA or linkage adjustments to compensate for pad wear.

CONCLUSION

Remember that not every car or truck uses the exact type of linkage shown here; however, all gas car linkages are just variations of this basic arrangement. Once you learn the logic behind a properly set up linkage, you'll find that your new gas car will go and stop much better.



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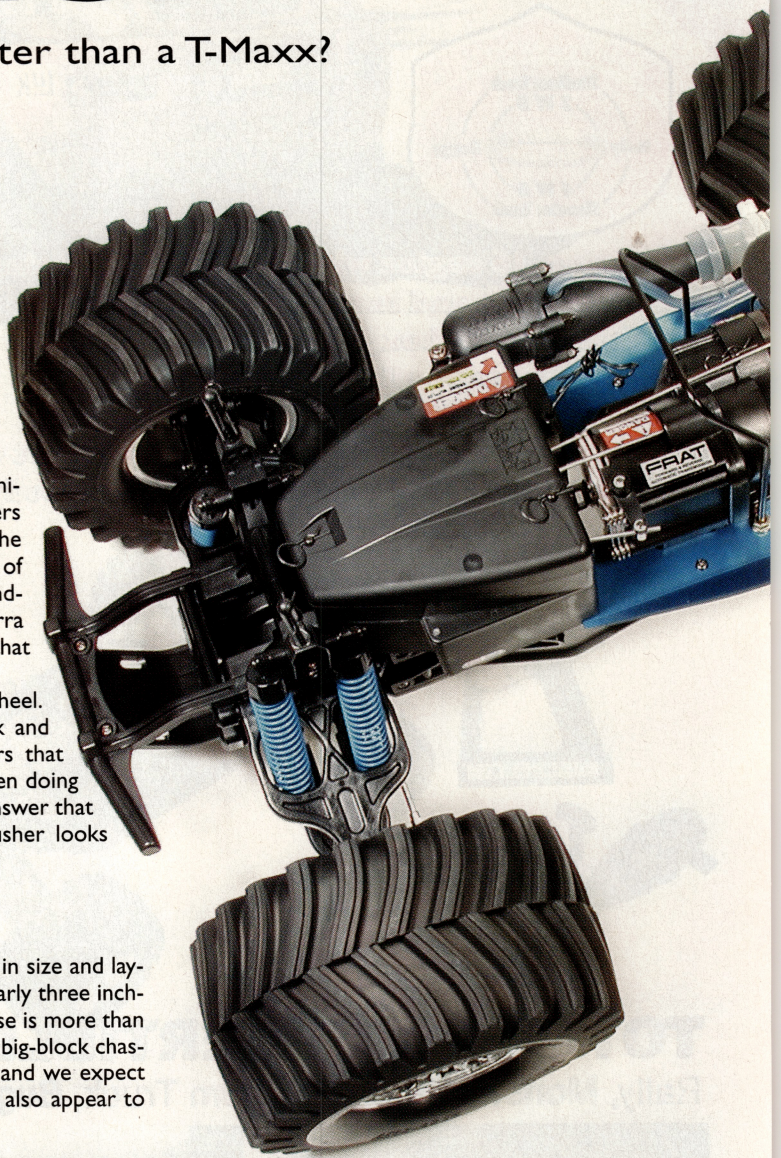
Better than a T-Maxx?



A pre-painted, trimmed and decaled body is included.



TAMIYA'S T-MAXX

If you can't beat them, join them. Traxxas' T-Maxx has been dominating the R/C market for two years, and the rest of the players want in. Kyosho's Mega Force (reviewed in our March issue) is the first truck to clearly target the Maxx, but we found that in terms of features, performance and value, it came up a bit short of its intended goal. Now, Tamiya has given us a sneak peek at its all-new Terra Crusher, and from the looks of things, this may well be the truck that could topple the T-Maxx (if such a feat is possible).

Tamiya did the smart thing—they chose not to re-invent the wheel. Instead, they appear to have studied the popular Traxxas truck and added improvements where they felt necessary. It also appears that Tamiya has been keeping an eye on what the aftermarket has been doing to the T-Maxx. Has Tamiya succeeded? Only a full test-drive will answer that question, but based on these photos and specs, the Terra Crusher looks more than formidable.

BIGGER, BUT BETTER?

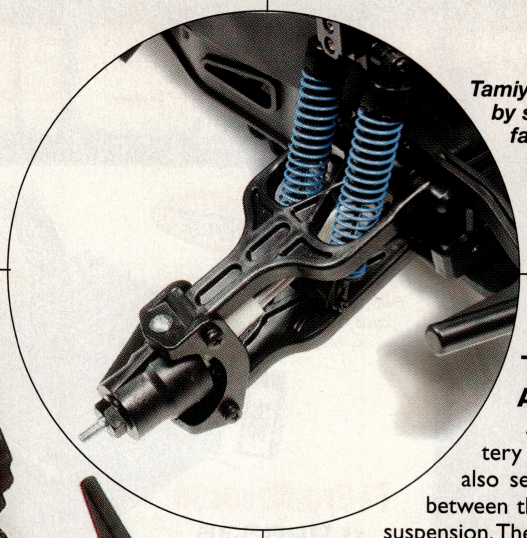
Overall, the Terra Crusher and T-Maxx look nearly identical in size and layout. However, the tape measure reveals that the Crusher is nearly three inches longer than the T-Maxx, and that the Tamiya truck's wheelbase is more than 2-1/4 inches longer than that of the Traxxas truck. Aftermarket big-block chassis for the T-Maxx stretch the wheelbase to improve stability, and we expect this trait in the Crusher. The Terra Crusher's wheels and tires also appear to be slightly larger than those of the T-Maxx.



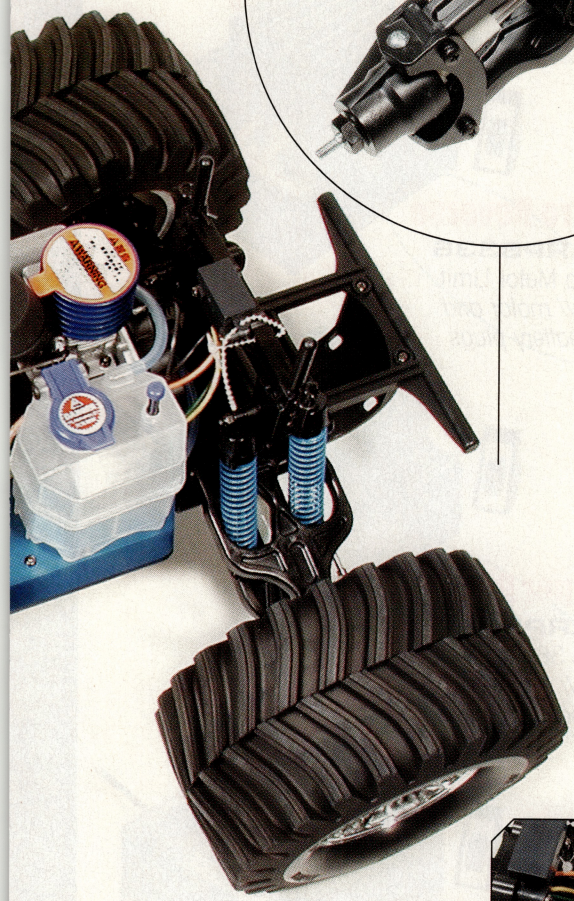
A standard 6-cell battery pack rests inside the starter's molded case. The power unit is also fuse-protected and contains a glow-plug check feature.

SPECIFICATIONS

Type: 1/10-scale ready-to-run nitro monster truck	**Driveshafts:** Plastic w/steel universal joints (center), plastic universal shafts (front and rear)
Body: Pre-painted, pre-decaled polycarbonate	**Radio:** Tamiya Adspec GP (2ch.) included
Engine: .18 w/on-board electric starter	**Servo:** High-torque (9kg/cm) steering servo included
Transmission: two-speed forward and reverse	**Length:** 22 in/560mm
Suspension: Ind. double-wishbone, oil-filled shocks (8)	**Width:** 17.3 in/440mm
Brakes: Ventilated double-disc	**Height:** 11.2 in/285mm
Bearings: 32 ball bearings	**Wheelbase:** 14.1 in/360mm
	Weight: 5700g

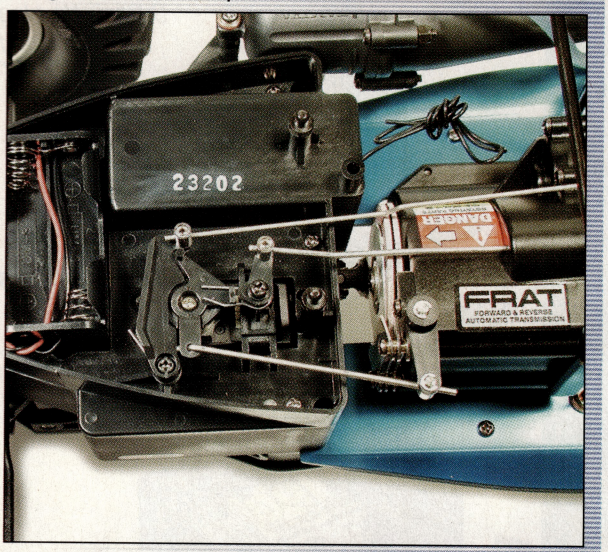


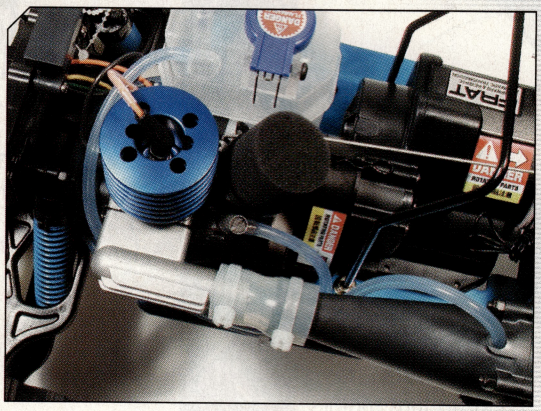
Tamiya strayed from Traxxas territory with by shunning pillow-ball suspension in favor of conventional uprights. Want to know something cool? The left-side's wheel nuts are opposite-threaded to prevent them from loosening!



THOSE TAMIYA GUYS ARE CLEVER

A large molded radio box holds the receiver, battery and servos all in one protected space. The box also serves as a structural member, spanning the gap between the 2.5mm thick duralumin chassis and the front suspension. The Crusher's gearbox has two speeds in both forward and reverse (which can be engaged "on the fly"), as well as a ventilated double-disc brake system. Unlike Kyosho's Mega Force, the Crusher appears to allow the simultaneous use of the brake and shift functions using only a two-channel radio—the T-Maxx uses a third servo to shift, while the second servo handles the throttle/brake chores.





MORE POWER

In a show of mechanical one-upmanship, Tamiya bolts in a larger .18 c.i. nitro engine (the T-Maxx and Mega Force have .15-size engines), which is sort of a middle ground between the small-block .15 and the big-block .21 T-Maxx conversions that have become popular. The engine is fed by a large 150cc fuel tank for extra-long run times, and is fired by an on-board starting system that's beginning to look oh-so familiar. Like the Mega Force, the Crusher's engine drives its own cooling fan.



Tamiya's 2-channel Adspec AM radio system comes pre-installed, and a very nice handheld starter is also included.

SOURCES

Tamiya America, Inc., 2 Orion, Aliso Viejo, CA 92656-4200 • phone (949) 362-2240; fax (949) 362-2250

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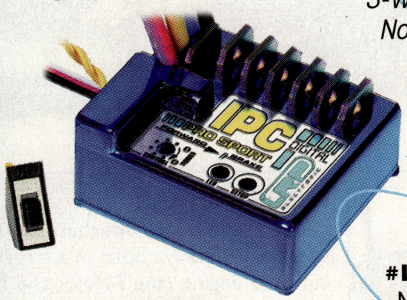

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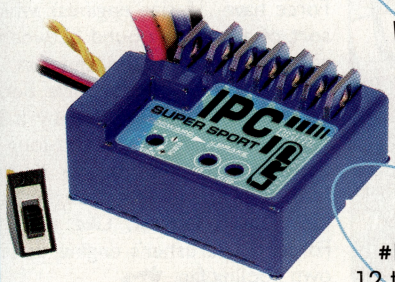

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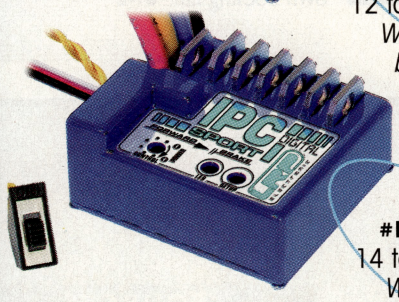

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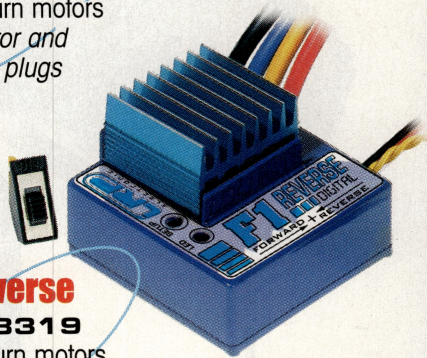

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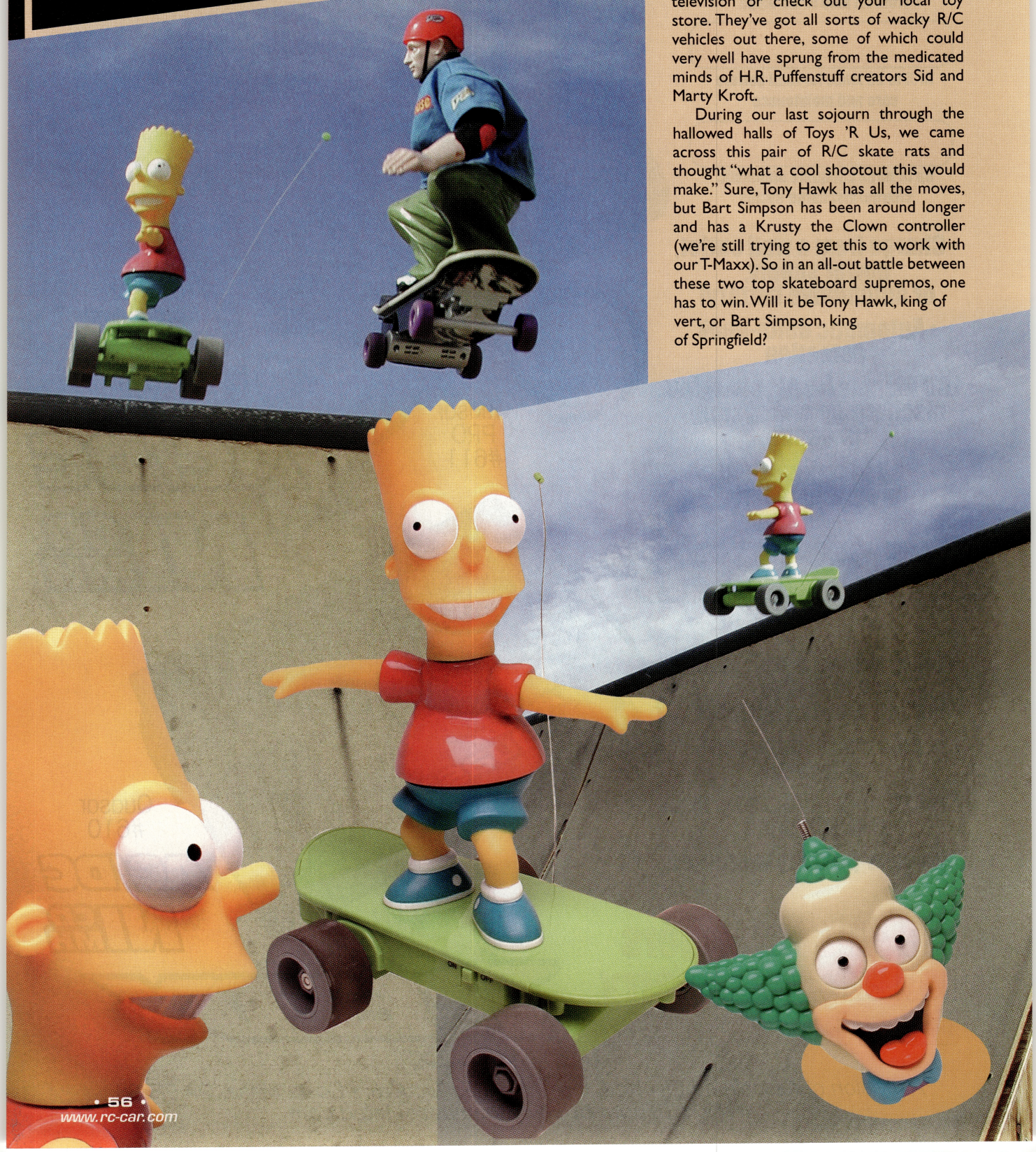
Bart Simpson

Battle of the Boarders

There are more than just cars and trucks in the world of R/C. Want proof? Watch Saturday morning television or check out your local toy store. They've got all sorts of wacky R/C vehicles out there, some of which could very well have sprung from the medicated minds of H.R. Puffenstuff creators Sid and Marty Kroft.

During our last sojourn through the hallowed halls of Toys 'R Us, we came across this pair of R/C skate rats and thought "what a cool shootout this would make." Sure, Tony Hawk has all the moves, but Bart Simpson has been around longer and has a Krusty the Clown controller (we're still trying to get this to work with our T-Maxx). So in an all-out battle between these two top skateboard supremos, one has to win. Will it be Tony Hawk, king of vert, or Bart Simpson, king of Springfield?



vs. Tony Hawk

R/C X-Games

We set up our own vert-ramp competition between Tony and Bart to see who has the better skills. Tony showed up calm, cool, and relaxed, and ready to go. Bart wheeled in with his pal Milhouse in tow, and Ralph Wiggum brandishing a Kwik-E-Mart squishee. It was time to square off on the ramp! Judging the contest would be none other than seven-time supercross champ Jeremy McGrath (from Team Bud Light/Tyco)!

Don't Have a Cow, Man!

Bart went first, but from the get-go it was obvious that he was having difficulty motoring up the face of the halfpipe. He quickly started making excuses for his poor performance—"Homer kept me up all night with his snoring..." *Aye carumba!*

After a pitiful performance on the ramp, Bart was seen trying to impress the judge with his flatland skating expertise (doing wheelie spins), and working his slingshot ability. Only Milhouse and Ralph were impressed, though. Even Bart's special Captain Lance Murdock shirt couldn't help on this day.

Overall score: 5

Hawk Hits the Ramp

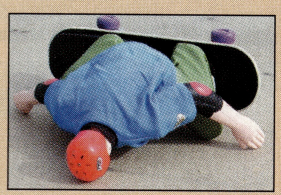
After seeing Bart's lame attempt on the ramp, Tony started out his session with a few flatland tricks of his own—a couple of manuals, tic tacs, 180-reverts, and a few wheelies of his own. Once he got on the ramp though, things started getting shaky…it looked like the Hawk was having some balance problems on the halfpipe. He'd get halfway up and start to wobble, then start falling back just short of the coping. After a few attempts at some 180-spins and 360-reverts, Hawk called it a day. Still, the judge gave him some bonus style points just for the added degree of difficulty in his program.

Overall score: 8

THE CONTENDERS

Name: Tony Hawk
Date of birth: 5/12/68
Place of birth: Carlsbad, CA
Height: 6'2"
Weight: 170 pounds
Been skating for: 20-plus years
Skating claim to fame: Pulling off the first ever 900 at the X-Games

Name: Bart Simpson
Date of birth: Not sure (perpetually 10 years old)
Place of birth: Springfield, USA
Height: Roughly 3'6"
Weight: Roughly 70 pounds
Been on TV for: 15 years (since April '87)—he's still 10 years old
Skating claim to fame: Almost jumped over Springfield gorge on his skateboard





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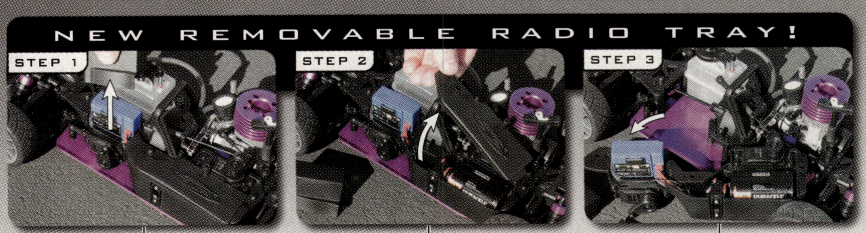

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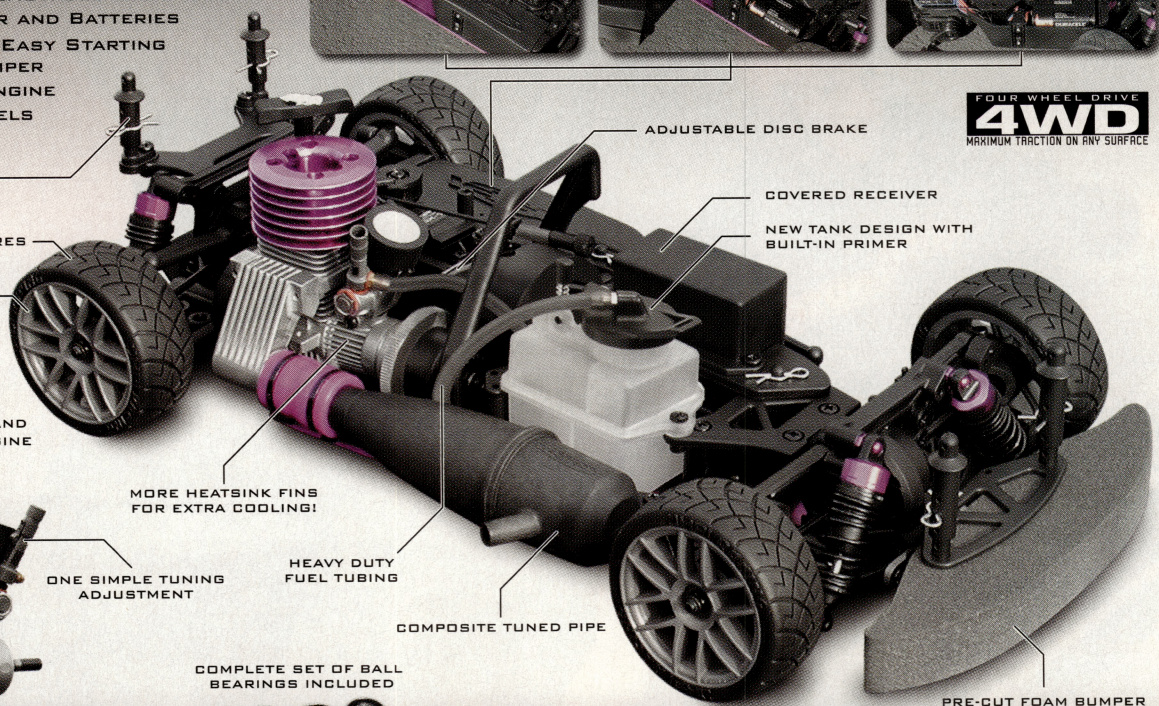
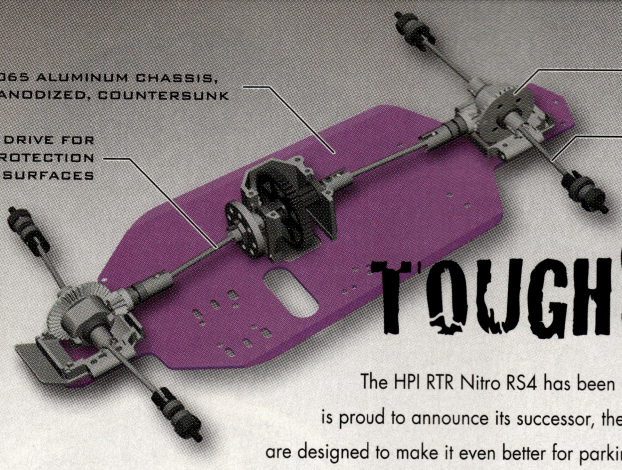


