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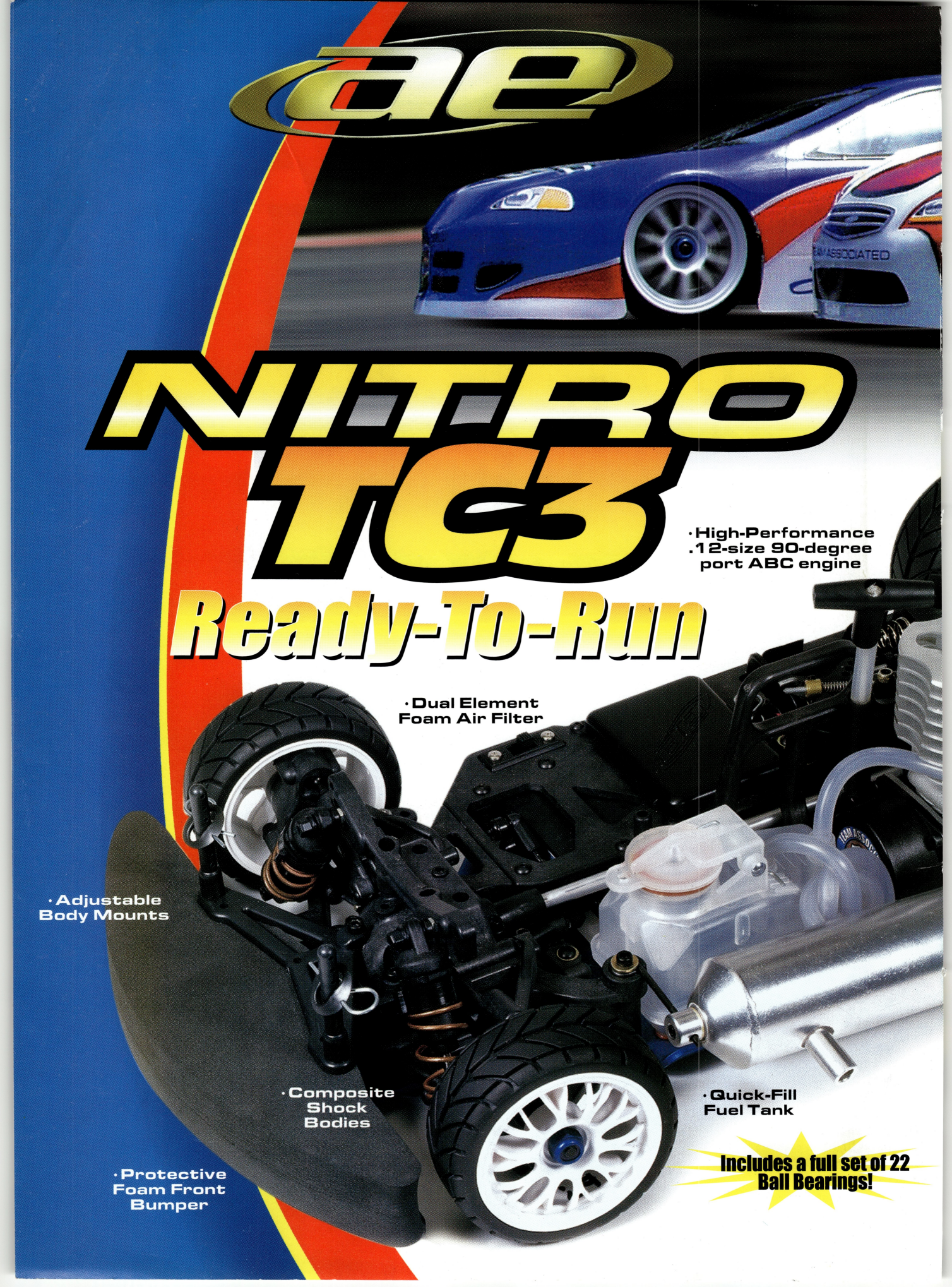
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