RS4 RTR 3





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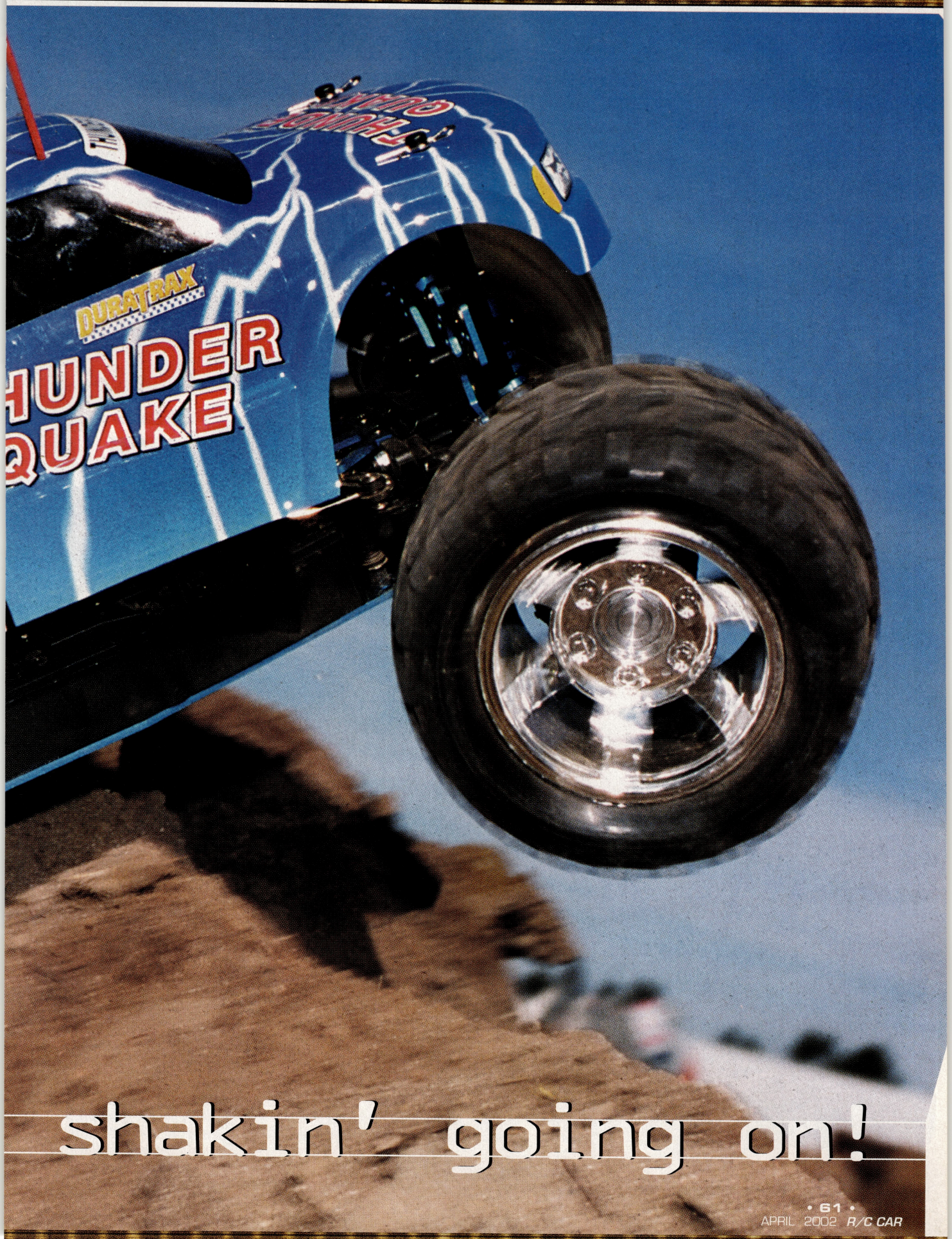
Duratrax Thunder Quake

Duratrax has had a long history of nitro-powered, radio-controlled vehicles, with the company's conversions for the Losi XXT and Associated RC10T being many Americans' introduction to methanol. From making conversions and hop-up parts, Duratrax sharpened its "nitro teeth," then developed nitro-powered kits in 1/10 and 1/8 scales. Its 1/8-scale Axis buggy morphed into rally and monster trucks, and the Nitro Quake has turned many heads with its impressive features and performance at a competitive price. But Duratrax still wasn't done. Its R&D department wanted to create the top-shelf monster truck, one that's bigger, badder and better-equipped than any other .21-powered 4WD. Keeping the best of the Nitro Quake rolling chassis, Duratrax added even longer suspension arms, giving the MT more wheelbase and suspension travel, and widened the stance with huge wheels with less offset. Then the development team decided to build the kit for you. The RTR Thunder Quake only requires battery installation (they're included), oiling and installing the air filter, then go! No doubt, this monster truck will hook many on the joys of nitro.

Whole lotta

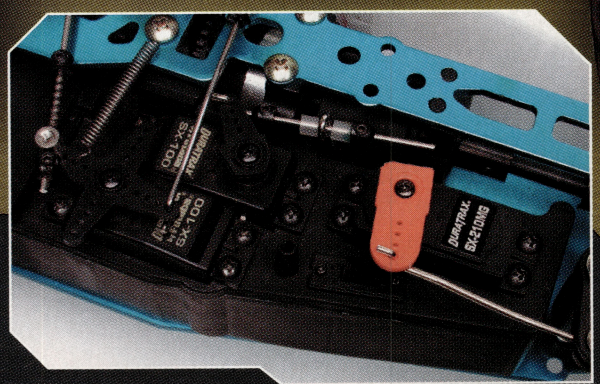


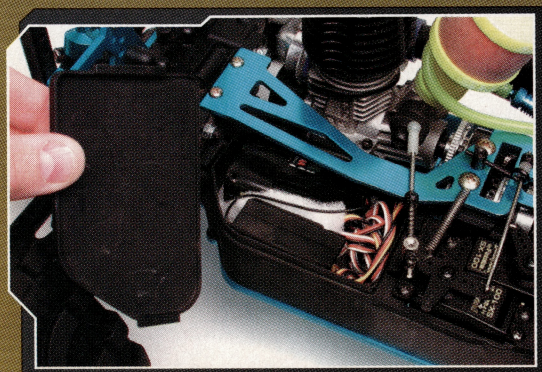
shakin' going on!

Duratrax Thunder Quake

UNINCLUDED TEST EQUIPMENT

- Blue Thunder 20% nitro fuel
- DuBro throttle return spring
- Duratrax fuel filter
- General Silicone fuel hose



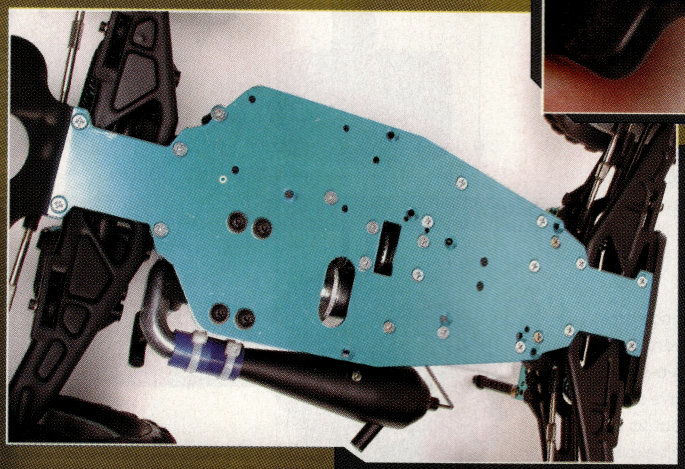


A cool, full-length box protects the three servos—a Duratrax SX210MG for steering and SX100s for the throttle/brake and transmission—and houses the four-channel Futaba receiver and four-AA receiver battery holder. A slide-off lid allows quick access to the receiver and batteries. While the throttle and brake linkages were set perfectly, the Thunder Quake doesn't have the most important thing a nitro-powered vehicle should have —a throttle-return spring. We also had binding in the steering linkage; flipping the clevis upside down freed up the steering nicely.

OUTSTANDING FEATURES

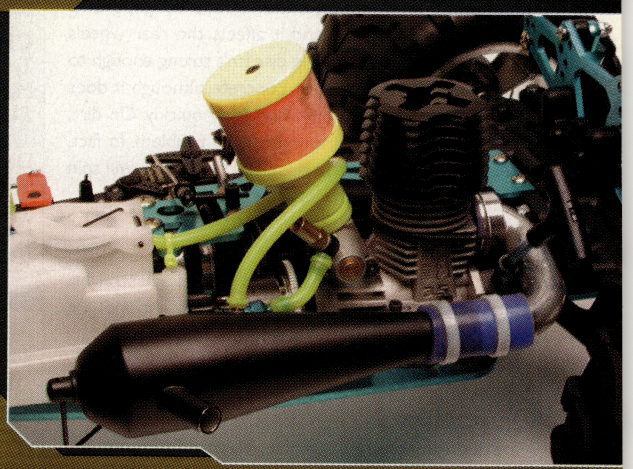
Hub carriers are identical in shape, fore and aft, but are machined slightly different. Long links attach from the rear carriers to the aft bulkhead, and toe is set at zero for speed. Lengthening the links to provide 1-2mm of rear-wheel toe-in yields more aggressive turning. Looking at the design, it wouldn't be too terribly hard to give the Thunder Quake four-wheel steering. A cool graphite wrench allows camber adjustments, but you have to remove the wheels to access the threaded pivot-ball seats.

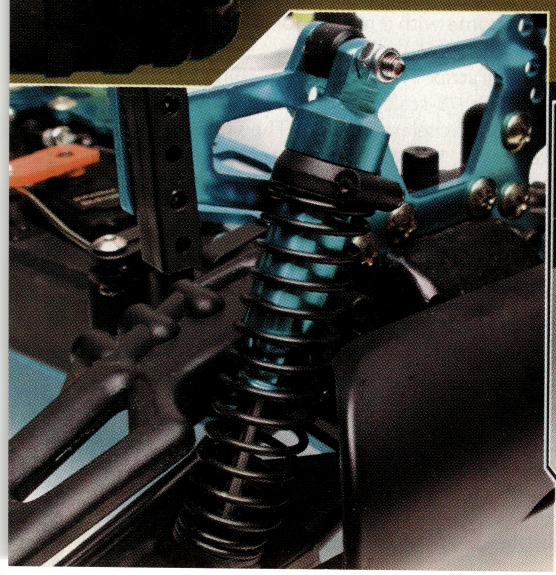


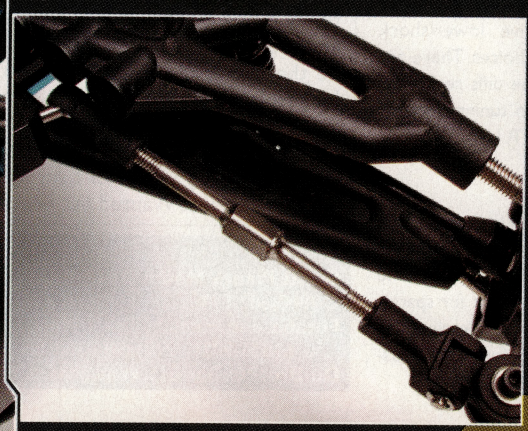


Like the Nitro Quake, the Thunder Quake has a flat, anodized-aluminum main chassis with a full-length top plate that ties the front and rear bulkheads with the center diff mount. This setup is super-rigid fore and aft but allows torsional flex for handling the turns. While the chassis length is identical between the Nitro and Thunder Quakes, the latter has off-set built into the suspension arms, which are identical on all four corners. Pointing the front arms forward and rear arms aft give the Thunder Quake an additional 1.1 inches of wheelbase. Larger tires add length, so the Thunder is almost two inches longer than the Nitro Quake.

Duratrax's Torq .21 engine takes four tanks of fuel to break in and comes with a cool video showing how to lean out the mixture and monitor temperatures during the procedure. With four tanks through it, the motor rips! It has no problem spinning those four monstrous tires on dirt or pulling the upshift to second gear (which is adjustable, too). The fuel tank has an internal screen filter, but it's safer to run an in-line fuel filter also.







Long front shocks and the longer suspension arms give the Thunder Quake some 2.5 inches of wheel travel, and ground clearance is 2.6 inches. The anodized shocks are set up nicely from the factory, but the front end comes with 10mm of toe-in. This is meant to provide the neophyte with more stability, but speed and cornering suffer. Zero toe yields best top speed, and 4-8mm of toe-out provides more aggressive cornering, especially in tight turns. Adjustable turnbuckles speed setting changes.

Thunder Quake

REPORT CARD

Low-speed steering: B–

With so much front toe-in, the Thunder Quake doesn't want to steer into tight turns, preferring to be brake-slid around. As the driver progresses, front geometry should be moved to a toe-out mode, so the inside tire will have more Ackerman and aggressively pull the front of the beast around tight bends. Since there are no sway bars and the TQ has mucho mass, there's a lot of chassis roll. Dragging the brake into turns helps plant the front end for the pivot, then line it up and pull the trigger!

High-speed cornering: B–

With the standard settings, the Thunder Quake has decent stability in high-speed turns. It turns in well and holds its line well, thanks to more than two inches of wheel travel. On loose dirt, the rear end slides out nicely, and the TQ will power-slide controllably through the corner, no matter how bumpy or rock-strewn it is. Going to a toe-out geometry makes the TQ less stable in faster corners but gives more control in tighter ones.

Acceleration: A

Rest assured, the Duratrax Torq engine rips! Once broken-in and leaned-out, this pull-start engine delivers crisp acceleration from bottom to top, and the two-speed transmission makes it stouter still. You'd better have some wide-open spaces if you plan to wind this puppy out, as it'll easily do 45 mph, and it'll get there in a hurry. Don't expect it to do wheelstands, but the engine and drivetrain make the TQ one quick monster truck.

Braking: B–

Because of the reversing-transmission's design, there's only one steel disc brake, and it affects the rear wheels more than the front. This single disc isn't strong enough to lock up the tires on tarmac or concrete, although it does haul the TQ down predictably and fairly quickly. On dirt, the brake will lock up all four tires, no problem. In fact, turning it into a tight turn and locking the brakes will spin the thing around faster than driving through normally.

Straight-line tracking: A

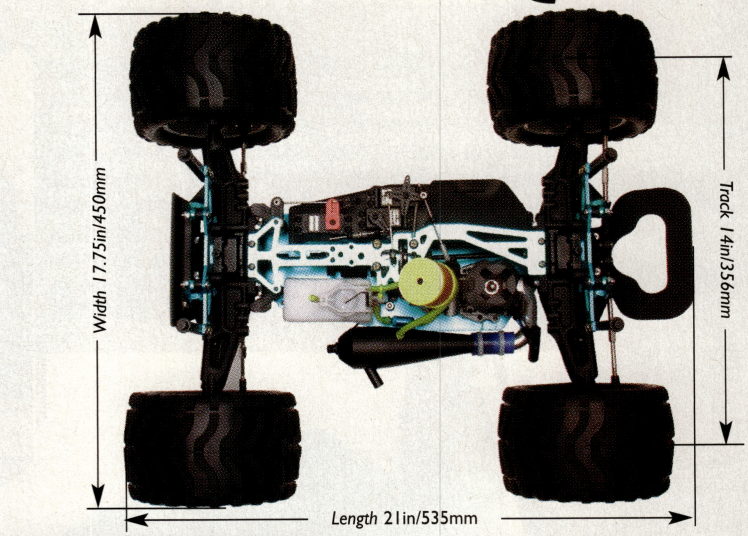
With 10mm of toe-in, how could it not track straight? Set the steering trim, and the TQ will go straight until the radio tells it otherwise, no matter how rough the terrain is.

Adjustability: B–

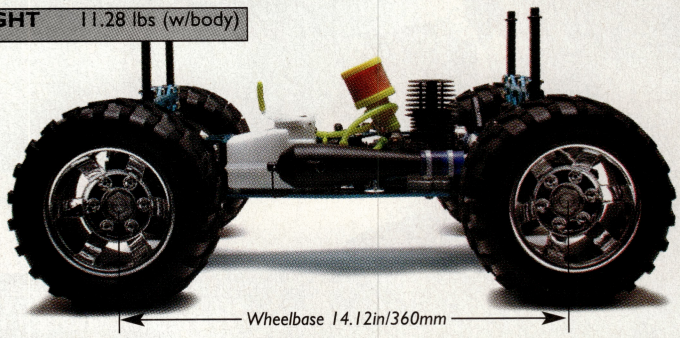
Toe and camber are adjustable, front and rear, but you have to remove the wheels to access the pivot-balls for camber changes. Also, there's no adjustments for rear anti-squat, and the Thunder Quake squats considerably under acceleration. There are no alternative lower-shock mounts, but there are six top-mount choices. There are also no spare shock pistons, nor are the diffs sealed for hydraulic fluid changes. In fact, there's no tuning information or any manual of any kind in this RTR kit.

Durability: A

Duratrax warrantees its plastic parts if you do manage to break something, which we didn't. Should monster truck racing take off, this will be a durable choice, plus the identical top and bottom arms mean less cost for spares. In fact, the shock towers and bulkheads are identical. The huge tires and wheels also soak up a lot of force when casing jumps or nerfing obstacles.



WEIGHT 11.28 lbs (w/body)



SPECS

Type	1/8-scale 4WD nitro off-road buggy
Price	$499.98
CHASSIS	
Type	Flat with upper deck
Material	Aluminum (3mm)
SUSPENSION	
Type	Independent pivot-ball A-arms
Damping	Anodized aluminum, oil-filled shocks
TRANSMISSION	
Type	(1) two-speed w/reverse, (2) Bevel-gear diffs
Drive shafts	Dog-bones (cntr/rr), U-drives (fr)
Bearings	Metal-shielded ball bearings

Final Score

Highs: This sure-footed monster truck accelerates hard and lands softly off of jumps, and it handles its heft well. It's as durable as it is fast, and this true RTR has features that are options on other monster trucks. It also comes with an igniter and battery, multi-wrenches, a fuel bottle and a painted, trimmed and drilled body.

Lows: It could be more adjustable and come with a manual for those who want to work on it themselves.

The verdict: We, the jury, find the Duratrax Thunder Quake guilty of having the best and most suspension travel of any 1/8-scale monster truck, and the pull-start Torq .21 is guilty of starting easily and accelerating hard. The TQ could well be the fastest .21-powered monster truck, but it's for sure the one with the longest wheelbase and widest stance. This RTR will convert many R/C enthusiasts to nitro R/C fanatics. It comes in a user-friendly mode but can be tuned for more aggressive handling over the gnarliest terrain. And the reversing transmission helps get you out of tight spots along the way. Yep, this MT should be on everyone's Most Wanted list —ours is doing life without parole!

SOURCES

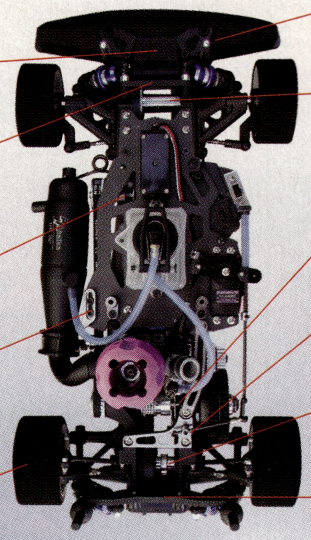
Great Planes Model Distributors Co., P.O. Box 9021, Champlaign, IL 61826-9021; (800)682-8948

Futaba, distributed by Great Plains Model Distributors, 2904 Research Rd., Champlaign, IL 61826-9021; (217)398-6300; fax (217)398-0008

Du-Bro, P.O. Box 815, Wauconda, IL 60084; (800)848-9411

Kawahara Racing

V-One-R



K-440 Front Sway Bar

K-425 Carbon Shock Tower

K-415 Mid BB Block

A-011 Side Belt Tensioner

K-417 Wide Hex Hub

K-809 Body Mount Short

K-431, K-802 Front One-Way

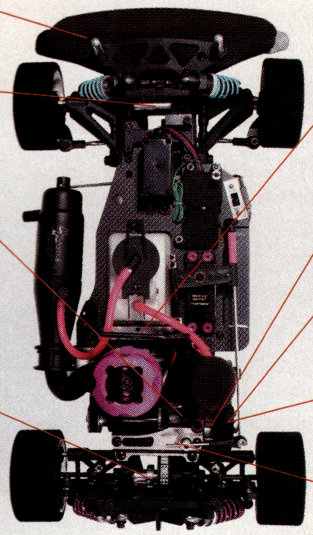
K-710 Vented Brake Rotor

K-419 Brake Top Plate

K-435, K-805 Solid Rear Axle

K-426 Carbon Shock Tower

MTX-2



K-717 Mid BB Block

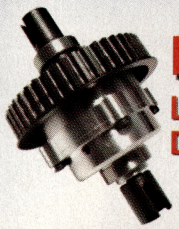
K-714 24T Alum Pulley

K-723 LTWT 1st Gear Housing

K-731 Two Speed

K-716 Alloy Brake Top Plate

K-418 Narrow Hex Hub, V1R
K-421 Pro Chassis, V1R
K-424 Graphite Radio Tray, V1R
K-427 Wide Bumper, V1R
K-431 Front One-Way, V1R
K-718 Graphite Radio Tray, MTX2
K-719 Chassis, MTX2
K-720 70-75 Pivot Balls MTX2



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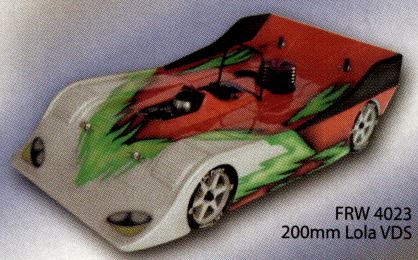
K-727 Delrin Front Right Upright, MTX2
K-728 Delrin Front Left Upright, MTX2
K-802 Front One-Way, MTX2
K-803 Outdrive (One-Way), MTX2, V1R
K-804 34T Overdrive Pulley, MTX2
K-807 Wire Roll Cage Mount Alloy MTX2
K-811 Front Belt Tensioner, MTX2
All Pulleys Including Overdrive Available

V-One-R Z-1720
MTX-2 Z-1730



FRW 4028
200mm Porche 962



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PRO TIPS SECTION



brian kinwald

How to top qualify

If there is one person on the face of the Earth who knows what it takes to put his car or truck on the front line each and every time, it's Brian Kinwald. We asked Brian to pass along his tips and tricks on how he TQs, and here's what we got.



Track conditions

"The first thing I do is check out the track when I get there—I'll go up on the drivers' stand and check out the dirt to get a basic idea of what kind of setup I'm going to run," says Brian. "After that I'll run a few packs during practice to get a feel for the track, and what the dirt is like; that way I can get a better idea of what type of setup I want to start with. Usually I'll start with the setup that I ran the last time or I would try a setup on my car that I knew would be a good starting point for that type of track."

Types Of Qualifying

"Depending on what type of qualifying is going on, say it's a single round, or combined rounds, I would go into qualifying with a different strategy. If I were going in with only a single round of qualifying, I would want my car set up to be as fast as it could be. I would want a quick setup, even if it were a little more difficult to drive, simply because I want to be able to put together the fastest possible run that I could. I would start out by setting up my car with more steering, and a little less forward traction. This allows the car to get through turns faster.

If it was combined qualifying I would probably start out with a more conservative setup. I'd like to be able to get a few good runs in and try and be as consistent as I could. Again, for setups I would run my car with more rear bite/less front bite. I'd like it to react a little slower—a setup that is less twitchy."



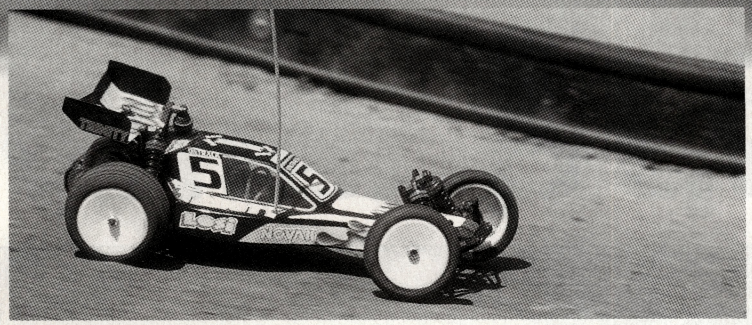
Tire Strategy

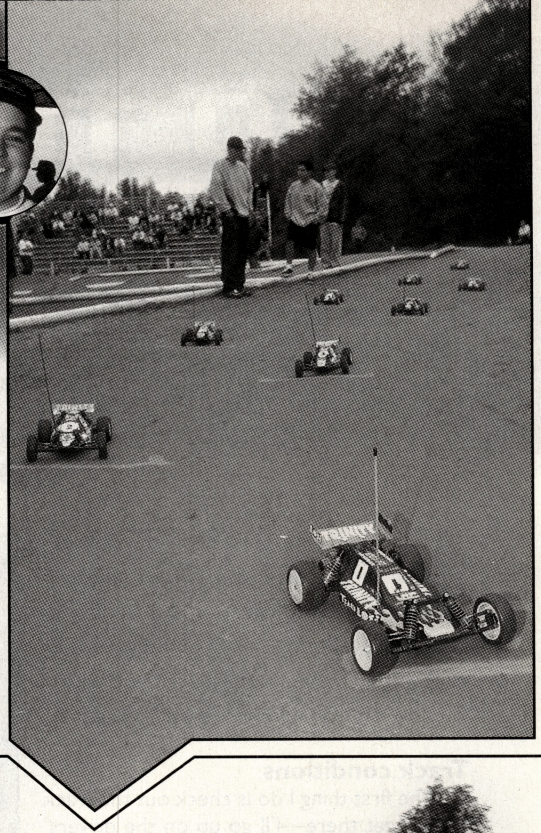
"You have to have a tire strategy regardless if you are or are not running a control tire in qualifying. You have to constantly judge track conditions to see when the track is fast or slow. This will determine when you run new tires, old tires, or when to save your tires for the main event. For instance, say you're racing at a facility that waters the track every night. As qualifying went on, the track would start to dry out. Now let's say you get only two sets of tires for four qualifiers—you would want to run your worn out tires later in the day when the track starts to dry out, and you'd run the new ones when the track was wet. That's a very important thing to think about—you want to have the best tires that will allow you to be fastest as track conditions start to change."

PRO TIPS SECTION



brian kinball





Mental Preparation

"Pay attention to what's going on around you. Find out who is in your race and try and watch them during practice. This way you'll know in advance if there is someone you should watch out for. You'll get a feeling for who's fast, and who may be a hack driver! Check the lap times for the fast guys to gauge where you're at throughout qualifying. This will also tell you if you've got to try and change setups to go faster or not."

Getting back on track

"If you've made a mistake and you're on a good run, all may not be lost. Say you're on a good pace, on the TQ mark or around it, and you crash; you'll want to keep driving the way you've been driving and then try and step it up so you can gain back some time here and there. If you lose a lot of time from a crash, then you just want to go for it. If you still want to TQ, you're going to want to go for it. You're going to have to go punched around the track and try and put in the fastest possible lap times that you can."

Checking your equipment

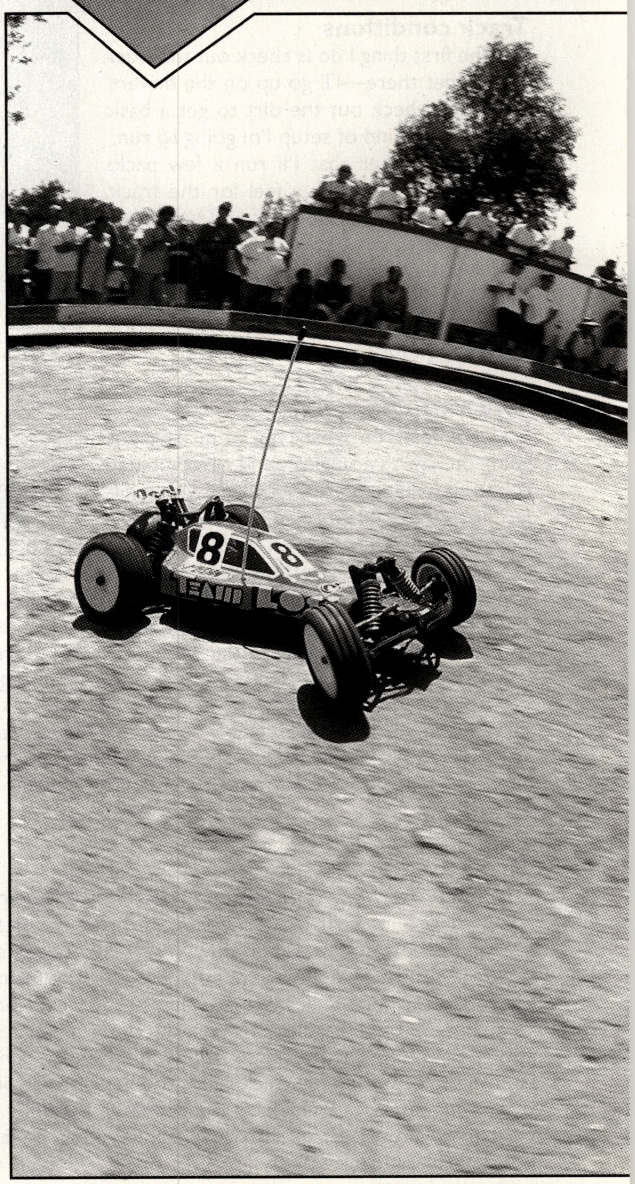
"Before every run, you want to look over your car or truck before you hit the track to make sure that it's in good racing condition. If something needs to be fixed, a minute before qualifying starts is not the time to be wrenching on your car! As far as charging packs, you don't want charge too early. In off-road it's not as crucial, but in on-road racing, you'll want to have your batteries peaked and ready to go right before you go out on the track."

Rocket Round

"If there is a situation where there is a 'rocket round,' you have to have a totally different strategy. For those of you who are unfamiliar with the term rocket round, this is when there is a fast round that will produce times much faster than any other round—by a big margin. For example, let's say it's an outdoor race and it's been raining during qualifying, and then it starts to clear up and get sunny before the last round. The track has dried out, and now people are starting to put down some really fast lap times—seconds faster than the current TQ. This is it…this is the only round that anyone can make the main out of. You need to go out there and go for it and get really lucky, unfortunately. With a rocket round, you want to think in your head 'just make the main,' but you need to try and step it up enough where you'll finish at the top. Try not to put too much pressure on yourself, though, or it will be really easy to blow out!"

Final thoughts

"Be careful during qualifying—not everyone is going to get out of your way ,because they're trying to put in a good run too! The best thing to remember is to know the system—are they counting two rounds out of four, one round out of three? And follow the track conditions—are you using controlled tires? If so, when will track conditions be best for which tire? Also, you'll want to pay attention to track conditions so you'll know which round will you want to use your best tires, batteries, and motor."



PRO TIPS SECTION

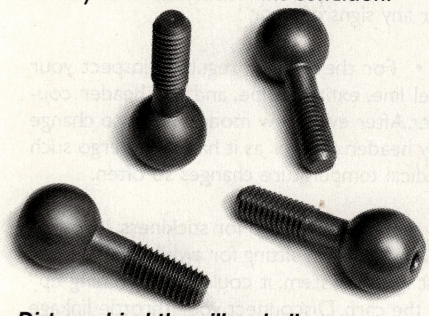


steve slayden

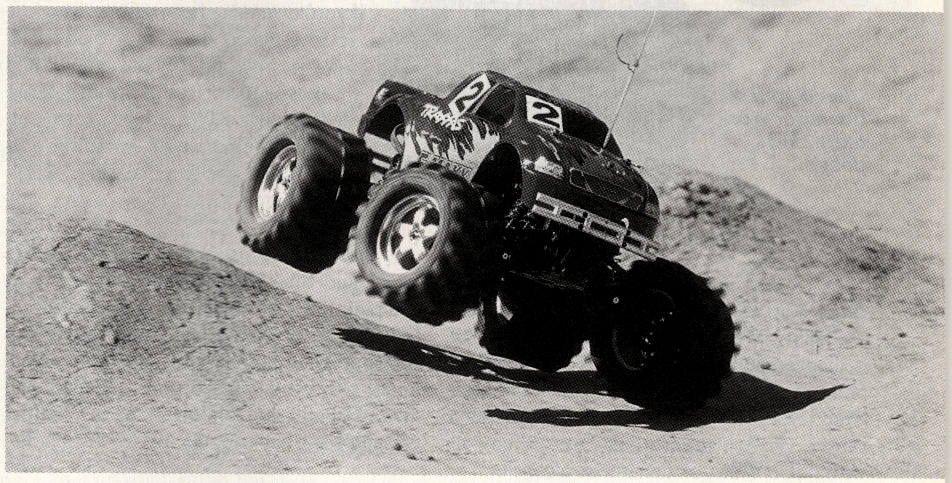
Maxx Maintenance

Keep your Traxxas monster alive

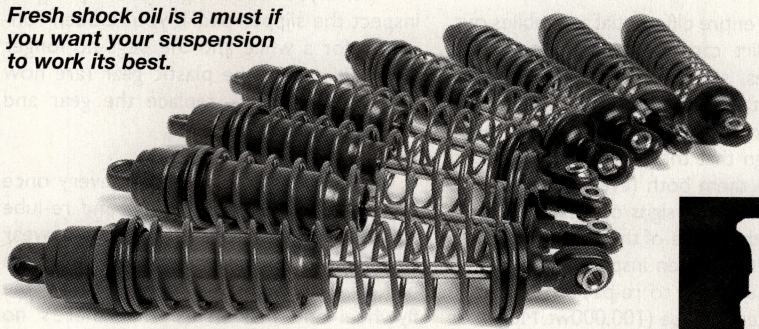
If there is anyone out there who is more familiar with the Traxxas T-Maxx and E-Maxx than Steve Slayden, we've never met him! Steve regularly races each vehicle, and is more than familiar with the routine maintenance that goes into each machine. Here are his tips on how to make sure your Maxx is in mint condition!



Dirt can bind the pillow balls. Clean them regularly.



Fresh shock oil is a must if you want your suspension to work its best.





Regular cleaning will make routine maintenance easier.

• Pull the wheels to inspect the tires and make sure the tire beads are still glued all the way around. If the rim gets dirt in it, it can start working on separating the tire from the bead.

• Check your wheels' hex-head adapters to make sure they're not worn out. Make sure you don't lose the drive pins—they're captured by the hex (not the press-in kind), so they will drop out of the axle stub once you've taken the hex off.

• Inspect your wheel bearings front and rear. Your best bet is to pull them out and clean them—not just re-lube them. I use an electric-grade contact cleaner or motor spray, and I use a specific bearing cleaner tool like the RPM Bearing Blaster. Clean them out thoroughly—it may take you two or three times to get them cleaned properly. Add a drop or two of oil (don't over-do it with the lube).

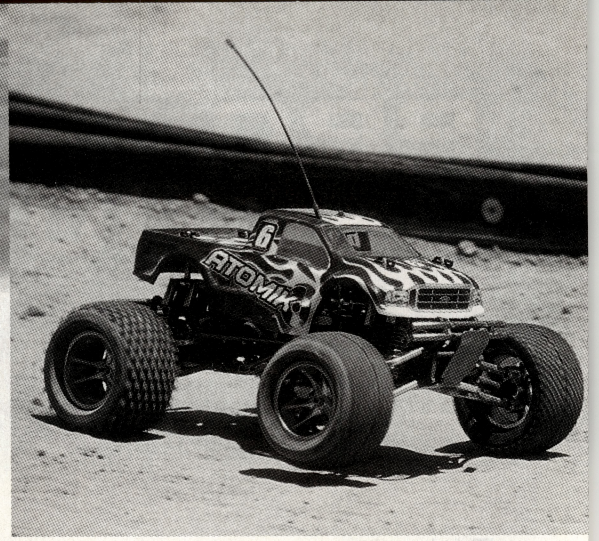
• Check the shocks. It's easiest to gain access to the shocks by actually removing the shock towers themselves. All you have to do is remove the screws from the bottom of the shocks, then undo the four screws on the tower, and lift it straight up.

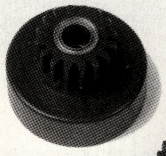
• While the shocks are off, check the truck's suspension arm movement—make sure they're not tweaked. While you're inspecting the suspension, make sure you look at the hingepins. You want to make sure that once you raise the suspension arms that they fall back down under their own weight. If they don't, check the hingepins for any signs of bending and replace any that are worn or damaged.

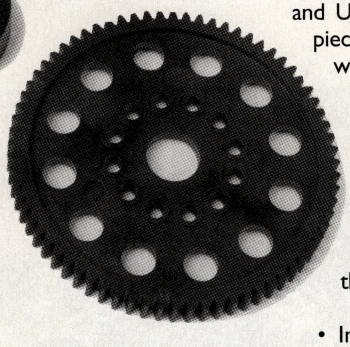
• Suspension arms that have been used for a really long time can begin to bow slightly at the suspension mount. Again, this only happens once the arm has been in use for an awfully long time, so it's nothing to worry about with a new arm. This also happens if you drive particularly hard—it will still take some time for it to bow, though.

• If you've had your truck for six months to a year, you may want to look at your pillow balls (especially if you run the truck in muddy conditions). Loose pillow balls will

PRO TIPS SECTION







Check your gears for worn teeth and debris.

cause slop in the suspension. If dirt gets in the pillow balls and they get tight because of it, that can put additional strain on other suspension components. I like to check on them after every few runs just to make sure they're clean. If they're dirty, blast them off with Nitro Wash or denatured alcohol.

• Pull the entire differential assemblies out. A lot of dirt can accumulate around the bearing area, so I would scrape that out before you take everything apart. Inspect the ring and pinions, and look for sharp teeth. This is a sign that they are worn. Go ahead and replace them both (even if only one of the two is showing signs of wear and tear). Check out the inside of the diff case for dirt. Clean it out and then inspect the diff itself. Once finished, I like to re-pack the diff case with a thicker diff lube (100,000wt. Mugen or Serpent diff lube) for a better, more "posi" feel. You can use the thicker diff lube as a tuning tool—the more you pack in, the more posi-effect you'll get, and it will take longer for an unloaded diff to spool up.

• Next you want to go over your shocks. Check the oil to make sure it's still fresh. I recommend that if you've already gone as far as to take the shocks apart, you might as well fully drain them and put in fresh oil. While the shock is apart, check the rubber bladder cap. If the cap is deteriorated, replace it—the rubber bladder cap is an important part of the shock, and without it working properly, shock performance will suffer. I like to have plenty of spare bladders in my pit box just in case—at least a package or two.

• Make sure your shock shafts aren't bent. Some people try and straighten them out—I'm not a big fan of that procedure. It can weaken the shock shaft and it could easily snap.

• Check your sliders, drive axles, and U-joints—basically every crucial piece in the drivetrain. Look for worn-out items or twisted parts. If you're running hot motors in your E-Maxx, or a more powerful engine in your T-Maxx, you could twist your driveshafts more easily. If anything is twisted or worn out, replace the part right away. If everything looks good, make sure everything is clean.

• Inspect your spur gear. Look at the mesh, and the tooth form. If the teeth on the pinion are sharp, it's time to replace it. I like to get into the habit of checking on my spur gear before and after every run. You want to make sure there's a small gap in between the pinion and spur—just enough so it rocks back and forth slightly.

• While you're looking at your spur gear, inspect the slipper pad. If you've been running it for a while and the pegs no longer protrude out of the plastic gear (are now flat with the gear), replace the gear and install new pegs.

• Clean out your clutch bell every once in a while. Clean the bearings and re-lube them, and check the teeth for signs of wear (sharp teeth). While you have the clutch bell off, look at the pins coming out of the flywheel and make sure that there's no binding between the flywheel and the clutch shoes. Inspect the clutch shoes for signs of wear as well. If they are grooved, then you should replace them. Also look at the clutch shoe spring and make sure there is plenty of tension.

• When inside the tranny, inspect the bearings and look for wear and tear on the gears. The tranny is sealed very well, so very little dirt gets in there. Still, you want to make sure the forward and reverse gears move freely. If there's a build-up of grease on one side of the case, just re-grease the gears slightly—you do not want to pack the tranny with oil or grease! If you do the tranny won't operate the way it should.

• Pull the receiver and make sure there is no fuel build-up on it. Fuel left on the receiver will eat through the plastic eventually. Next, pull your servos to make sure there are no damaged parts such as servo horns, or frayed wires. While you're there, inspect the linkages to make sure there's no binding.

• If your brakes aren't working as good as they first did, remove the disc and check to see if it is glazed. If so, sand each side with 400- or 600-grit sandpaper. Also, inspect the hex adapter the disc is mounted on to check for any signs of wear.

• For the T-Maxx, regularly inspect your fuel line, exhaust pipe, and the header coupler. After every few months, I like to change my header coupler as it has to undergo such radical temperature changes so often.

• Check your carb for stickiness. If your T-Maxx has been sitting for awhile and fuel has sat in the system, it could be "gumming up" in the carb. Disconnect your throttle linkage and manually work the carb to see if it's sticking. If so, remove the carb and spray it out with motor spray and keep working it back and forth until the carb is working freely.

• Pull-starter users and EZ-start users should inspect their one-way bearings every so often. The starter shaft on the EZ-Start system can wear out, so before you think it's the one-way bearing, check the starter shaft itself first. If you need to clean your one-way bearing, stick with denatured alcohol or Nitro Wash—something plastic-friendly. You don't want to use any harsh chemicals that could damage the plastic in the starter assembly.

• Inspect your air filter on a regular basis. You can use a light lubricant for air filters, or even fuel. There's enough oil in the fuel to stick to the filter. You want to make sure you're using a light coating of oil—you don't want to soak your filter.

• Check your fuel tank for air leaks. To do this, you can do your own pressure test by pinching off one line and blowing into the other and listen for air leaks (make sure you are using new fuel tubing!). Inspect the gas tank cap for any signs of leaking too.

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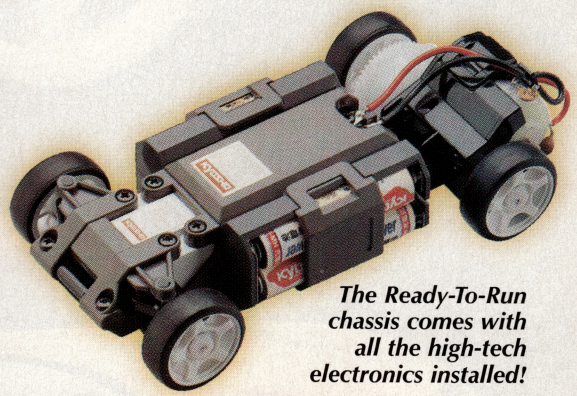

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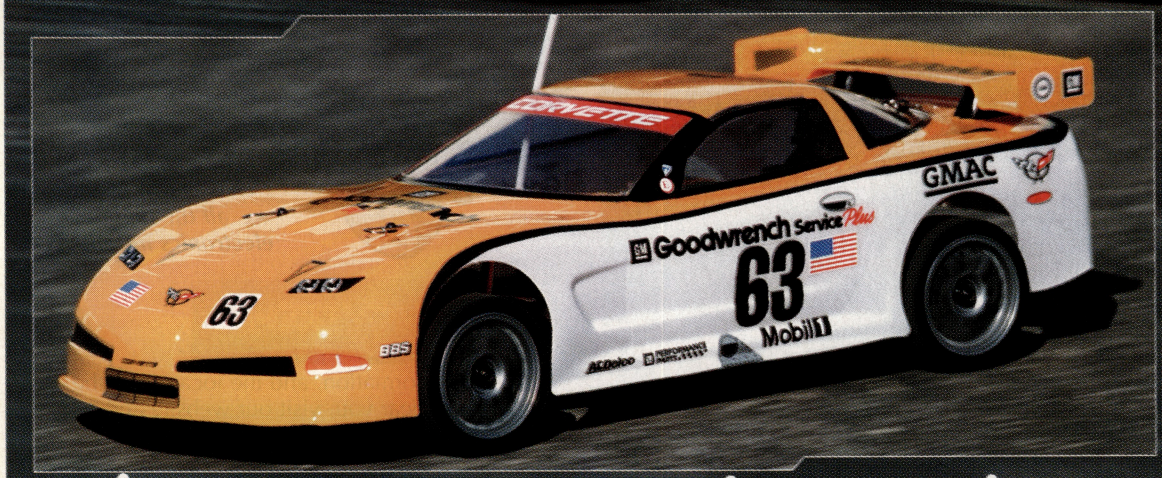


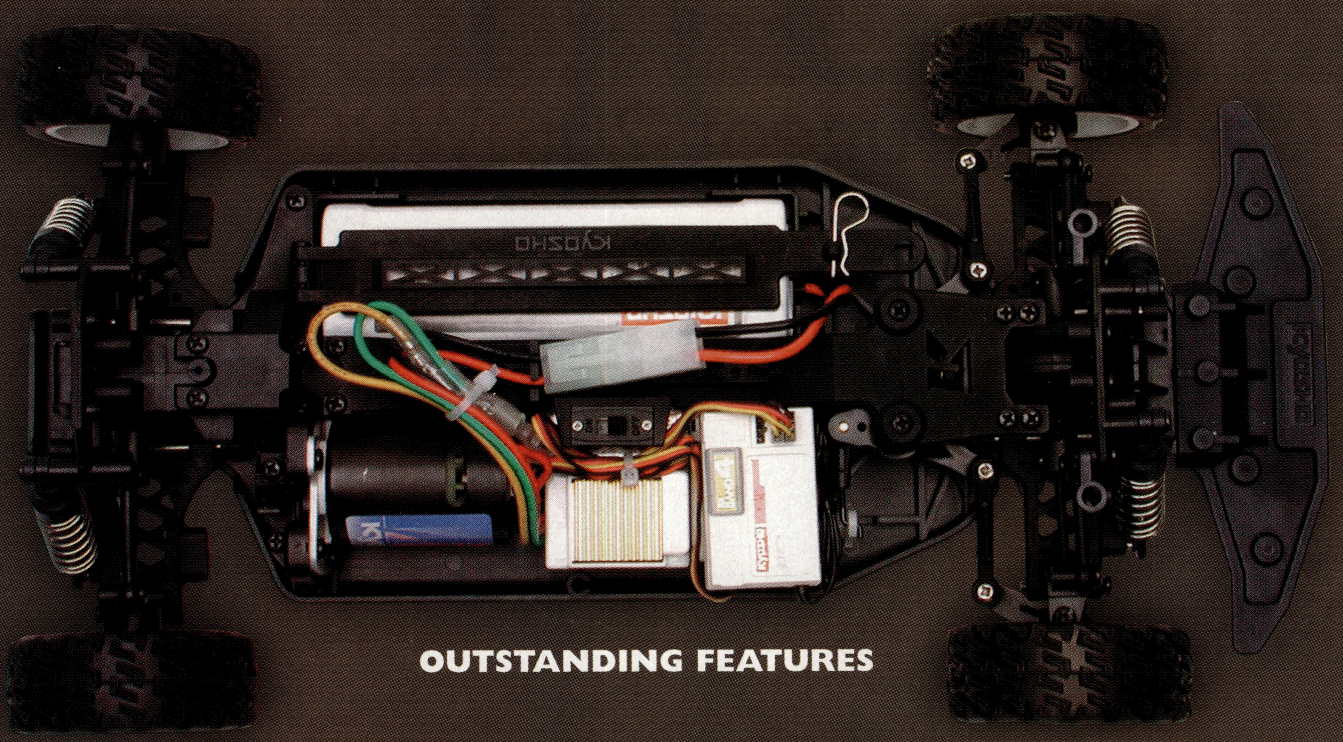
A new road and rally

C5-R & Peugeot 206 WRC

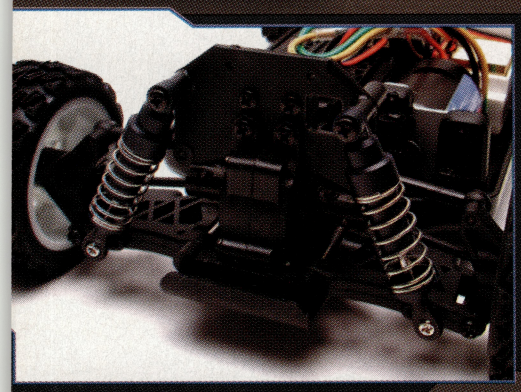


Two new ready-to-run kits from Kyosho will have customers scratching their heads over whether to decide between an on-road RTR, or an off-road RTR rally racer. Both kits fall into Kyosho's ReadySet line, meaning each kit includes a Perfex 2-channel radio set, an electronic speed control, a 7.2volt NiCad battery pack, a charger (a wall charger unit), a painted body, and a full decal set. Both cars tested here are based on Kyosho's PureTen EP Alpha2 4WD. Here's a breakdown of the car in ready-to-run trim.

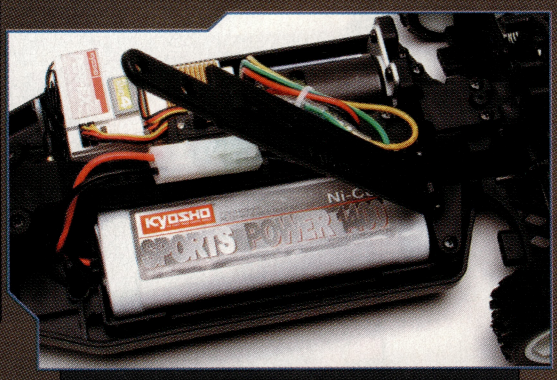
ready-to-run



OUTSTANDING FEATURES



The Kyosho PureTen EP Alpha2 is Kyosho's first center-shaft drive car (very reminiscent of an Associated TC3). At each end you'll find the shaft engages a gearbox that houses a proven bevel-gear differential. The entire drivetrain is supported solely by brass bushings. Power is transferred from each differential to a steel drive cup which in turn propels a steel dogbone—not the most efficient power transfer, but it gets the job done.

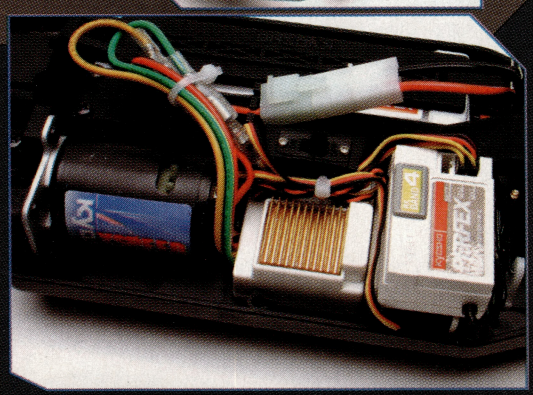


The dual-deck, plastic molded tub chassis has some flex to it, but in the end, we think it's advantageous. Also, while on the subject of the chassis, the underside uses countersunk screws—no protruding screw heads to snag on the street or dirt. The suspension is lacking, so the inherent flex should help this car handle better on rougher surfaces. Unfortunately, the Alpha2 comes without oil-filled shocks. The boingers on this car rely strictly on the springs for damping action—okay for the Vette, but the Rally car needs more support than this setup provides.



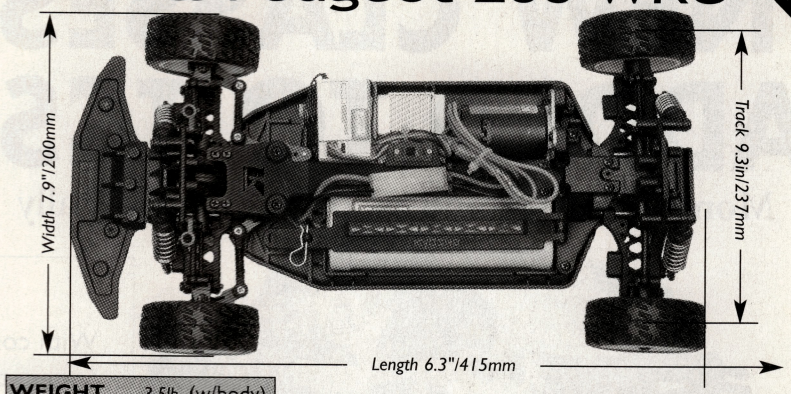
Also included with the package is a budget 1400mAh NiCad battery pack which is good for roughly six-plus minutes of runtime. The battery is held in place by a plastic "strap," which can be swung open by removing a simple body clip (the other end is hinged). The electronics are offset on one side of the chassis while the battery is on the other—this helps provide a better balanced chassis layout.

Both bodies come pre-painted—you are left to apply the decals and trim out the body yourself. The paint finish was quite good, and with our experience with Kyosho decals in the past, we can say that those included with this kit are fine as well. The most time-consuming process of getting your car on the road will be this detailing step...but, if you start decaling and trimming, you might even beat your battery being charged (for six hours!).

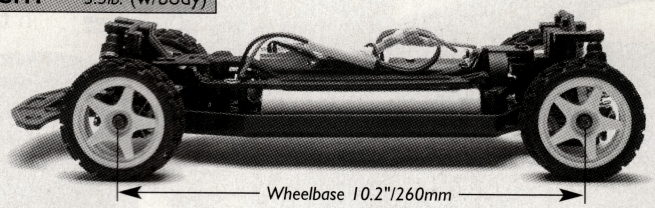


The electronics package can best be described as basic, but at least it's in the current century. Nestled inside the chassis you'll find an adequate steering servo with just enough power to turn the wheels and no more, a two-channel AM receiver, a budget ESC (we have no idea of its specs, but let's just say we're in no hurry to put in a hotter motor!), and a 20-turn Kyosho Xspeed "Hi-Speed" motor. The reason Hi-Speed is in quotes is because that is Kyosho's claim...not ours. The motor does have a cool little fan installed on the armature, though, to provide additional cooling.

C5-R & Peugeot 206 WRC



WEIGHT *3.5lb. (w/body)*



REPORT CARD

Test location: our parking lot
Track type: bumpy and dusty pavement. Lots of cars to dodge. Hazardous water traps

Getting going: A

It doesn't get much easier to go from box to road than with the Alpha 2s. True, you have to decal the bodies yourself, but aside from this, it's a matter of installing radio batteries and charging up the include 6-cell pack (but don't get Doogie started on the included wall charger). We found that the radio trims were very close to perfect out of the box.

Acceleration and speed: B-

For sport-model RTRs, the Alpha 2s must rank among the fastest. The 20-turn supplied motors provide good speed, but we figure that they are a bit overgeared, as acceleration is a bit lethargic. Of course, some of this must be attributed to the heaviness of the drivetrain. Bearings should be a must.

Run time: C+

We should be happy that Kyosho has included a battery, but that's not our style. Between the low capacity of the kit's battery, the ineptness of the wall charger and the drag of the bushings, the Alpha 2s' run time was average at best. Figure about 4 to 6 minutes of play time before heading to bed for another overnight charge. At the very least, pick up a decent fast-charger when you buy your Alpha. Throw in a higher capacity battery, too!

Handling: B-

The Kyosho Alpha 2s handle quite well for sport-level sedans. They get to go to (near) the top of their class for this category. Despite the inadequate spring dampers (or Pampers?), both cars are pretty adept at sticking to the roadway. They also show an ability to turn tightly. Get the rally version off the beaten path, and you're in for a rough ride, but carnage can also be fun.

Durability: B

In switching to a shaft-driven 4WD system with sealed gear diffs, Kyosho has made its Alphas into near bulletproof machines capable of withstanding just about anything that a beginner can dish out. We fear that the eventual, and unavoidable wear of the bushings may cause gear problems down the road, but this is just educated speculation.

SOURCES

Kyosho, distributed by Great Planes Model Distributors, 2904 Research Rd., Champaign, IL 61826-9021 • phone (217) 398-6300; fax (217) 398-0008

SPECS

Chassis	
Chassis Material	Composite plastic
Chassis Type	Molded tub
Steering System	Twin bellcrank w/tie-rods
Rubber Tires	
Size	2.1"x1.1"
Tread Pattern	Rally block
Front & Rear Suspension	
Suspension Type	Four-Wheel Independent
Caster	Fixed
Camber	Fixed plastic link
Toe	0°
Damper	Non oil-filled coil-over plastic shock
Drivetrain	
Type	Shaft
Motor	20-turn mod motor
Gear Ratio	7.6:1
Differential Gear Type	Bevel-gear
Speed Controller	Kyosho Perfex ESC

Final Score

Highs: Kyosho has produced a relatively bullet-proof design in the PureTen EP Alpha2 4WD platform. The car handles well, is assembled properly from the factory, and the Vette and Peugeot bodies both look great. Having a complete package ready to go right from the box is also a nice touch.

Lows: A few bummers—the first is the inclusion of that lame wall charger. When we saw on the box that this kit included a charger, we got excited. When we saw what kind, we couldn't hide our disappointment. Listen up, manufacturers—wall chargers are lame! We need to get people into the hobby and keep them here. No one wants to wait six hours to get up and running! Since RTRs are geared towards the newcomer, we should make it as easy and simple to get out and running as soon as possible. You're better off charging a few extra dollars and include a basic AC/DC peak charger than to include a worthless wall charger.

Nice paint job on the bodies, but we would have been far more impressed to see the decals already applied. Other RTRs come with them pre-applied. Why not Kyosho?

Finally, and this is a bit nit-picky, low-cost bearings and even basic oil-filled shocks are finding their way into modern ready-to-run kits. The Kyoshos have neither.

The verdict: Both the C5-R and the Peugeot are decent cars, and the price is right (street price of $180). The only major gripe we have is regarding the low-buck wall charger (refer to our rant above). To actually have fun with either kit, you'll need to spend a few more dollars and get yourself a basic AC/DC charger—preferably one with a variable amp rate setting. Still, as far as ready-to-run packages fare, either the Peugeot or the Corvette are relatively good deals.

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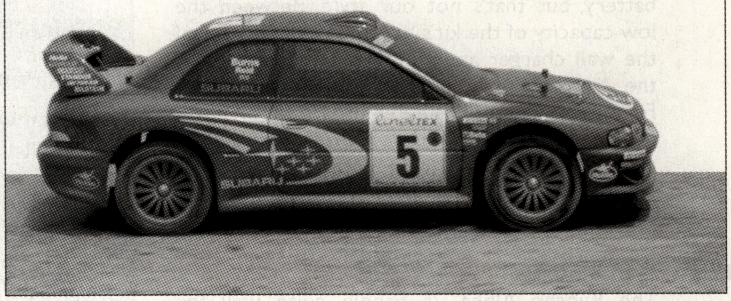

In addition to the **GT1, GT2, Mini and F-1** categories you normally participate in at your local TCS event, there are two more exciting classes to choose from, **Monster Truck** and **World Tarmac Rally**. Both classes are sure to add a new level of excitement to TCS and R/C racing in general. Visit www.tamiyausa.com for updated rules and schedules or call 800.TAMIYA.A.

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3. Any Tamiya Hop-ups designed for the aforementioned trucks are allowed.
4. ROAR legal stock motors or silver canned kit motors only.
5. Must use Tamiya tires and wheels.
6. After market Lexan or polycarbonate bodies are allowed for this class only.
7. Dual 7.2 battery packs and dual speed controls are allowed.

World Tarmac Rally:

1. Any Tamiya TB-01, TL-01 and TA-03 chassis may be used.
2. Must use tub-type chassis. Double deck chassis are not allowed.
3. Only Tamiya Bodies that are representative of World Rally competition may be used.
4. ROAR legal stock motors or stock silver canned motors only.
5. Any Tamiya Hop-up may be used as long as it is used for the chassis it was designed for.
6. At rest the chassis must have a minimum of 5mm ride height.
7. The following tires are legal for this class: 50419 Racing Radial Tire, 50810 racing semi slick and 50476 Rally Block. No other tire may be used.
8. Any tire insert may be used.
9. No 24mm wheels and tires of any kind are allowed.

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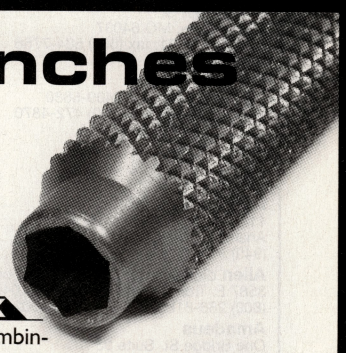
Parma Combo Wrenches

Tools that walk and chew gum at the same time





Parma's new line of Combo Wrenches are pretty clever: at one end, they have a precision-ground Allen wrench tip, while at the other, they have a machined-aluminum nut driver socket. So if saving space in your toolbox is a priority, maybe these wrenches are just what you've been looking for.

WHAT WE DIDN'T LIKE

1) The knurled aluminum handles will tear your flesh. Okay, maybe that's an overstatement, but the peaks of the knurls are quite sharp, and after a while, they'll turn your palms red.

2) The socket opening is machined into the aluminum handle. Most nut drivers have hardened steel sockets, which makes us wonder how well the Parma wrenches will fare over prolonged use.

3) At an "available at" price of $16.59, these wrenches don't represent much of a savings when compared to buying decent quality Allen drivers and nut drivers separately.

WHAT WE LIKED

1) The combo idea is a good one. Parma has done a good job of matching the size of the Allen driver to that of the socket. It's possible to perform most maintenance and building tasks using just one tool.

WHAT WE REALLY THINK

Kudos to Parma for the idea of combining tools. Aside from the rather medievel feeling of the knurled aluminum handles, the wrenches performed well and the sizes of the Allen tips and sockets were very good. A little more refinement and perhaps a slightly lower price would have yielded a higher overall rating.

AVAILABLE SIZES

7914 .050 Allen wrench/1/4" nut driver (red)
7915 1/16" Allen wrench/11/32" nut driver (green)
7916 3/32" Allen wrench/3/16" nut driver (gold)
7917 5/64" Allen wrench/3/8" nut driver (silver)
7918 1.5mm Allen wrench/7mm nut driver (blue)
7919 2.5mm Allen wrench/5.5mm nut driver (black)

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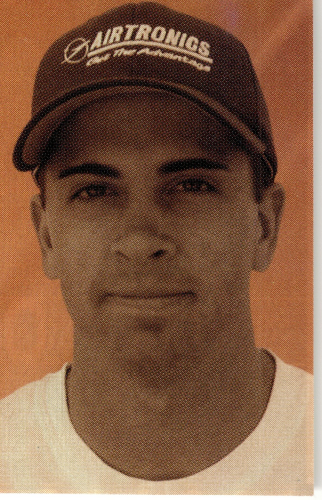
at-ti-tude (at'i-tood', -tyood') n. 1. A position of the body or manner of carrying oneself, indicative of a mood or condition.



Airtronics and Team Associated's Driver

Billy Easton

www.Airtronics.net

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Tamiya Ferrari 312T3



Tamiya is feeling nostalgic, and they seem to be in full "re-release" mode with no end in sight. This, incidentally, is good. The first of this new batch of "old" was the Tyrrell P34 six-wheeler. The original Tyrrell kit was only the third R/C car ever made by Tamiya (circa 1977), and original examples command high prices among collectors. But rather than a full re-issue of the original kit, Tamiya instead produced a hybrid of the old body with the underpinnings from a newer F103RS F1 chassis. It's likely that the reasoning behind this is that producing the original chassis would have required a major tooling and manufacturing expenditure (those old Tamiya cars had complex metal chassis). However, running a bunch of injection molded bodies from the original sculpts was probably easy. And for those of us who were too young to enjoy the originals (or too poor to buy one on eBay now), this is a great opportunity to glimpse a bygone era.

Such is the case with the new (well, mostly new) Ferrari 312T3. The original kit was released in '79 atop a metal chassis shod with foam tires. The new car follows in the footsteps of the Tyrrell; it comes with the original injection-molded plastic body and chrome wings, but beneath the exquisite lines of the 312T3 lurks a modern F103RS chassis. And while this particular chassis is quite familiar to Tamiya fans, it combines well with the re-issued bits to form a very interesting kit. It's time to brush up on our modeling skills.

Old on top, modern beneath:





HISTORY OF THE FERRARI 312T3

Ferrari's 312 dates back to 1965 with the 312-65 driven by John Surtees of England. The original 312 was campaigned alongside the V6-powered Ferrari 246. The "12" in the 312 designates the car's V12 engine. The 312T3 was the designation of the 1978 car driven by Argentine Carlos Reutemann and Canadian Gilles Villeneuve (the father of former F1 champion Jacques). Reutemann finished the '78 season third in the points with four wins, two pole positions and two fastest lap records. Villeneuve finished in ninth that year, having won one race in 16 starts and setting one fastest lap record. Sadly, Villeneuve was killed on May 8, 1982 during qualifying at the Zolder, Belgium, GP circuit. He was driving the number 27 Ferrari 126C2 with a turbocharged V6 engine.

SPECIFICATIONS 1978/79 FERRARI 312T3

Chassis: Type 020, monocoque, aluminum panels riveted to variable-section light alloy structure and cast-alloy supports
Engine: Type 015, rear-mounted 180-degree V12, light-alloy cylinder block and head, aluminum wet liners, 112mm connecting rods, water cooled
Max. power output: 510bhp at 12,200 rpm
Front suspension: double wishbones, inboard spring/damper units
Rear suspension: upper arm, lower wishbone and single radius-arm
Weight (w/water and oil): 580kg

a '70s classic gets an update

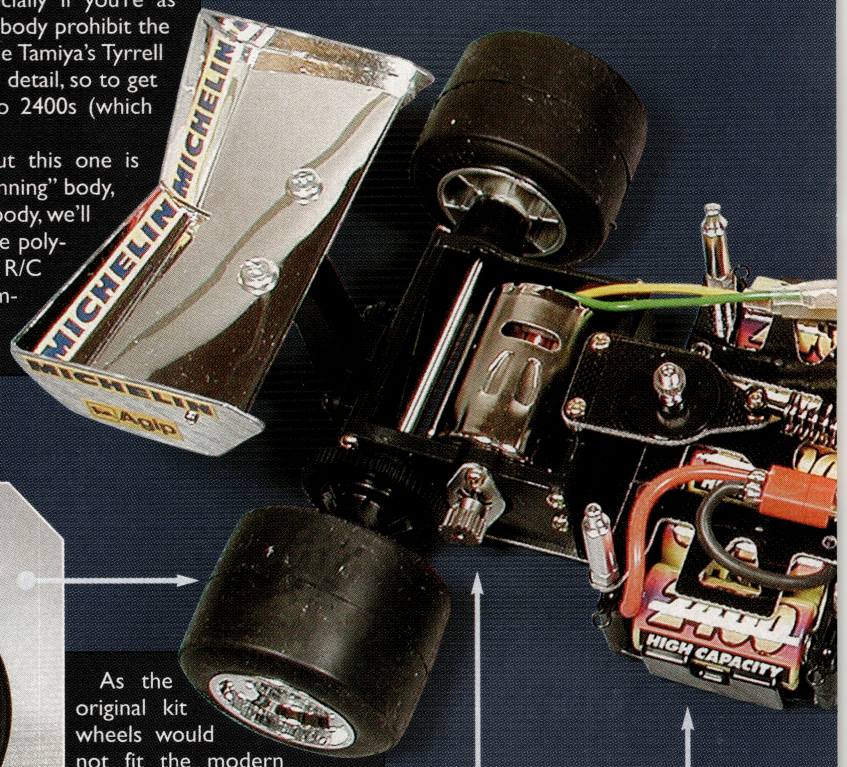






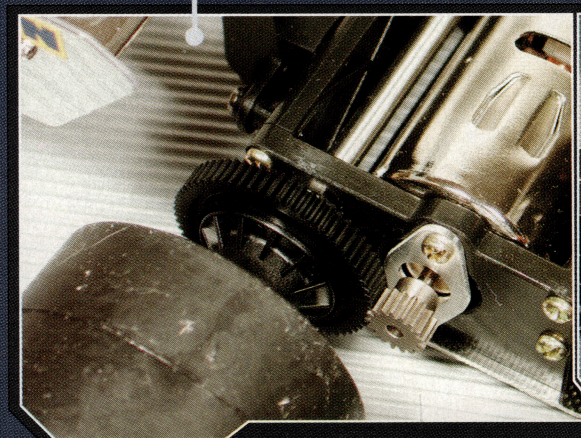
The injection-molded Ferrari body is a work of art, and will challenge your modeling skills (especially if you're as rusty as we were). The scale proportions of the rigid body prohibit the use of a standard 6 cell battery. Instead, you must use Tamiya's Tyrrell P34 pack. Someone forgot to inform us of this minor detail, so to get the car running, we made a 5-cell pack using Sanyo 2400s (which barely fit within the confines of the chassis).

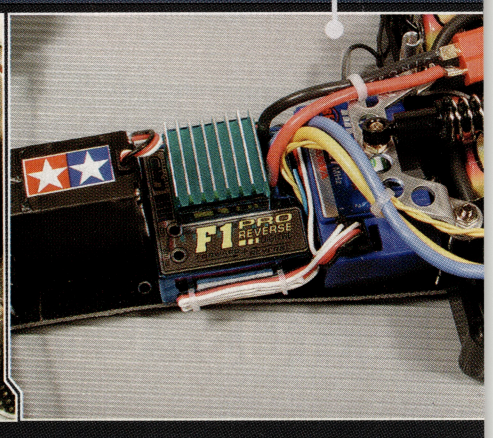
Tamiya thoughtfully provides a second body, but this one is molded from clear polycarbonate. We call this the "running" body, as with all the work that goes into finishing the hard body, we'll be darned if we're actually going to run the thing. The polycarbonate body is painted from the inside in typical R/C fashion. Also, the clear body is wide enough to accommodate a 6-cell pack, which will give the car more speed. Tamiya also includes enough extra decals for both bodies—a nice touch.





As the original kit wheels would not fit the modern chassis, Tamiya splurged on some extra tooling for the car's wheel inserts, which are copies of the originals. Like the wings, the wheels have a spectacular chrome finish. Compared to the real car, and the original kit, the front wheels are out of scale (they are too large); however, this is the price of performance, and smaller diameter wheels would necessitate a redesign of the car's front suspension geometry. As it stands, the included Type B reinforced slick tires provide much more grip than the original foams.





Tamiya Ferrari 312T3

NUMBER ELEVEN FOR TAMIYA

Tamiya's original Ferrari 312T3 kit (no. 58011) was released in 1979, and was Tamiya's 11th R/C car kit. Although the 312T3 re-release shares its body with that of the original kit, underneath it's an entirely different story. The original kit used a rectangular chassis made from aluminum, with aluminum plates extending fore and aft to serve as the suspension mounts. The front suspension used sliding kingpins like the F103RS chassis, but they were supported by cast aluminum uprights. The rear end had a solid axle, as does the modern chassis, and the rear suspension consisted primarily of a triangular-shaped flexing aluminum plate. The car was also equipped with a mechanical speed control with a huge resistor. The front and rear chrome wings appear to have transitioned to the re-release nearly unchanged.

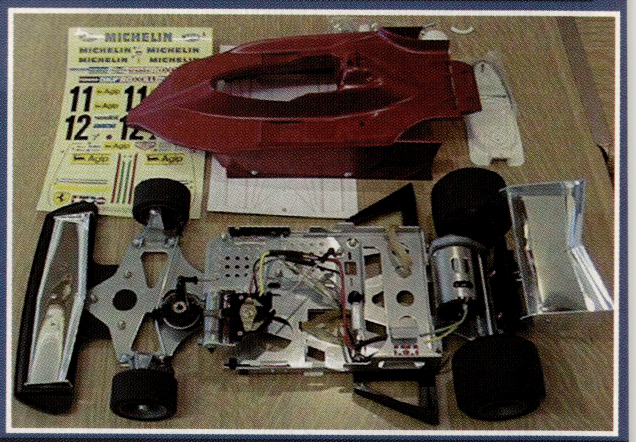
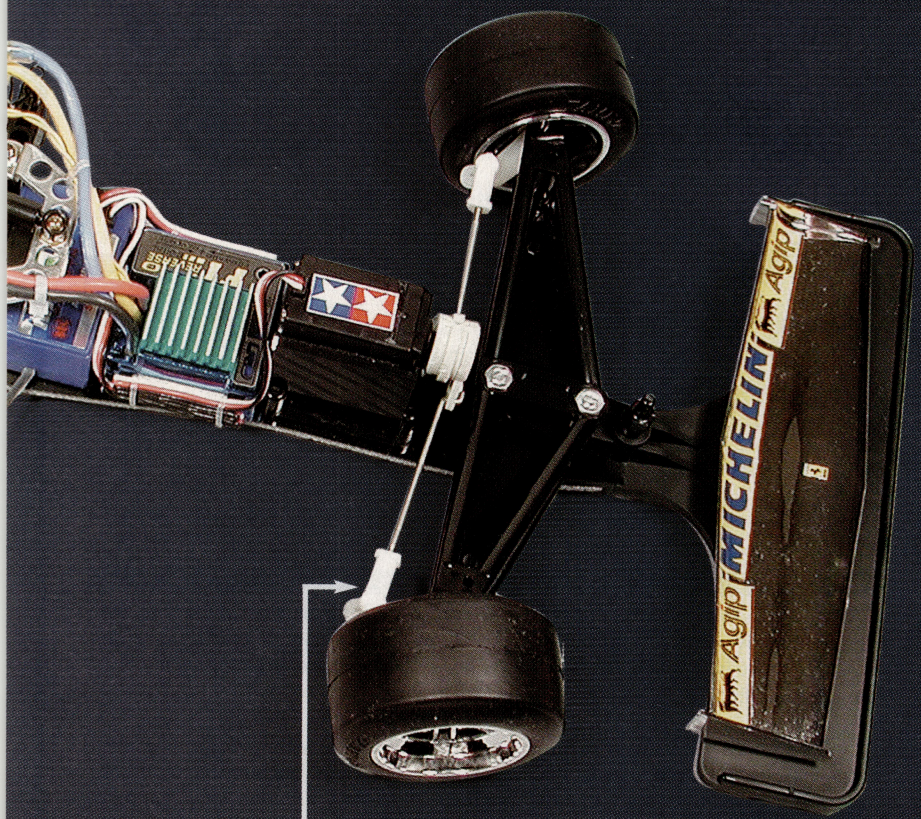
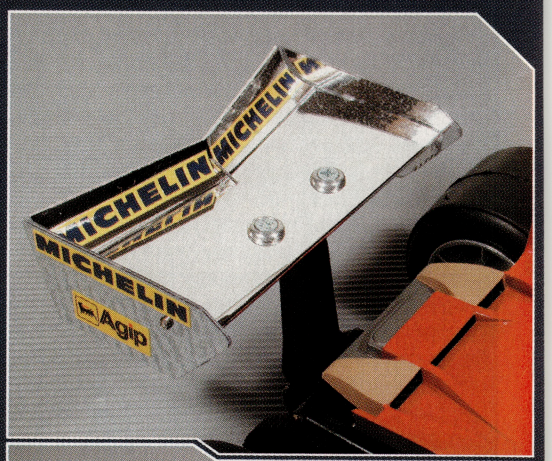


image courtesy of Blazer Frazer (www.btinternet.com/~frazer.smith1/)

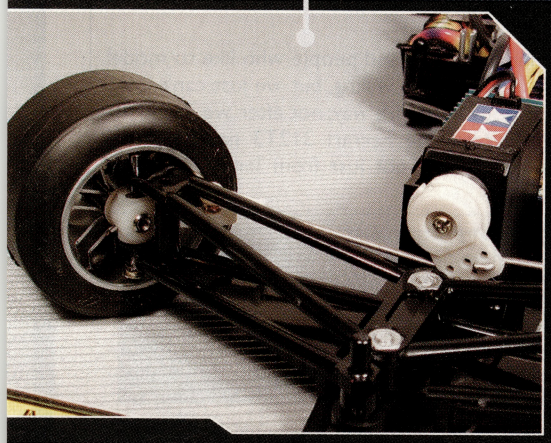
OUTSTANDING FEATURES







The wing makes the car. Tamiya went to great lengths duplicating the real car's polished metal wings. The main sections are plastic and sport the most brilliant chrome finish we've ever seen. The rear wing is a little complex to build with its polycarbonate side panels, aluminum tape and miscellaneous hardware, but the result is well worth the effort. The large black plastic front bumper is all business and is shaped like that of the original kit.



Familiar territory. The F103RS chassis remains virtually unchanged from its usual guise. The front suspension consists of floating kingpins and coil springs, which are attached to the ends of a two-piece plastic "wishbone" arrangement for scale appearance. In back, there's a typical solid rear-axle setup with a pivoting T-bar and a box-shaped rear pod section. The entire car is supported by ball bearings, and there's also an adjustable racing-type ball differential should you decide to race the Ferrari.

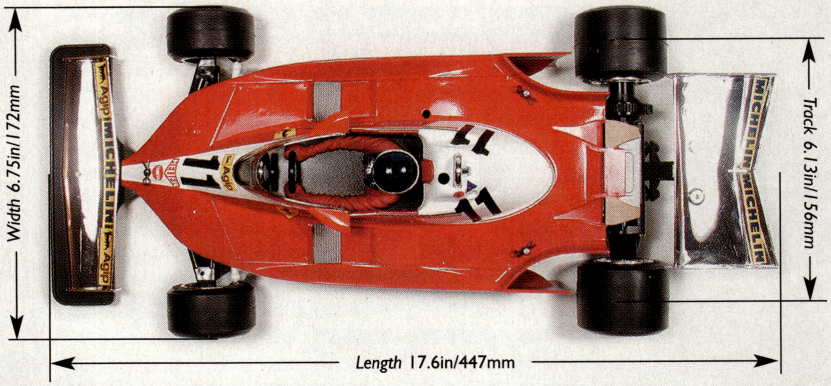
Tamiya Ferrari 312T3

DETAILING THE 312T3

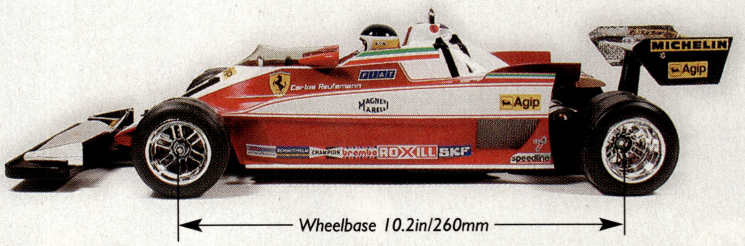
Painting the body: If you're used to painting only clear polycarbonate (Lexan) bodies, finishing the injection-molded 312T3 body might seem foreign. We wanted to be true the Ferrari's color scheme, so we went to our local Hobby People store with instructions in hand. Luckily, the store had most of the Tamiya paint in stock. Most important to us was that we use the appropriate "Italian Red" TS-8. We bought two cans of that. We suggest that you first paint the body with white primer. We used gray, and the color came out a bit dark (although it still looks "right"). There are also several vents, ducts and grills that should be painted. Take your time and steady your hand for the best results.

Building the rear wing: The Z7 nut retainers must be glued to the underside of the rear wing. The instructions don't explain this, but there's no other way to secure the side-panel nuts. Both sides of the polycarbonate wing side-panels are covered in a protective film. Be sure to remove this film prior to applying the aluminum sticker sheets The best way to apply the aluminum sticker to the side panels is to cut the piece in half, then apply one halve to each panel. Lay the panel on a flat cutting surface, and trim the excess aluminum sticker using an X-Acto blade.

Applying the decals: There are two areas where you could run into problems. Check the decal sheets carefully: there are two pairs of decals, one set for each body. But beware, as the decals are different for each! The clear body's decals (the white sheet) won't fit the hard-plastic body. Also, the white section behind the driver figure requires careful alignment of the two halves, and make sure to trim away the red lines from the white, or else they'll show. Overall, the decaling instructions were a little vague for a Tamiya kit.



WEIGHT 2 lb. 11oz.(w/body)



SPECS

TYPE	1/10-scale electric F1 car
PRICE	$207.99 (street price)
CHASSIS	
Type	flat plate
Material	fiber-reinforced plastic
SUSPENSION	
Type	floating kingpin (F); rear pod (R)
Damping	coil-springs (F/R)
TRANSMISSION	
Type	direct drive
Drive shafts	rigid steel axle w/ball diff
Bearings	shielded ball bearings

REPORT CARD

Handling: B
The F103RS chassis is Tamiya's best F1. It's light and nimble, and overall has excellent balance. The switch from foam tires to the rubber slicks improves traction on dirtier pavement, which is where most of us run our cars anyway. The steering is very responsive, yet the well articulated rear pod rarely wants to step out on its own; there is usually a hint of understeer present at all times.

Speed and acceleration: B-
As the F103RS is a very light chassis, it is usually surprisingly fast when powered by the rather tame sealed-endbell Mabuchi 540. This is, of course, when the car is fitted with 6 cells rather than the 5 cells that must be used along with the narrow injection-molded body. With the wider polycarbonate shell and 6 cells under the hood, the Ferrari really moves out.

Looks: A+
What did you expect? This is truly a stunning kit with Tamiya's typical attention to detail. We took the car to the track for some testing and it quickly drew a crowd.

Final Score

Highs: The vintage body and wings are fantastic looking; something that we rarely see nowadays. The F103RS chassis is very simple and straightforward, so it's easy to build. The inclusion of the wider polycarbonate "running" body is a welcome addition.

Lows: The instructions are uncharacteristically vague when describing the detailing process. Although the polycarbonate body can accommodate 6-cell packs, the appropriate battery holders are not included. No where on the box or in the instructions are we told that a special battery is needed (at least not in English).

The verdict: This kit is clearly aimed at F1 fans and people who like to model. As a race car or cul-de-sac runner, the chassis is willing, but we just can't imagine placing the beautiful rigid Ferrari body in harm's way; not after we spend 20-plus hours painting and detailing! Overall, the Ferrari 312T3 has whet our appetites for even more nostalgic re-releases, not just from Tamiya but from other companies as well.

SOURCES

Airtronics, 1185 Stanford Ct., Anaheim, CA 92805 ï phone (949) 978-1895; fax (949) 978-1540
LRP, distributed by Associated Electrics, Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626 ï phone (714) 850-9342; fax (714) 850-1744
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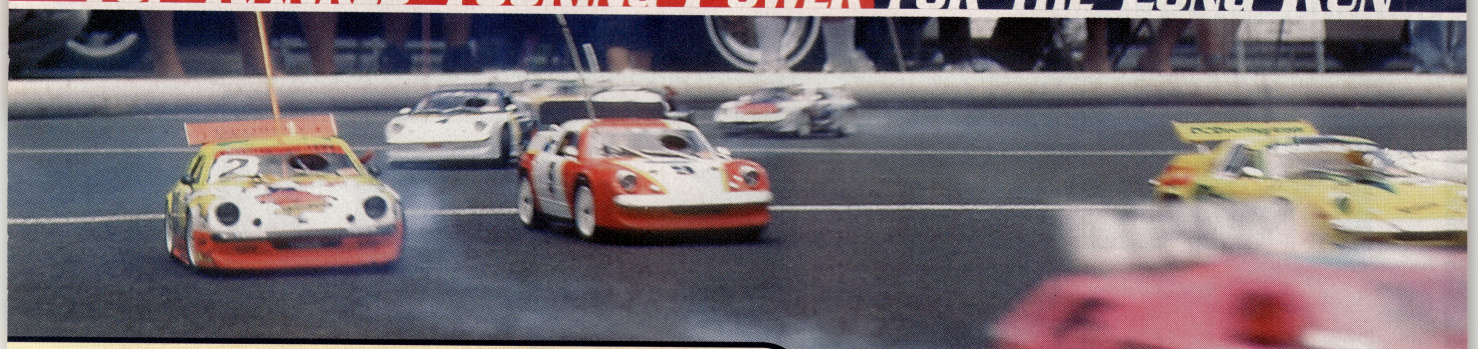

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Others include carbs with 5.5mm bores (the maximum allowed by IFMAR rules), plus a screwdriver-adjustable needle valve, mixture control screw and throttle stop screw — a balanced blend of brute power and adjustment finesse. A #102 Air Cleaner is standard equipment, and so is a front-intake/rear-exhaust configuration that all but does away with turbulence.

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OSMG2001 12TR w/#10M Slide Valve Carb
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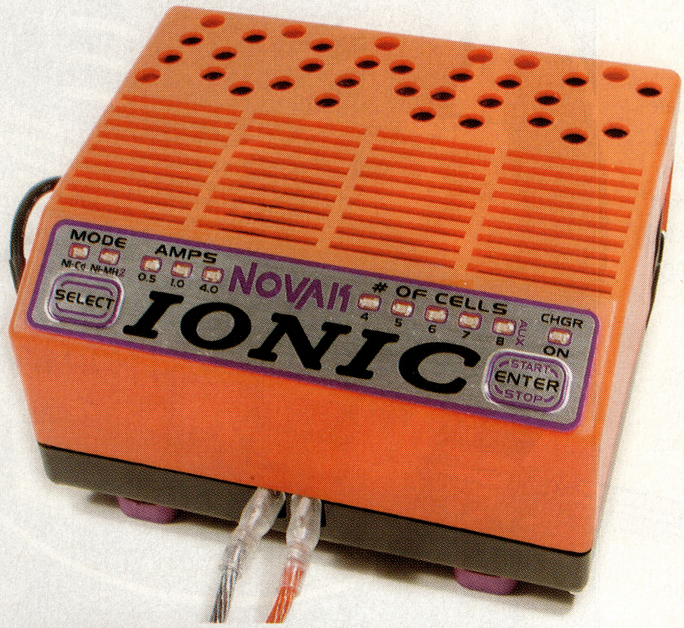
Novak Ionic Charger

Can a high-end sport charger exist?

With the release of its Millennium Pro charger (see our review in the February issue), Novak had the high-end digital charger market well covered. However, the company's entry in the sport charger market, the Rhino, was beginning to show its age, especially considering that it wasn't equipped to deal with modern NiMH battery technology, where many of the newer budget chargers were. Novak needed an all-new charger to cover the bases below the Millennium Pro, and what they came up with is the Ionic, a sort of high-end sport charger (if there could be such a thing).

The Ionic is available in two flavors: as an AC/DC model (Novak's first) or as a DC-only model. What sets the Ionics apart from the rest, in our humble opinion, is that they are readily equipped to handle all types of NiMH cells because they use some of the same technology that can be found in the Millennium Pro. The AC/DC version also sports an internal 12V power supply, and when connected to AC house current, can function on 100 to 240V, making it a truly "use anywhere" charger.



IONIC INTERFACE

One of the coolest features of the Ionic is that all of its touch-pad buttons and LEDs are actually part of the unit's label. There are just two buttons: a "select" button that's used to choose the charge mode (NiMH2 or NiCad), the charge rate (0.5, 1 or 4 amps) and the number of cells in the pack you wish to charge (from four to eight). The second button is used to verify the choices made using the "select" button, as well as to begin the charge function. A bank of eleven LEDs provides a visual reference to each selection. We found the Ionic's interface to be extremely simple and intuitive.

DUAL PERSONALITY

When we said that the Ionic is equipped to handle all types of cells, we meant it. The software of the Ionic's charge modes has been lifted straight from the Millennium Pro, including Novak's proprietary NiMH2 mode, which uses triple-detection methods to ensure that all sizes of NiMH cells receive a maximum charge without overheating or false-peaking. The linear NiCad mode is also a sophisticated algorithm that extracts the most punch from the cells without cooking them in the process.

BRAIN-SCIENTISTS NOT REQUIRED

Have you looked into buying a high-end charger only to find that all of the options, buttons and beeps have left you confused? If so, then the Ionic is for you: operating this puppy couldn't be more simple. First, you select the charge mode by pressing the "select" button. When the LED above the mode you want flashes, press the "enter" button to confirm the selection. At this stage, you again use the select button, but this time to choose the charge rate. The selection is again confirmed by pressing the enter button. Finally, you must tell the Ionic how many cells are in your battery pack (from between four and eight). A final press of the enter button means that the Ionic is now ready to get to work. What could be easier?

ALWAYS USE PROTECTION

The Ionic is all about safety, both for you and for your expensive batteries. To protect the cells and to give them the best charge, the Ionic actually analyzes each battery before it begins its charge. If necessary, the charger's software will condition the pack to prep it for charging. In addition, the Ionic will constantly monitor the input voltage from the power source (internal or external) to ensure that its sufficient to charge the number of cells in the pack.

Other more general safety features include a built-in electric cooling fan, thermal overload protection in case the charger becomes too hot, and solid-state protection against short circuits and crossed leads. If you want to fry the Ionic, you'll really have to try!

FINDING FAULT

As simple as the Ionic's interface is, it displays more information than you'd think. If a problem is detected during charging, the Ionic shuts itself off and both of its "mode" LEDs will begin to flash. The nature of the problem is then displayed by a flashing of one of the other "amps" or "# of cells" LEDs. This feature displays the following error codes (each is denoted by a flashing "# of cells" LED): battery not connected, short-circuited output leads, power supply disconnected, a damaged battery pack, or insufficient voltage to charge an 8-cell pack. This diagnostic mode can also detect internal damage to the charger (indicated by the flashing of any of the "amps" LEDs).



The Ionic's built-in power 12V power source is one of the best among AC/DC chargers.

WHAT WE LIKED

The Ionic's built-in charge algorithms functioned flawlessly. The NiMh2 mode worked as well as the one used for the Millennium Pro. The charger rarely false-peaked, and brought all of our NiMH cells to full charge without overheating them. The NiCad mode also provided a complete charge to all of our 6-cell packs.

Unlike some other AC/DC chargers, the Ionic's 12V internal supply doesn't get overheated. Thanks to its efficiency and the built-in fan, the Ionic's supply remains stable and cool even after consecutive packs.

The Ionic's interface couldn't be easier to use. We didn't feel the need to consult the charger's instructions until we encountered our first error code. Otherwise, the Ionic's control panel proved to be as intuitive as they come.

Some (most) AC/DC chargers have permanently installed AC and DC input leads, which have a tendency to get tangled and generally always be in the way. We like any AC/DC charger that allows the lead that's not being used to be disconnected.

WHAT WE DIDN'T LIKE

When charging an old transmitter pack of eight AA NiCad cells, the Ionic kept switching off and telling us that the pack wasn't connected when, of course, it was. We first thought that the problem was that we could only use the 7-cell function when in AC mode. When we hooked the Ionic to an external 14V supply, and could use the 8-cell function, we still received the same error code. We then hooked the pack to a Millennium Pro, which charged it without any problems.

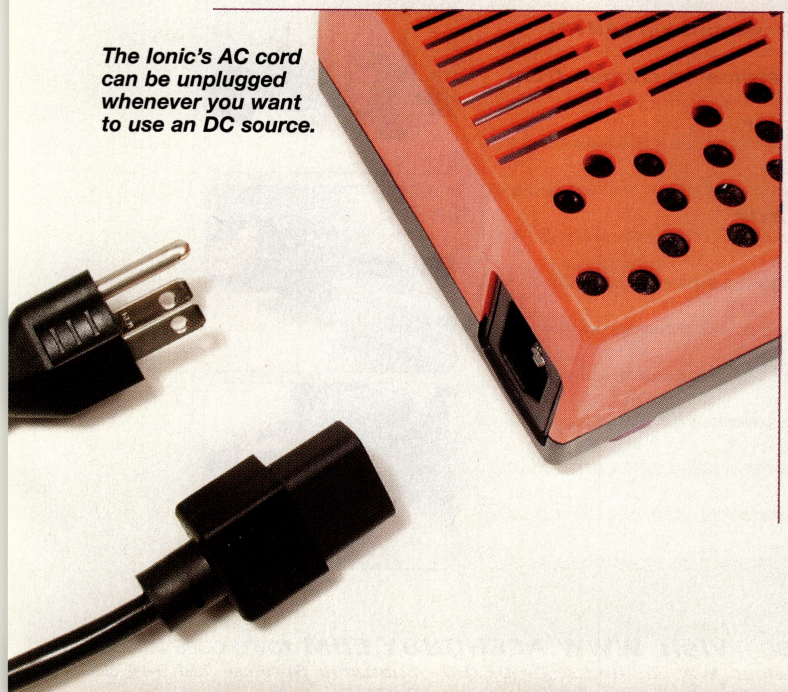
The Ionic's built-in power supply provides 12 volts of juice. To charge 8 cells, the Ionic must be connected to a suitable 14.5 -volt power supply.

The 12-volt input harness uses a different connector than that of the Millennium. Why is this a problem? We weren't able to use our collection of various Millennium-style input leads. We had to make a new one using the plug provided with the Ionic.

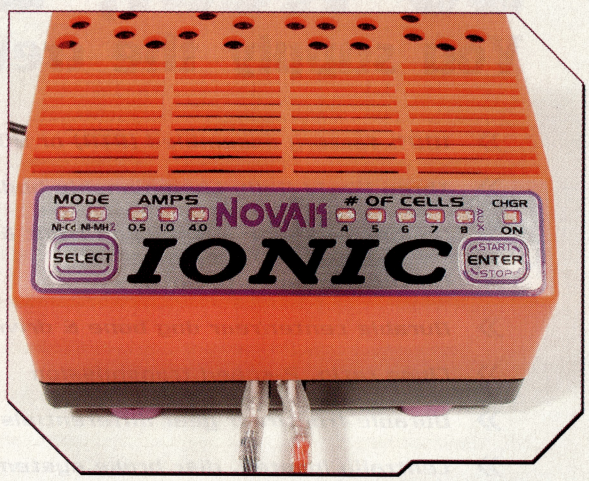
WHAT WE REALLY THINK

The Ionic neatly fills a void in the charger market, and that is for a simple, yet high performance charger that can work with all types of cells and pack configurations. Novak's typical quality and attention to detail is evident in every function of the Ionic (Novak is one of the few companies that both designs and manufactures electronics in-house), from its distinctive orange case to its purple rubber feet. If you can't afford a Millennium Pro, or you don't want that many charge options, then the Ionic certainly deserves your consideration.

Novak Ionic AC/DC	$134.99
Novak Ionic DC	$84.99



The Ionic's AC cord can be unplugged whenever you want to use an DC source.



All of the controls are contained in the Ionic's faceplate. The output leads can also be easily disconnected.

SOURCES

Novak Electronics, Inc., 18910 Teller Ave., Irvine, CA 92612 • (949) 833-8873; fax (949) 833-1631

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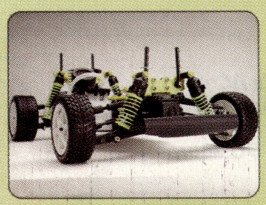



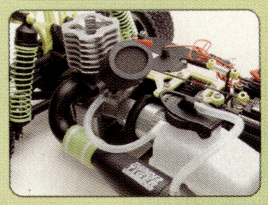

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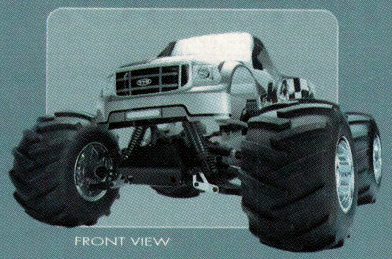
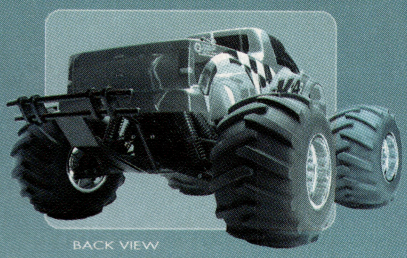
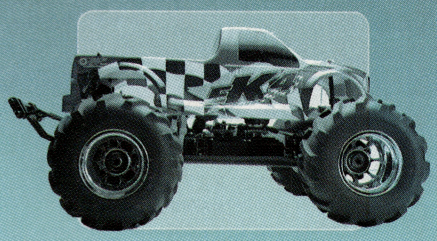


FRONT VIEW



BACK VIEW



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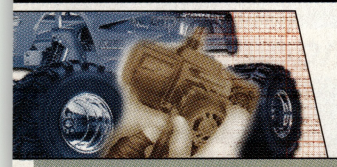


Schumacher Mission

by Dennis Rotim



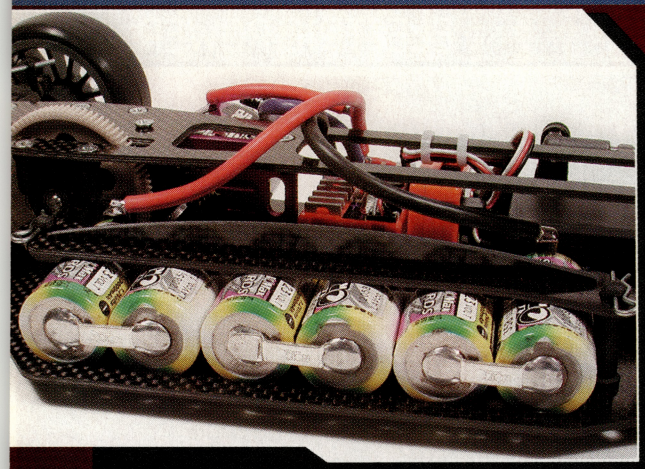
British



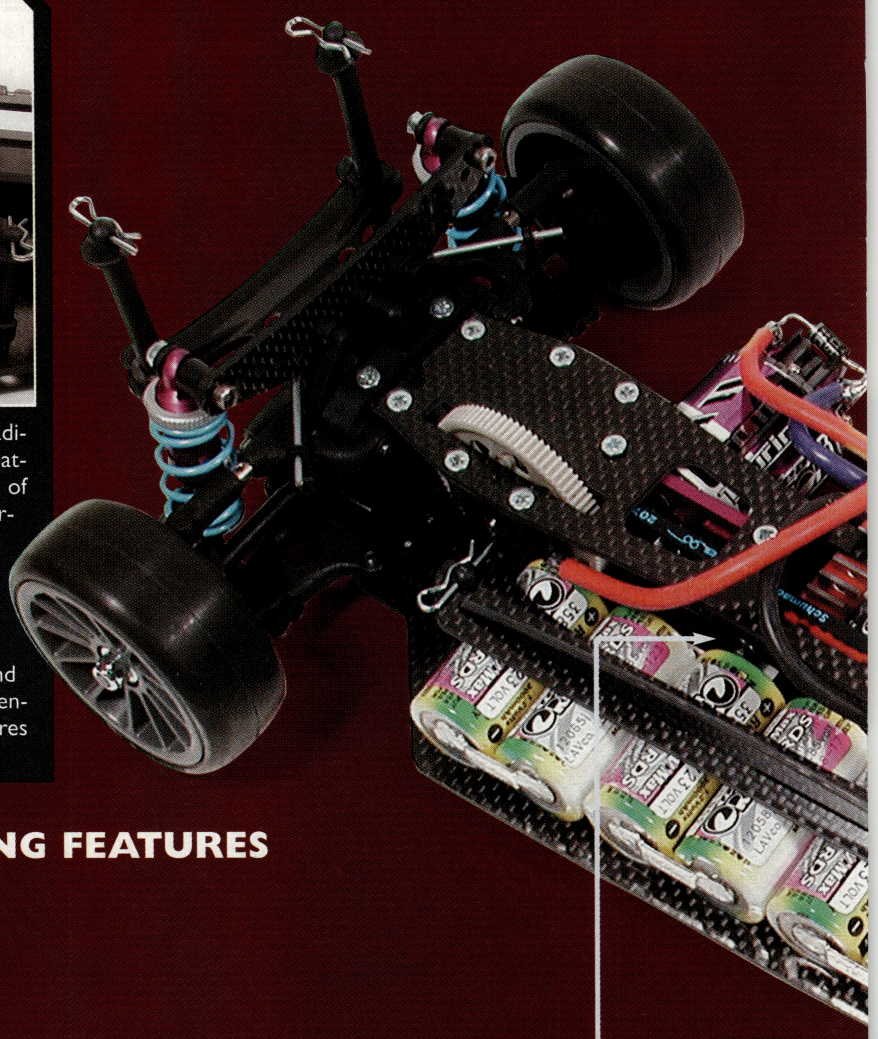
invasion

Having won nine national championship titles, you could safely assume that Schumacher has developed a winning combination. Through their many years of experience, Schumacher has released their newest weapon in an already proven arsenal—the Mission. Utilizing their state-of-the-art in-house manufacturing facilities, Schumacher was able to create the Mission with proven ideas and materials. With the many hours spent on designing the Mission, Schumacher claims that this car is the most adjustable and tuneable car on the market.

Not only has Schumacher given the Mission a great design, they also packed it with many options. The first and most significant option is the choice that they give you between the two different versions. The S1 version offers Schumacher's own composite material in the chassis, upper deck, and shock tower components. The next option you have is the Carbon version. This version utilizes the best American-made carbon fiber, which gives the car a sharper look along with improved rigidity. Whichever version you choose, Schumacher guarantees a winning car.

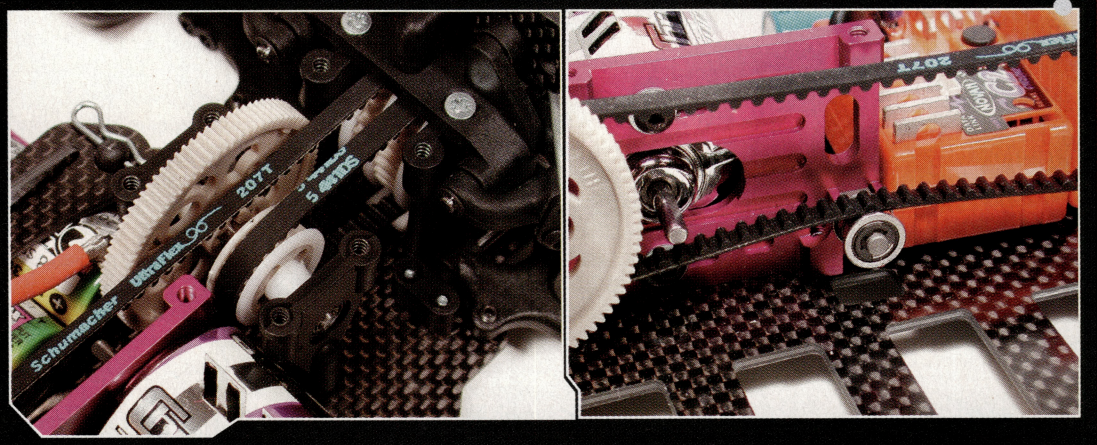


The basic layout of the Mission is that of many traditional touring cars found on today's market. The battery is located on the right-hand side, and the rest of the electronics reside on the other. The upper carbon fiber deck acts as a spine for the entire car. The deck provides an enormous amount of strength. Because of the deck, there is virtually no chassis flex. With no flex, the car will be better able to handle the G-forces in the turns, and provide equal handing characteristics in both right and left-hand turns. The main chassis and deck features many openings so that electronics can be mounted and the wires can be routed in many different configurations.



OUTSTANDING FEATURES

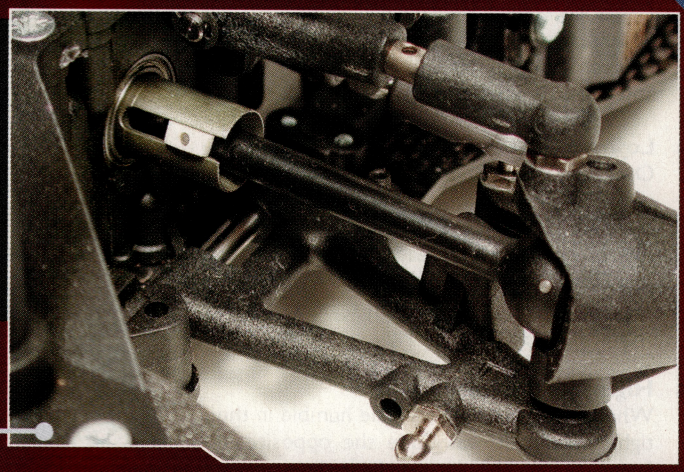
TEST EQUIPMENT
- Futaba S9402 steering servo
- Novak TC2 ESC and XXL FM receiver
- Team Orion Chrome Modified 10-turn triple and V-Max Sanyo RC3000 battery pack



The rear diff features a twin-track design that incorporates a pulley for the main belt and another for the smaller belt. The main belt connects the front and rear diffs together and the smaller of the two powers the diffs from the input shaft. What this does is increase the belt wrap (the area in which the belts touch the pulleys) and reduce the sharpness of the belts' bend for greater efficiency. The belts included in the kit are Schumacher's patented Ultra Flex belts. These belts allow for the transmission to run smooth and friction-free. Schumacher also provides a frictionless belt tensioner, which is made up of flanged ball bearings. Within the input shaft is another ingenious feature that Schumacher has come up with. They provide both a 17 and 20-tooth pulley in the kit. This allows you the choice between a 2.12:1 and a 1.8:1 gear ratio. Also included in the supplement is a gear ratio chart that shows the final drive ratios that are achieved with different pinion gears.

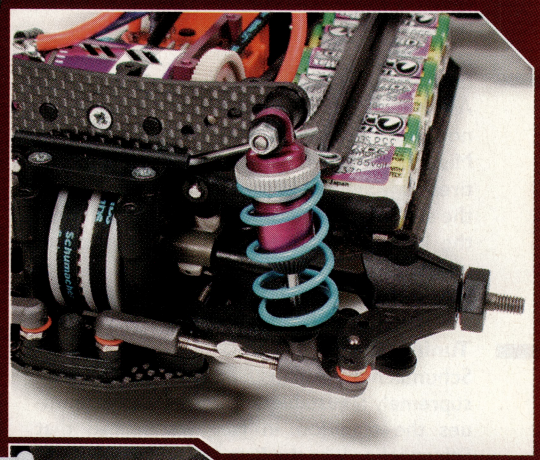
Schumacher Mission

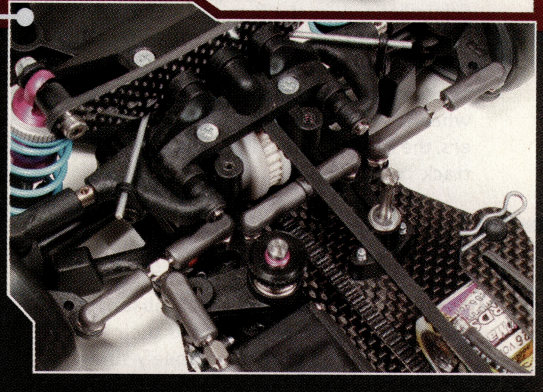
Elsewhere in the drivetrain, Schumacher incorporates its Blade U-joint driveshafts. These drive units closely resemble constant velocity driveshafts, but have unique U-shaped plastic ends which reduce friction between the shaft and the diff outdrive. These shafts deliver the power to the wheels in a smooth manner with very little binding and power loss. The drive shafts are made from high quality plastic, which allows for lighter weight and quicker acceleration.





The differentials are probably the most distinct characteristic of the Mission. The diffs come pre-assembled with a ball-raced limited-slip feature, and those long-lasting tungsten carbide balls. The ball race feature is somewhat traditional with most ball diffs; however, there are some differences. With the traditional diffs, there are balls in the diff gear that ride on flat diff rings. The new design by Schumacher allows the balls to ride on a ring with a groove around it, commonly known as a race. This keeps the balls in line and provides for better diff performance under heavier loads. Although the diffs come preassembled in the kit, Schumacher provides a supplement that shows how they go together in case a rebuild is necessary.





The suspension system on the Mission is a magnificent example of Schumacher's engineering excellence. Schumacher includes anodized aluminum shock bodies that allow the suspension to cycle smoothly and efficiently. Inside the shocks are pistons that incorporate four different settings. This allows you to choose a setting without having to carry around spare pistons. The shocks attach to graphite towers that provide a wide range of mounting positions. The arms that are included in the kit provide different mounting options as well, but also offer another distinct feature. Located on the inner portion of the arms are droop-stop adjusters. This is an adjustment that allows you to fine tune how far your suspension will come down in rebound.

Also incorporated into the suspension are inboard toe-in and toe-out adjustments. Sway bars are yet another option Schumacher provides in the kit. They supply swaybars for both the front and rear suspension. They also offer two different mounting locations to further the adjustability of the already class-leading suspension.

Schumacher Mission

REPORT CARD

Test location: Ventura Roadrunners, Camarillo, CA

Track type: medium-sized asphalt road-course. Slightly dusty with mostly tight turns and one long straight.

Low-speed steering: B-

Overall, the Mission if very easy to drive. The very stiff springs allow for almost no weight transfer during slower turns, and as a result, the car tends to spread its traction out across both ends. A front one-way would really improve nimbleness on tight tracks, as would slightly softer springs.

High-speed steering: A

Where the Mission felt a little humble in the tight twisties, it was quite the opposite in faster turns. The kit-supplied slicks were decent, but they didn't seem to match the setup of the stock chassis. We swapped the tires for a set of Yokomo Gs (which we know work well at our test track), and the car felt glued. Even without a one-way, the Mission required very little use of the brakes, which means that it can carry more speed around the track.

Acceleration and speed: B

Schumacher's new drivetrain layout is an improvement over the previous model's. In fact, we felt a distinct difference between the Mission and last Axis we tested: the Mission feels more free, and it not only accelerates harder, but carries more speed through off-power turns as well. The car tracks arrow-straight when you punch the throttle, and top speed is as good as any belt-driven car we've tested.

Braking: A

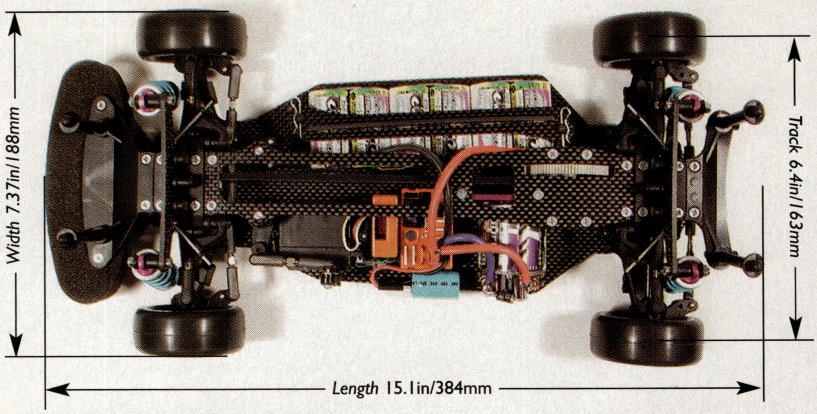
As with most full-time 4WD cars, i.e., cars not outfitted with one-way drives, the Mission stops almost violently, with all four tires clawing the pavement. As a testimony to the superb balance of the new chassis design, the Mission exhibited absolutely no sign of tweak. When the brakes were locked, the car stayed its course.

Tuning: B+

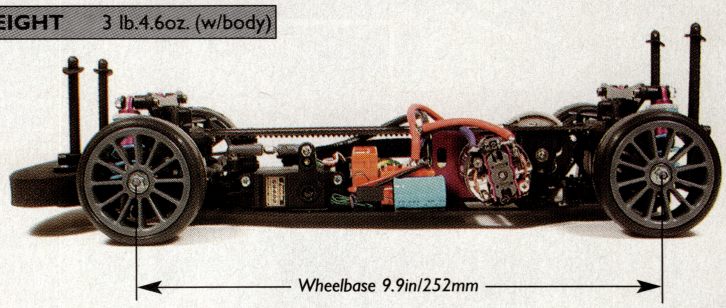
Schumacher sedans have always been supremely adjustable, and the Mission continues the tradition. In fact, we believe that Schumacher was the first to use a pair of tie-rods to hold the rear toe-in setting. With a multitude of shock and camber positions available, plus the ability to adjust caster and wheelbase by altering the placement of spacers, the Mission should be ready to tackle any track condition.

Durability: A

Schumacher has a reputation for building bulletproof sedans. The Mission's suspension pieces are pliable enough to absorb crash forces, yet stiff enough to hold their geometry. High-quality graphite and beefy turnbuckles round out the package.



WEIGHT 3 lb.4.6oz. (w/body)



SPECS

TYPE	1/10-scale electric touring sedan
PRICE	$269.99 (street price)
CHASSIS	
Type	dual-deck plate
Material	woven graphite
SUSPENSION	
Type	independent upper/lower wishbones
Damping	purple-anodized aluminum oil-filled shocks
TRANSMISSION	
Type	belt-driven 4WD
Drive shafts	molded Schumacher Blade u-joints
Bearings	metal ball-bearings

Final Score

Highs: The Mission is a high-quality touring car with one of the best chassis in the business. Add to this a newly refined twin-belt transmission, and you have a winner. We also had plenty of praise for the detailed instructions. The easily adjustable body posts are also a nice touch

Lows: The stock setup is a bit on the stiff side for most tracks, and the kit tires aren't quite a match for the kit springs and oil.
The verdict:

The verdict: Racers who want a competitive electric touring car, but who don't want to own the same car as everyone else, should give the Mission a serious look. Schumacher has certainly proven that it can build winning cars, and durable ones at that. The downside of owning a unique car such as the Mission is that you'll likely need to order parts if you break something. Otherwise, stock up on a few suspension arms and such, and go race.

SOURCES

Futaba, distributed by Great Planes Model Distributors, 2904 Research Rd., Champaign, IL 61826-9021 • phone (217) 398-6300; fax (217) 398-0008

Novak Electronics, Inc., 18910 Teller Ave., Irvine, CA 92612 • (949) 833-8873; fax (949) 833-1631

Schumacher USA, Inc., 6302 Benjamin Rd., Suite 404, Tampa, FL 33634 • phone (813) 889-9691; fax (813) 889-9593

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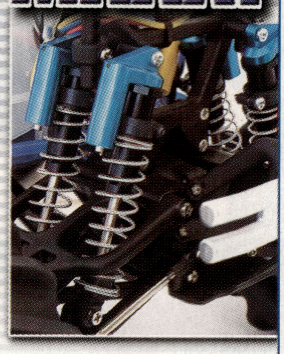

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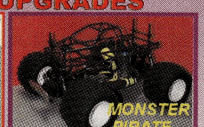

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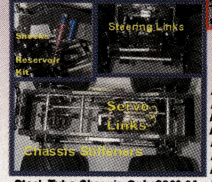

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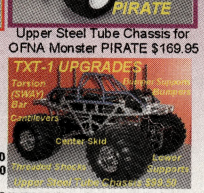

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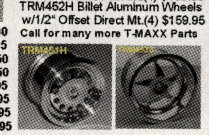

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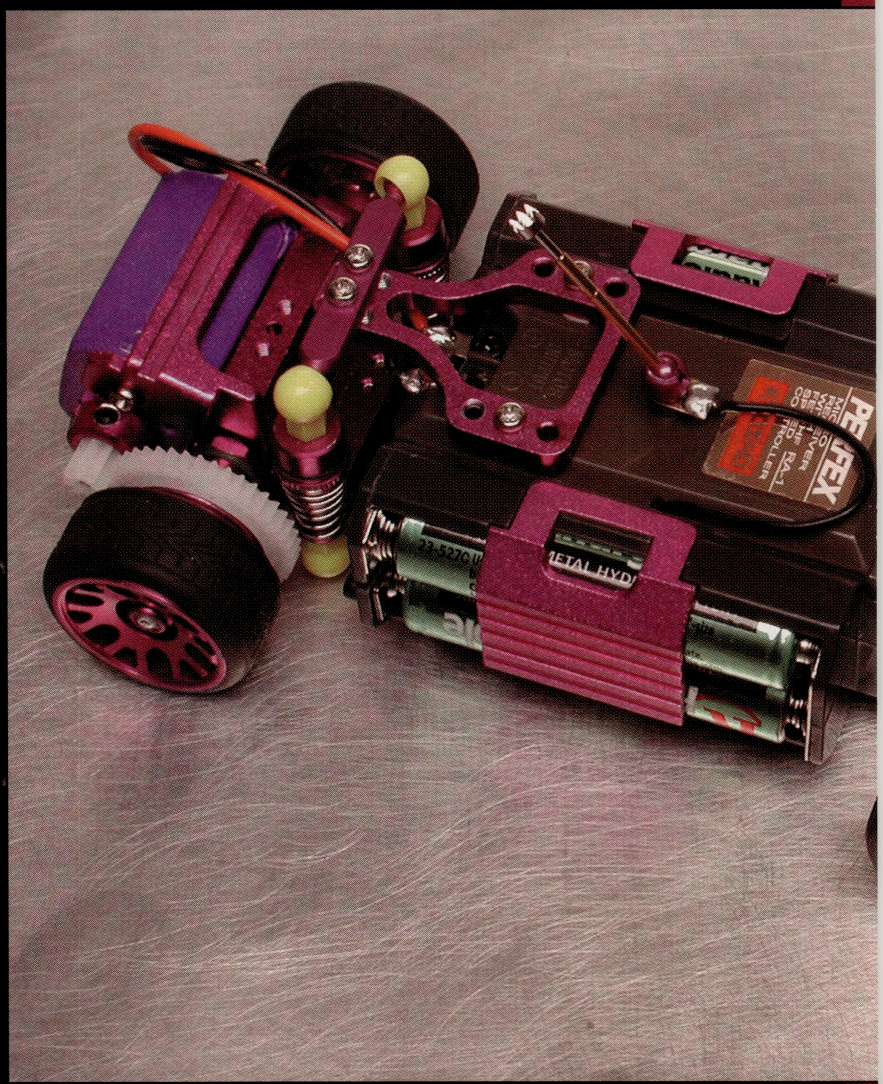
MINI-Z: PART ONE

Starting out mild

There's no question that Kyosho's Mini-Z is taking off in a big way (no pun intended). We've seen more and more Mini-Zs and hop-up parts lately than we could have ever imagined we would see. Since this platform is becoming so popular, we're going to do a project car each and every issue until we've exhausted every option part out there. So, starting with Part 1 here, we took some of Megatech's hottest hop-ups to one of our Zs to see what a difference they made. Here are our opinions.

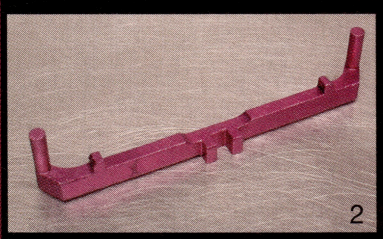


Driving Impressions

One of the biggest differences made to the car was the addition of the 25-turn High-Speed modified motor. The car accelerates much harder than the stocker, even with the added weight of the additional accessory pieces. We also used a set of higher capacity NiMh AAAs to power the car. The addition of the NiMh cells really helps provide the added snap we were looking for. The one thing we think we'll be changing out is the 1.8mm Fiber Hard H-Bar to a softer one to better utilize the twin shock setup in the rear (each shock was filled with 50wt. silicone oil). The way it is set up now, the rear end of the car chatters a bit when going through tight turns on high-bite surfaces.

The steering on the car feels improved over the stocker thanks to the Aluminum Steering Plate. Our next step is to add the complete alloy gear set to the steering assembly to see if we can build upon our original progress in the turning department.

Megatech has a few new parts coming out for the car that we plan on testing as soon as they are available. Stay tuned for "Part 2" in our next issue where we plan on setting up the rear suspension with another Megatech setup.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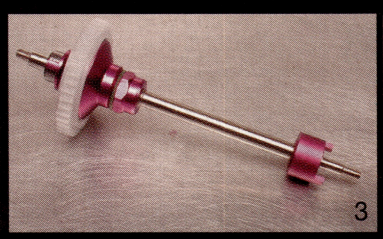
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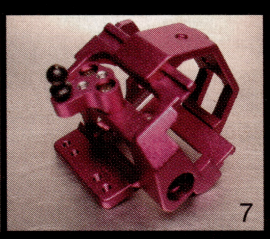
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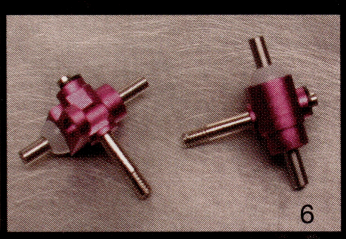
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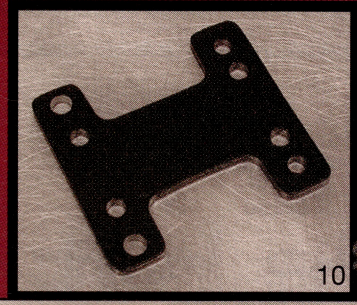
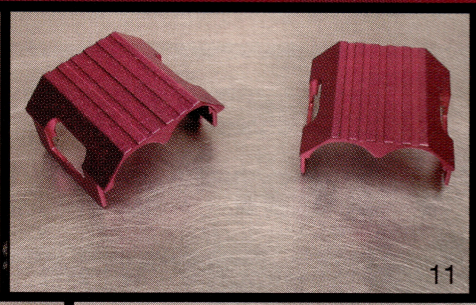
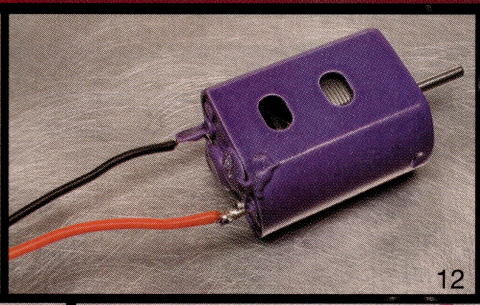
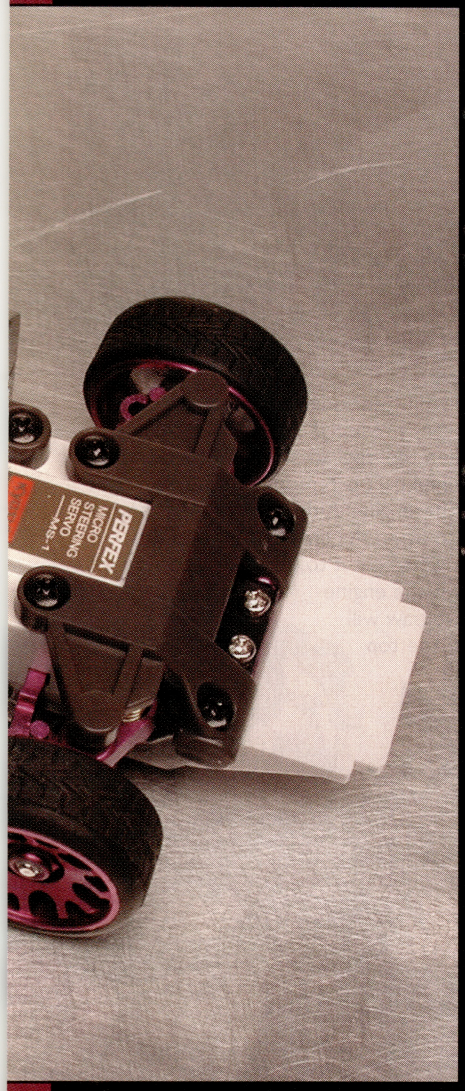
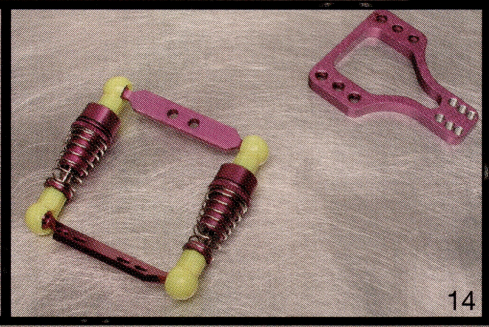














Parts Used

1. Aluminum BBS 5-Star Rims w/brake disk	#MTC22641	$47.99
2. Aluminum Steering Plate F1 (1 Deg Toe-in)	#MTC22457	$21.99
3. Delrin Ball Diff Assembly & Shaft Set	#MTC22436	$45.00
4. Delrin Motor Gear 10T	#MTC22321T	$ 6.00
5. Front Coil Spring Set 6mm	#MTC22444	$ 4.00
6. Aluminum Front Knuckle Arm	#MTC22453	$24.00
7. Aluminum Motor Mount Heat Sink Low Ride	#MTC22451	$52.00
8. Aluminum Telescopic Retractable Antenna	#MTC22613	$34.99
9. Aluminum 2mm Locknut Set	#22442	$ 6.99
10. Fiber Hard H-Bar 1.8mm	#22460H	$ 4.99
11. Aluminum Battery Heat Sink Mount	#MTC22623	$23.99
12. 25-Turn High Speed Modified Motor	#MTC22455	$24.99
13. Sway Bar Set	#MTC22594	$37.99
14. Aluminum Adjustable Shocks & Mount	#MTC22633	$47.99

SOURCES

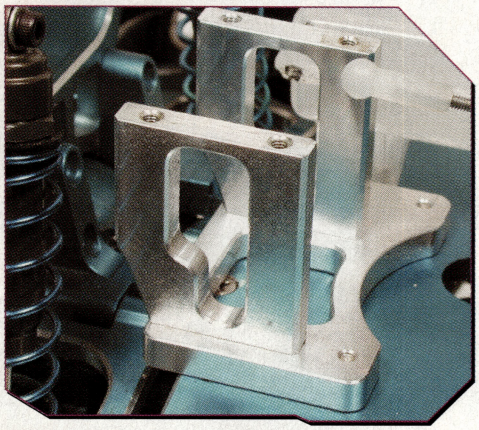
Megatech, 8300 Tonnelle Ave. North Bergen, NJ 07047 • 1-800-242-1931 (orders only), or (201) 662-2800.

Robin's Racing World .21 T-Maxx Upgrade Kit

Going big block for less dough

There are plenty of big-block engine kits that let you strap the power of a .21 c.i. engine into your T-Maxx, but nearly every one requires replacing your chassis, which ends up being a pretty time consuming (and expensive) process. And maybe you don't really want to replace the chassis you already have. Robin's Racing World has a solution for this with their "practically painless" .21 T-Maxx Upgrade Kit. This inexpensive kit allows you to use your existing chassis and still get the benefits of major horsepower. And if that isn't enough power for you, they also offer a .21 Tuned Pipe kit to squeeze even more ponies out of your powerplant.

Robin's Racing World is a line of products produced by Robin's Hobby Service of Glendale, California. Due to their close proximity to Hollywood, they do lots of business with the movie and television special effects industries. Not long ago they decided to engineer their own line of hop-ups starting with their T-Maxx line. Their goal is to make upgrades that not only work well, but are also affordable to the average hobbyist.



The kit includes this CNC-machined engine mount that raises the big-block high enough to clear most everything on the T-Maxx chassis.

WHAT IT HAS

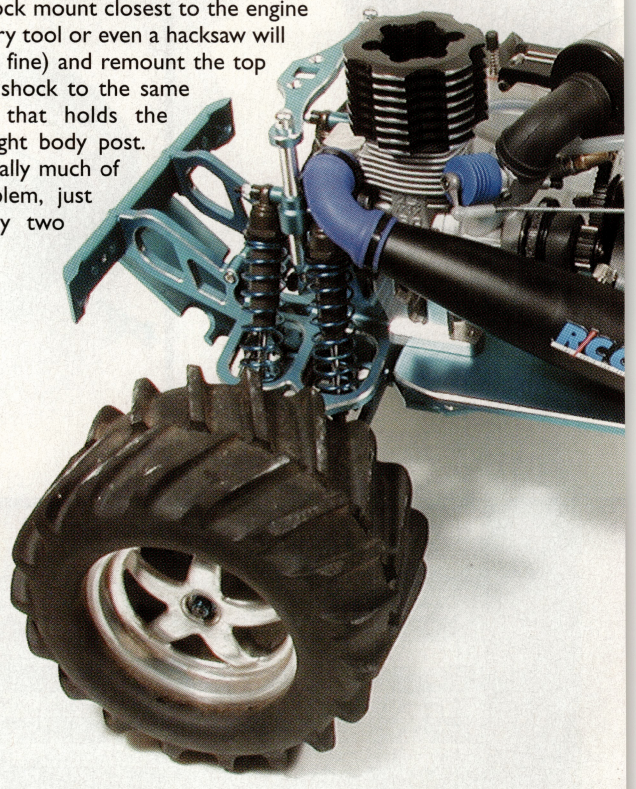
Everything you need (minus the engine) is included, making this one of, if not the most inclusive .21 kit out there. The centerpiece of the kit is the three-piece engine mount, CNC machined from heavy-duty aluminum. This replaces the stock engine mounts and raises the .21 engine high enough to clear almost everything on the T-Maxx chassis. It also includes a larger spur gear so the stock clutch bell will mesh properly. A set of diff balls to replace the slipper pegs is also included, as are a new throttle link and all the hardware needed to mount a Traxxas clutchbell on an SG shaft engine.

The .21 Upgrade Kit is designed around the O.S. Engines .21 RG(P)-X pullstart equipped engine, which is not included with the kit. They chose to use this engine because of its reliability, massive torque, easy accessibility (it's hard to find a hobby shop that doesn't carry O.S. engines), and low cost. However, the .21 RG uses an old-style bolt-on header, rather than the more widely used round port spring-retained headers. So as a part of the kit, they included a beautifully machined header made specifically for that engine. And along with the header is a long rubber coupler to connect to either the Traxxas composite or aluminum tuned pipes.

INSTALLATION

The first step is to mount the Traxxas clutchbell on the .21 RG. A detailed instruction sheet comes with the kit to guide you through this process. Fortunately, everything, including Teflon shims, comes with it, and it all goes on very precisely.

As we mentioned earlier, the upgrade really is "practically" painless. The only semi-painful part is remounting the rear right shock that is closest to the engine. Although the new engine mounts raise the .21 RG to fit on the chassis, that one shock is in the way of the pullstart. So to get it to fit, you have to cut off the shock mount closest to the engine (a rotary tool or even a hacksaw will do just fine) and remount the top of the shock to the same screw that holds the rear right body post. Not really much of a problem, just an easy two





The .21 kit comes with a silicone coupler that allows the stock T-Maxx pipe to mate to the new big-block engine.

minute modification that is practically painless (unless you have aluminum shock towers like I do).

Okay, now that the engine is in, all that is required is to flip around the carb and install the new linkage. Other big-block kits use a "turret" to pivot the linkage 90 degrees, but as you can see in the pictures, that isn't really required. However, going against what the instructions say, I crossed the brake and throttle linkages because I found that my braking was more effective when the brake cam was pushed from the left side.

HOW IT WORKS

After changing the shock mounting location on the right side, I decided to balance the other side of the T-Maxx by moving one shock on the left side over to the body mount as well. The change in shock angle along with the added weight of the larger engine made the rear end sag a bit compared to the front. I had been meaning to lower the ride-height anyway, so I added spacers on the shock shaft inside the front shock bodies.

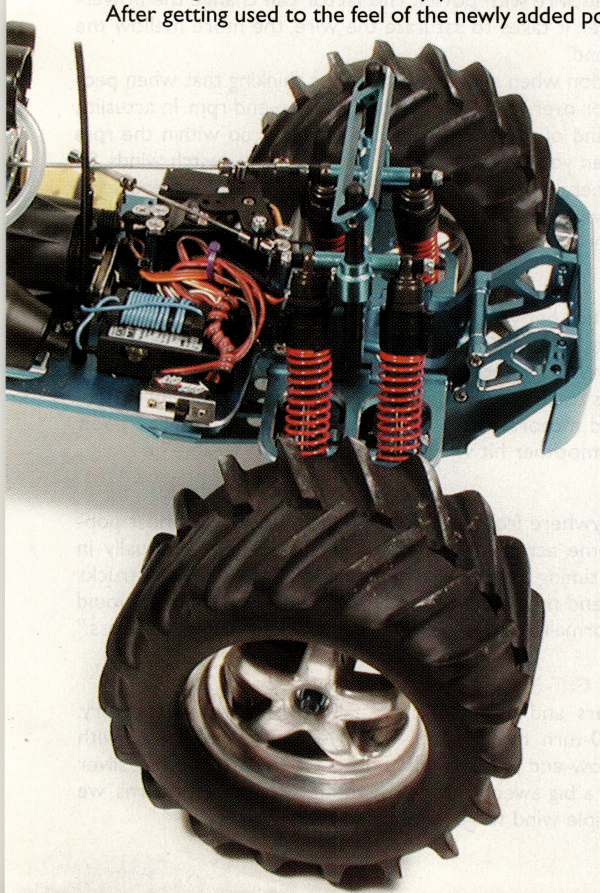
Once the suspension was all balanced, it was time to fire it up and enjoy the added power, which totaled about two horses. After patiently going through the engine break-in period, I finally let it loose and was amazed. As expected, the T-Maxx did not feel like it was struggling to get to speed anymore. Bottom end was quicker and midrange acceleration was very potent.

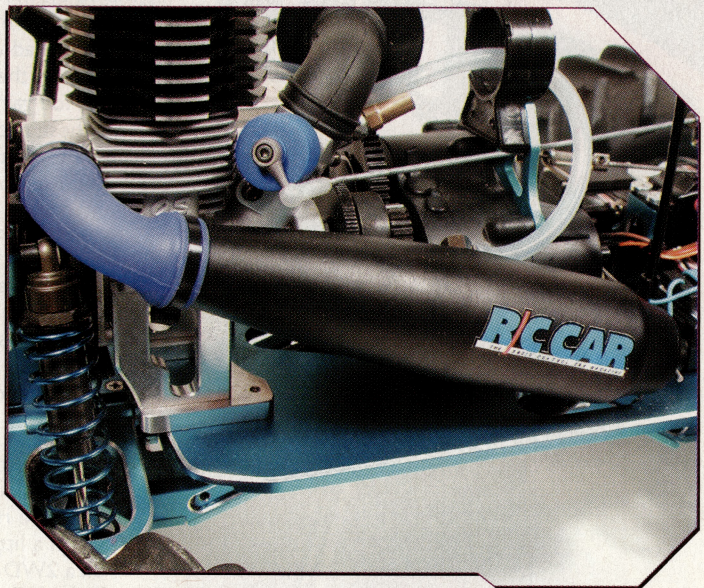
After getting used to the feel of the newly added power, I started to feel that the little stock Traxxas pipe was keeping the .21 from reaching its full potential, so I installed Robin's Racing World's .21 Tuned Pipe Kit. It comes with a proper tuned pipe designed for a .21, a coupler, and associated fasteners required for installation. Now the old T-Maxx really came alive with a throatier sound, more bottom end, and lower running temperature.

FINAL THOUGHTS

All in all, the folks at Robin's Racing World designed a great product that works exactly as designed—little fuss and lots of performance. My only gripe is that because the engine mounts are so tall (to fit on the stock chassis), the T-Maxx's center of gravity is raised—especially with the heavy bit block engine. So we definitely recommend lowering the ride-height when using this kit. On top of the great performance, the low price (for the tuned pipe kit, as well) make these pieces a very attractive purchase for any T-Maxxers who need more power.

.21 T-Maxx Upgrade Kit
Price: $129.99
.21 T-Maxx Tuned Pipe Kit
Price: $49.99





Robin's Racing also offers this optional tuned pipe kit that is better suited to the larger engine than the stock Traxxas exhaust.

SOURCES
Robin's Racing World; Robin's Hobby •
1844 West Glendale Blvd.; Glendale, CA 91201• (818) 240-2093

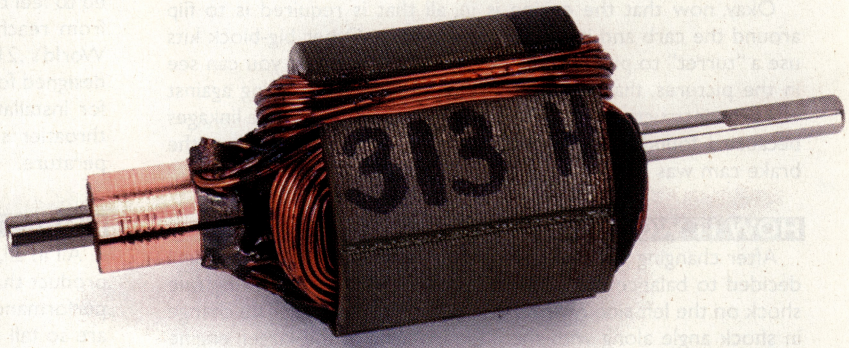
PRO TIPS SECTION

troy schroeder



Understanding Turns and Winds

When it comes to picking the right mod motor, it can be a very tricky subject. Not only are there different winds and turns to contend with, but there's also a wide variety of brushes and spring rates to consider. And what about motor timing...where do we start? Well, to help wade through this often confusing subject matter, we turned to Troy Schroeder of Fantom Racing—an expert in the field.





Picking the right motor

When picking a motor, Troy explains that you first have to understand some of the basic principles. "First, we look at circular mill and surface area," adds Troy. "The circular mill represents the diameter of the wire used, and the surface area is actually where the electrical field travels on the outside of the wire. When you increase the surface area by increasing the number of strands, you increase saturation time—the amount of time it takes to saturate the wire with power. This factor can change the powerband of the motor. The longer it takes to saturate the wire, the more mellow the hit will be on the bottom-end.

"The biggest misconception when choosing a motor is thinking that when people pick a quad-wind motor over a triple-wind, they gain top-end rpm. In actuality, you change the powerband of the motor—you're shifting it up within the rpm range. You gain rpm when you lower the turns, not when you switch winds. So for those people out there who think that switching from a 12-turn double to a 12-turn quad will give them more rpm, it doesn't work that way. You'll only get a smoother higher-rpm hit."

2WD Buggy

"You want to stick between 11 and 14-turn motors," says Troy. "Most top-level guys use 12-turn doubles—by and large that's the most popular wind. Still, it varies what motor you'll want to use depending on track conditions as well as track size. In addition, I recommend racers just starting racing with mod motors stick with mostly triples—they make good power and have a smoother hit which makes it more driveable."

Truck

"I recommend anywhere from a 9 to an 11-turn motor. The most popular choices I've come across are 10-doubles and 10-triples. Usually in truck we run lower timing because we need more punch since the trucks weigh a little more, and then we'll gear it up a little higher than we would on a 2WD buggy. Normally we run a brush with more silver in truck class."

Touring Car/4WD Off-Road

"Basically, touring cars and 4WD off-road fall into the same category. Normally, we run a 10-turn motor (usually single-winds work best) with lower timing for good low-end punch, and we use a brush with a higher silver content. If the track is a big sweeping track without a ton of tight turns, we may run a double or triple wind to get more mid-range power."

Troy's SECRET Tips & Tricks

Don't "over-power" yourself. A lot of people think that the more power they try and get from their motor, the better. If you look at a motor after it's been run a few times and the brushes are discolored badly, and the comm has been thrashed, it is probably more from excessive wheelspin than anything else. More than likely, the driver is just rippin' on it coming out of the corner, and rather than putting the power down to the ground, they're just spinning their tires, which is putting considerable strain on the motor.

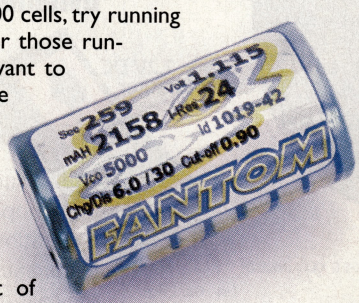
• For big tracks, don't over-advance the timing to try and gain rpm. Rather, reduce timing and gear up to get more speed without sacrificing low-end power.

• For the recreational club racer, I think they should stick with more mellow winds until they really feel like they're doing well enough where they need more power. Again, in 2WD buggy, start out with a 13- or 14-turn. In truck, start with an 11- or 12-turn. And in touring car/4WD start out with a 10-turn motor or above.

• Now that touring car racing is switching over to 5-minute long races, I recommend running a harder compound brush with a heavy spring on the positive side, and a medium or a light spring on the negative side. The hard brush can take heat better than a softer/high-silver brush, and the heavy/light spring will help you get more run time without sacrificing bottom-end power.

Batteries

"To run really hot mods (single-winds), you better have some decent batteries. Single- and double-wind motors are less efficient than triples and quads. For those racers out there who are still using older 2000 cells, try running a triple or a quad instead. And for those running NiMH cells, you'll typically want to go lower by one wind than you're used to, and possibly one wind less (e.g. if you ran a 12-triple, now you'll need to run a 11-turn double)."



Brush Compounds

"The lower the silver content of your brush, the stronger your bottom-end power. Also, we've found that a brush with less silver content doesn't affect the high-end power, so your differences won't be that great on the mid- to high-end power just by using a lower silver-compound brush. When we need to mellow out our off-road motors, we use a brush with a lower silver content. Usually with off-road, we need to take away low-end power. A lot of top drivers complain of too much bottom-end snap. In touring car racing though, it's the opposite—we're always looking for more bottom-end power. In touring car racing, we often use brushes with a higher silver content and sometimes we'll lower the timing."

Timing

Timing and brush compound are huge factors in how your motor runs, and each can be tuned to give the motor different characteristics. "If someone doesn't have the money to buy a wide variety of motors—for example, a single, double, triple and a quad—and track conditions start to change where they're not hooking up on the bottom-end, they can mellow out the bottom-end hit of the motor by advancing the timing," says Troy. "That's what we do—if a track is way slippery, we'll crank up the timing to mellow out the bottom-end.

"There's a big misconception in touring car racing that when you race on really big outdoor tracks, racers think that they need to advance their timing way up to get more rpm, but what we do is actually retard the motor's timing to retain the low-end punch, and then we gear up the car itself. This way you get good punch out of the turns, yet still have good top speed.

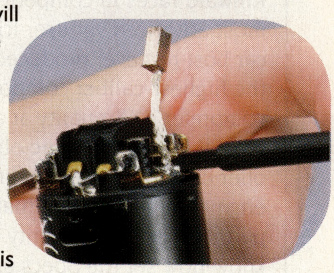
"In addition, any time you advance the timing, you create more amp draw. This only accelerates the wear and tear on the motor, specifically the brushes and the commutator. Plus if your touring car isn't set up properly, you're going to generate excessive wheelspin. I always recommend people start out with lower timing (around 12-degrees) and then go up two or three teeth on their gearing."

Tuning for Track Conditions

"Most of the time we run on high-bite surfaces for off-road racing. Generally speaking, the top guys use 12-turn doubles, and not single-turn motors. Actually, most of the guys in off-road tend to stay away from singles, even if it is a high-bite track, because they don't need a motor with that much bottom-end power. If we run on dusty or loose tracks we may switch to a triple or a quad wind so we can put the power down to the ground better."

Spring Rates

"Spring tension—higher tension of the spring rate does not mean you'll increase bottom-end power. It's the opposite—if you run a stiff spring, you'll gain rpm and overall power but you lose some bottom-end punch, and you'll lose efficiency. When you run lighter springs, you gain bottom-end punch, increase efficiency, but you lose overall power. The misconception is that if there is less resistance they gain rpm, but it's not the case. With less pressure on the brushes, the comm will spin faster from zero rpm, and it will build power quicker than if the brush had a ton of pressure on it!"



Maintaining your Mod

"Don't use a comm stick to clean your commutator. Even though it may help it look shiny and new, it's easy to distort the comm face. And once your comm is out of round, it's like a snowball effect—your brushes will never seat properly to an out of round comm. You'll get more of your money's worth by skimming the comm after a few races than you will if you try using a comm stick.



Troy's "Match-Making" Brush Selection

Touring car: Non-serrated brush with a lot of graphite
Truck: High silver content brushes
Buggy: Low silver, serrated brush

Lightni



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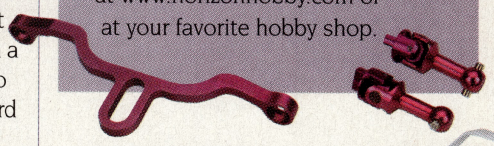

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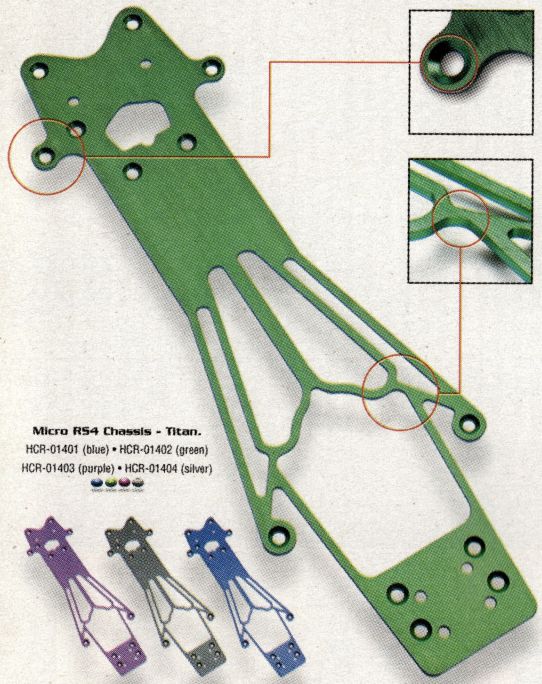

Micro RS4 Chassis - Titan.
HCR-01401 (blue) • HCR-01402 (green)
HCR-01403 (purple) • HCR-01404 (silver)

MICRO RS4 Titanium Chassis System

Our complete system features ultra light titanium chassis and upper decks.

Features:

- Unique flex-control chassis
- Accepts 150 & 140mm configurations
- Completely countersunk
- Increased performance
- Eliminate unwanted chassis skipping with our new flex control system.



Rear Upper Deck - Titan.
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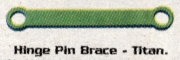
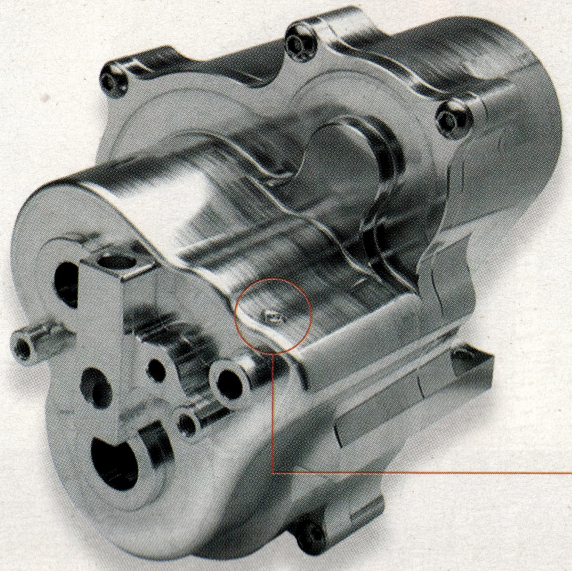
HCR-01423 (purple) • HCR-01424 (silver)



Front Upper Deck - Titan.
HCR-01411 (blue) • HCR-01412 (green)
HCR-01413 (purple) • HCR-01414 (silver)

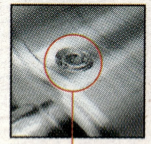


Hinge Pin Brace - Titan.
HCR-01431 (blue) • HCR-01432 (green)
HCR-01433 (purple) • HCR-01434 (silver)



HARDCORE T-MAXX Aluminum Transmission Case

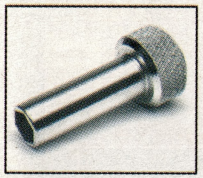
The baddest tranny case on the planet! Features a reverse lock down set screw. No need ever to buy an additional reverse lock-out! No modifications needed. Machined from solid billet aluminum.

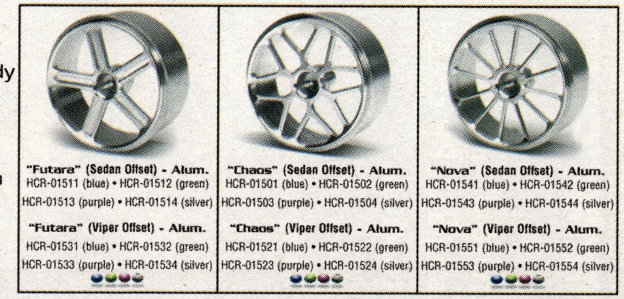


T-Maxx Trans. Case - Alum.
HCR-03241 (blue) • HCR-03242 (green)
HCR-03243 (purple) • HCR-03244 (silver)

MICRO RS4 Aluminum Wheels

Two offset choices: standard sedan body width, or Viper body option. Designed to work with HPI's rear ball diff. Nut wrench included with all wheel sets.





"Futara" (Sedan Offset) - Alum.
HCR-01511 (blue) • HCR-01512 (green)
HCR-01513 (purple) • HCR-01514 (silver)

"Chaos" (Sedan Offset) - Alum.
HCR-01501 (blue) • HCR-01502 (green)
HCR-01503 (purple) • HCR-01504 (silver)

"Nova" (Sedan Offset) - Alum.
HCR-01541 (blue) • HCR-01542 (green)
HCR-01543 (purple) • HCR-01544 (silver)

"Futara" (Viper Offset) - Alum.
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"Chaos" (Viper Offset) - Alum.
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- A pillow ball lock down set screw is an original design by HCR!
- Slimmer, lighter, stronger
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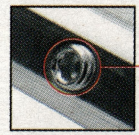

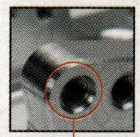

T/E-Maxx A-Arm - Upper
HCR-03341 (blue) • HCR-03342 (green)
HCR-03343 (purple) • HCR-03344 (silver)

T/E-Maxx A-Arm - Lower
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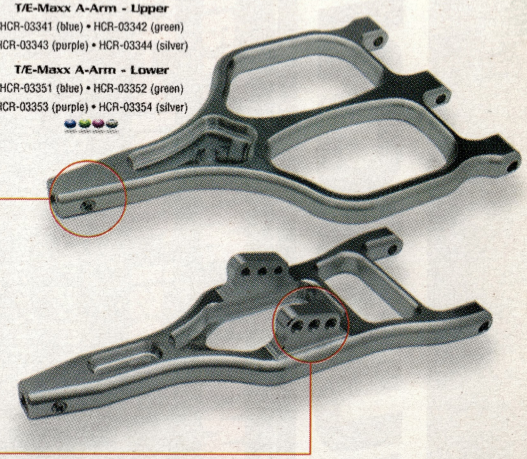
HCR-03353 (purple) • HCR-03354 (silver)



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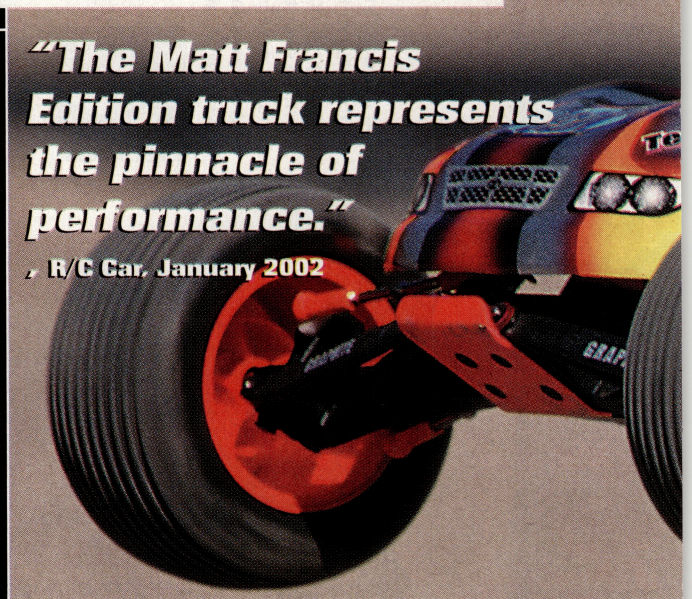

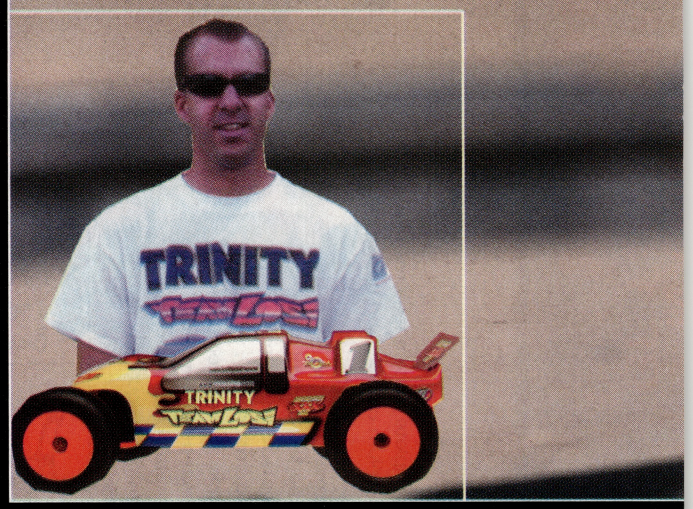



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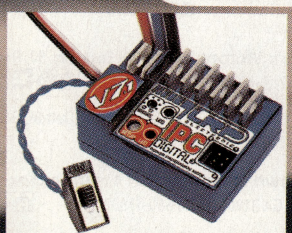
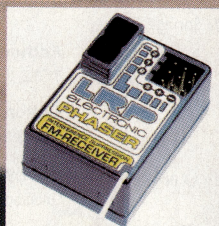


V7.1 Speed Control



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C&C Hobby & Raceway, 562 Russells Mills Rd., South Dartmouth, MA 02748, (508) 997-4131

Hobbytown/RPM Raceway, 201 N. Quincy St.,Abington, MA, (781) 857-2300

Megadrome Raceway, Rt. 8 Curran Hwy. North Adams, MA 01247, (413) 743-7223

R/C Excitement Inc. Hobbies & Raceway, 36 Harlon St., Worcester, MA 01605 Mike Gordan (508) 753-8676 (508) 854-0915 www.rcexcitement.com

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Beyond Extreme Racing, 36159 Plymouth Rd., Livonia, MI 48150 (734) 513-7641 www.beyondextremeracing.com

Down River Radio Controlled Racers (D.R. R/C), 22789 Nortline Rd, Taylor, MI 48180 (734) 287-7405 (Bobby or Fred) www.downriverracing.8k.com

Hobbytown USA, 2252 S. Main St., Ann Arbor, MI 48103, (734) 996-2444

JT Superspeedway, Golden Ave., Battle Creek, MI 49015, (616) 965-0116

Larry's Performance R/C's, 43665 Utica Rd., Sterling Heights, MI 49221, (810) 997-4840

Lazer RC Speedway, 2858 N. Wilmoth Hwy., Adrian, MI 49221, (517) 263-2806

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N.M.R.C.C. Raceway, Hobby Toy, Main St., Gaylord, MI 49735, (517) 732-3963

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Ray's Raceway Park, 105 3rd Ave. NE., Glenwood, MN 56334, (320) 634-5246

R/C Racing World, 235 Main AVe., North, Harmony MN 55939, (507) 886-5931

Southside Speedway, 2241 Marion RD., SE Rochester, MN 55904, (507) 281-3233

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Patriot Racing, 5531 Fox Meadow Dr., Meridian, MS 39307 (601) 483-7000

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Real R/C Raceway, 24204 State Rte. 58, Pleasant Hill, MO 64080

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Goodyear Speedway, 4021 North 56th, Lincoln, NE 68510, (402) 464- 5172

OTWG Carpet Raceway, 55129 849th Rd., Norfolk NE 68701, (402) 644-7922

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Charlie's Hobby Shop, 225 E. Idaho, Ste. # 11Las Cruces, NM 88005, (505) 541-1097

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Rampage R/C, 782 Rt. 9G, Hyde Park, NY 11204

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Hobby Workshop, 510 West Kings Hwy. Mt Ephraim, NJ 08059 (856) 931-2400

Alpine Lounge, Blackhorse Pike Turnersville, NJ

OHIO

Corcar-Low's, 1675 Georgesville Square Dr. (614) 870-7159, Columbus OH 43228 www.corecar.com Bill Stevenson

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RC Speedcenter, 2810 N. Pacific Hwy. Medford, OR 97501 (541) 779-8298 Betty Skelton www.rcaddiction.net

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Insane Toys, 122 Manton Ave. Providence, RI 02909 Jose Jimenez (401) 421-8878

Tri-State R/C Raceway, 205 Hallene Rd., Warwick, RI 02886, Lenny Sosa (401) 738-4908

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Carolina R/C Speedway, 4148 Calhoun Memorial Hwy., Easley, SX 29640; Craig Prahl, (864) 295-1209; *www.carolinarc.com*

Myrtle Beach R/C Park, 5976 Grace Lane, Myrtle Beach, SC 29577 Brad Smith, (843) 234-0096

The Grove Racing Center, 939 S. Anderson Rd., Rockhill, SC 29730, Mike Durham or Don Faris, (803) 327-4121

ORA Atomic Racing, 373 Boyd Pond Rd., Aiken, SC 29803; Bill Felak, (706) 855-0846 or (803) 642-0314

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HobbyTown USA, 999 E. Basse Rd., Suite 177, San Antonio, TX 78209; Joe Sena, or Clark Baisdon, (210) 829-8697

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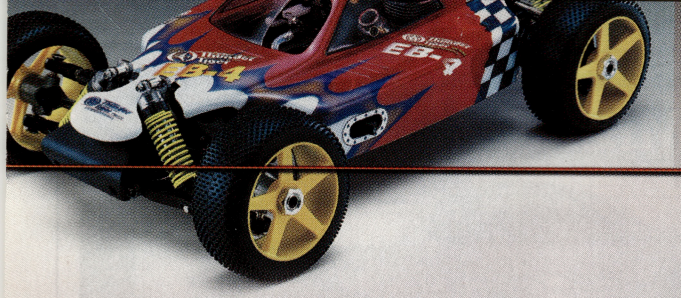



T-N-T R/C Cars, 3420 Ave. K Suite 154, Plano, TX 75074 (972) 633-2470 (972) 238-0965 Joe Sullivan

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Debbie's R/C World, 2200 Commerce Parkway, Virginia Beach, VA 23454, (757) 340-6681

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Roanoke Race Club 5080 Stable Rd. Roanoke, VA 24014 540-989-4529 www.roanokeraceclub.com

Shamroc Raceway, 106 Cheviot Pl., Stephens City, VA 22655; Scott Janow, (540) 869-3551

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Burr-Fab Raceway, 90 Davis St., West Union, WV 26456; Mark Travis, (304) 873-2487

Fulton's R/C Raceway, 2646 Chapline St., Wheeling, WV 26003; James Fulton (304) 233-5355

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Race Zone, Hopewell Rd., Rt. 8 Box 343A, Fairmont, WV 26554; Joe Clutter , (304) 368-1000

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Hobbytown USA, 2061 South Koeller, Oshkosh, WI 54901 (920) 426-1840

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Pro-Star Racing, 726 Pine St., Green Bay, WI 54301; Chuck, (920) 494-1233

RJ's/R.C., 4920 Hwy. 70W, Eagle River, WI 54521; Randy Stys, (715) 479-2541

S&N's Trackside Hobbies and Raceway, 6405 N. Green Bay Ave., Milwaukee, WI 53209; Scott Ernst, (414) 351-1910

WYOMING

Wind River R/C Racing Association, 309 N. 4th West, Riverton, WY 8250; Shannon Watts, (307) 857-0418

Xtreme Hobbies Raceway, 2724 Powder Basin, Gillette, WY 82718; Frieg Balls, (307) 682-6077

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TEAM LOSI TECH-TALK

Tech Tips #11

The Team Losi XXX-S touring car has proven to be wildly successful in its first few months on the track. There has been a few things learned from this racing experience that you will probably find helpful. As with any on-road type racecar you want to get the gear ratio as close to optimum as possible. Team Losi has made 64 pitch spur gears that, like the standard 48 pitch spurs, feature the drive pulley molded into the unit. This eliminates the need for expensive and heavy adapters that are commonly used. The finer 64 pitch gears allow for small gear ratio changes without changing the spur gear as well as little more efficiency. The downside to fine pitch gears is failure due to dirt or foreign matter but since the XXX-S has an enclosed drive train this is all but eliminated. These spurs are available in 108 tooth (LOSA3950), 118 tooth (LOSA3952), and 128 tooth (LOSA3954) sizes.

After having the opportunity to race on a number of different surfaces the team developed some new, shorter shocks for the front that work well when running rubber tires. When running on tracks with rough surfaces, paving joints, or large course marker dots, the shorter shocks allow the chassis to bottom before the shock. This keeps the impact from transferring through the wheel and chassis, which often sends it airborne. The feel is also more consistent since the shock piston sits lower in the body and less likely to get into aerated fluid or be affected by a low fluid level. These new shocks are referred to as .28" and are available in both parts and a packaged pair. The hard anodized bodies are available in both standard (LOSA5027) and threaded (LOSA5052) versions. The shafts are offered in both standard micro finished stainless (LOSA5018) and Titanium Nitrided (LOSA5058). Serious racers will appreciate the complete pair (LOSA5081) that includes threaded bodies, Ti-Nitrided shafts, and all hardware. You do not want to use these in the rear, as there is the optimum amount of up travel already. The guys also developed a new "Green" 17.5 Lb. spring (LOSA5126) that fills the gap between the 14.6 (blue) and 20.0 (purple) springs. This offers a half step for even finer chassis tuning.

Another handy tip comes from Gil Jr. who found that when using some of the thicker battery bars, the battery pack would contact the chassis and cause occasional radio glitches. The cure is to put a piece of Team Losi chassis protection material (LOSA9605) on the inside edge of the center tunnel to act as an insulator. He also suggests grinding back the two ribs in the outer edge of the battery compartment that are used to position stick packs, unless you plan on running this type of pack! Lastly, there is a new body mount brace (LOSA4245) that ties the two front body mounts to the bulkhead. This brace is made from high impact material and helps retain the proper position of the body before and after severe impacts. I know what you're saying, that you like the pros don't hit walls often. Unfortunately when we do hit walls it is with serious force because we are sure that we have the corner made……right? Just like the foam bumper, these braces really suck up the impact.

Have a specific topic or question you would like addressed? Let us know at feedback@teamlosi.com and look for additional tech tips and set-up sheets on our web sight.

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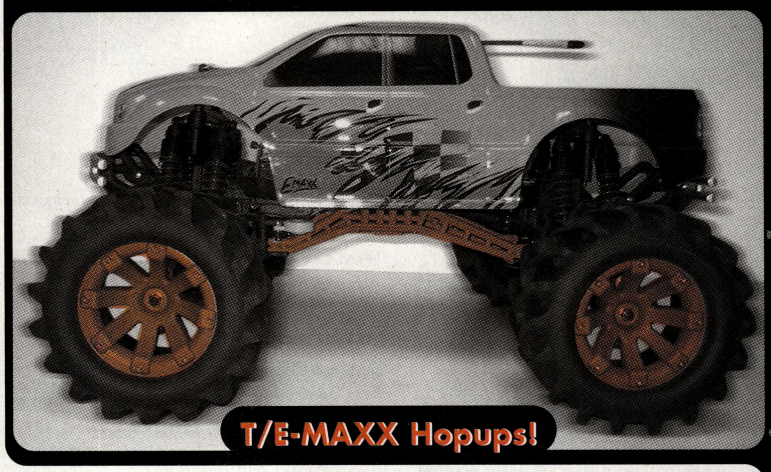

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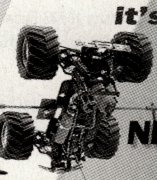

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Looking back at the original Wild Willy!



BY RICHARD TRUJILLO

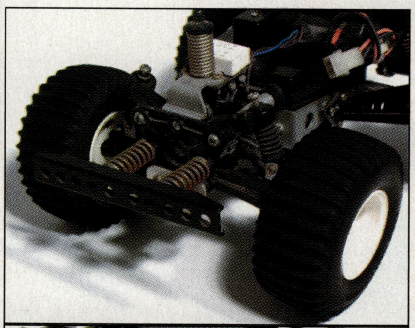
Well, it must have been my lucky day. I was just kicking back on a Saturday afternoon and decided to check out eBay. The first thing I usually do is search for the latest Tamiya items that have been listed. Well, talk about being in the right place at the right time. eBay offers an option for sellers to place a "Buy it Now" price.

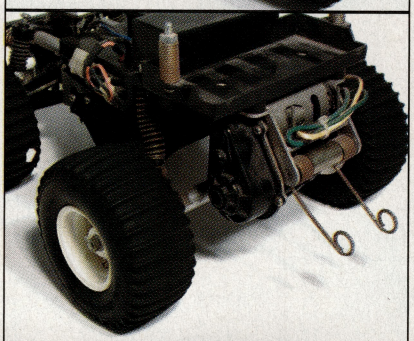


Basically, it's what the seller would be happy to get, if someone wanted to end the auction right then. When the page came up on my computer screen, the first and newest listing was for a NIB (new in box) Tamiya Wild Willy Wheeler! I did a double take and clicked on the auction to check it out. Sure enough, it was a brand new, never-built original Wild Willy from 1982. I couldn't believe it; the buy-it-now price was only $110! I read the auction details, checked out the seller's feedback rating, just to make sure he was on the "up and up," and hit the "Buy it Now" button. "Congratulations on your winning bid!" came across the screen. As it turns out, I was only the third person to view the auction! It was such a good deal that I actually had other potential bidders congratulate me on the lucky find. I e-mailed the seller, paid with good ol' Paypal, and the Jeep was on the way. When I received the box, it was actually in better condition than I could have ever expected. The instruction manual didn't even look touched. Unreal for a twenty-year-old kit!

Less than a month ago, I worked out a deal with Gary Kyes, (one of my bosses at Team Losi) for his original Wild Willy. It was used, the tires were rotted and it was a little dusty, but overall it was actually in very good condition. I picked up a nice used set of tires, cleaned it up and it almost looks as good as new. Tamiya re-released the Wild Willy a couple of years ago as the Wild Willy 2. Of course, I just had to pick one up. Tamiya changed the chassis completely but kept the Willy's Jeep body looking like the original. The newer chassis is much more reliable than the original Wild Willy, but it just doesn't have the cool Sand Tire Unlimited paddles. It does pull some pretty good wheelies stock, but I swapped out the stock shocks and replaced them with some Team Losi sedan units and I picked up 20 feet on my wheelies simply by changing the shocks!

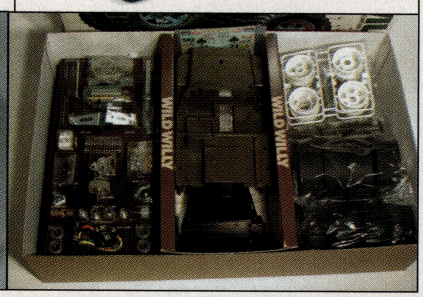
I still use the Wild Willy 2 once in a while, but the built Wild Willy I is staying on the shelf and the NIB Wild Willy is going to stay in the box. If I didn't already have one, I probably would build it, but since it's probably worth three times what I paid for it, I think I'm just going to hang on to it for a while. So, for you collectors out there, keep searching eBay; you never know when you'll get lucky.













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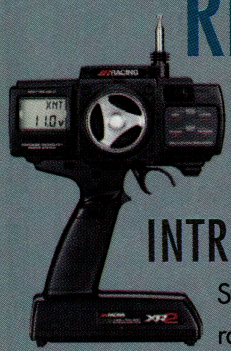

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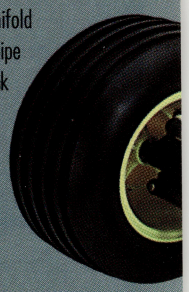

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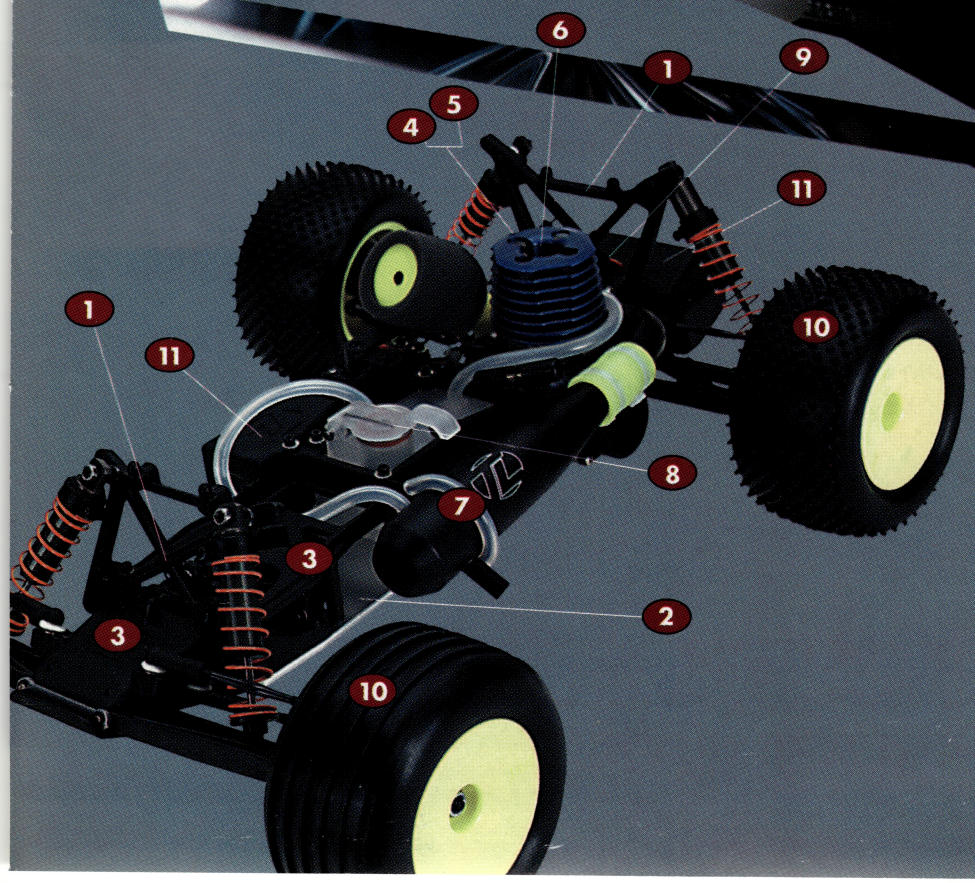

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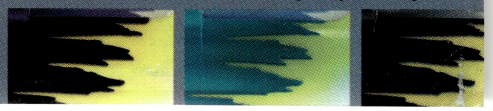

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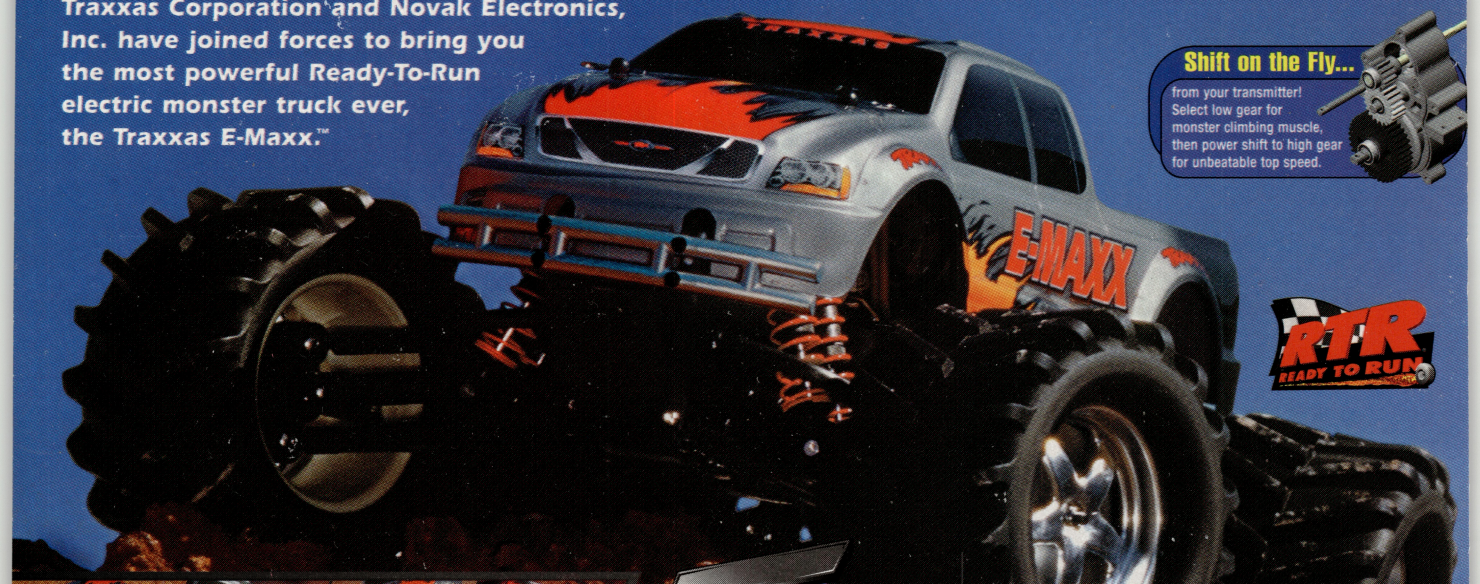

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Maxx Power by Novak.™

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What do you get when you put 14+ volts of power to twin 550 motors in a T-Maxx class monster truck? In a word, it's brutal. The E-Maxx with its new high voltage EVX speed control packs a punch that knocks out just about anything that stands in its path. Jumping, climbing, or backyard bashing, nothing belts out the torque like an E-Maxx. Shift into second from your transmitter and you've got 25+ MPH speed on tap, more than 2-times faster than most other electric monster trucks its size. The E-Maxx even out accelerates many nitro trucks! Hit the brakes and the E-Maxx stops on a dime thanks to the EVX's Smart Braking™ technology. It's all fully assembled and Ready-To-Run with a hot painted body. E-Maxx is in a class by itself. See it at your local hobby dealer!

- Shift on the fly 2-speed transmission that shifts up or down, on demand, from your transmitter.
- Twin Titan™ fan-cooled 550 motors, powered by dual battery packs,* punch out brutal 14 volt wheelies.
- New EVX electronic speed control with forward, reverse, & brakes!
- T-Maxx proven 4-wheel drive system with hardened steel ring and pinions, slipper clutch, and full ball bearings.
- The E-Maxx uses the same drive, climb, & jump-over-anything suspension as the T-Maxx, delivering over 3 1/2 inches of super-plush travel with 8 oil-filled shocks.
- E-Maxx is the most powerful monster truck you can buy!

Total Customer Support
1-888-TRAXXAS
support@traxxas.com
www.readytorun.com



EVX ELECTRONIC SPEED CONTROL

EVX POWER by NOVAK RACING ELECTRONICS

The incredible engineering and innovation of the Traxxas E-Maxx deserves nothing less than an electronic speed control designed and manufactured by the leader in RC electronics, Novak Electronics! For years, you've seen the world's best drivers depend on Novak brand electronic speed controls to win championships, and now you can have the same dependability, hi-tech performance, and efficient power in the Ready-To-Run E-Maxx. The new EVX electronic speed control was designed and manufactured by Novak Electronics, just for the E-Maxx. This 14-volt, forward/ reverse, microprocessor-controlled powerhouse drives E-Maxx's twin 550 motors with ease. Plus, the E-Maxx now has brakes controlled by Novak's sophisticated Smart Braking™ technology. The Traxxas EVX has all the great features you would expect from a speed control built by Novak including programmable functions, thermal protection, gold plated connectors, Novak's exclusive One-Touch Set-Up,™ and incredibly low resistance for more speed and longer run times.

*Traxxas Corp.12150 Shiloh Rd. Dallas, TX 75228 Ph. 972-613-3300. Traxxas U.K., P.O. Box 1128, Winterbourne, Bristol BS17-2SH, England. Ph. 44-117-956-1002 Fax 44-117-956-1121. © Copyright Traxxas Corp. 2001. Call, write, or fax for your nearest hobby shop and for our latest catalog. Specifications subject to change. T-Maxx® and Ready-To-Run® are a registered trademarks of Traxxas Corporation. Novak and the Novak logo are ©2001 Novak Electronics, Inc., One Touch Set-Up™ and Smart Braking™ are trademarks of Novak Electronics, Inc. *Batteries not included.*

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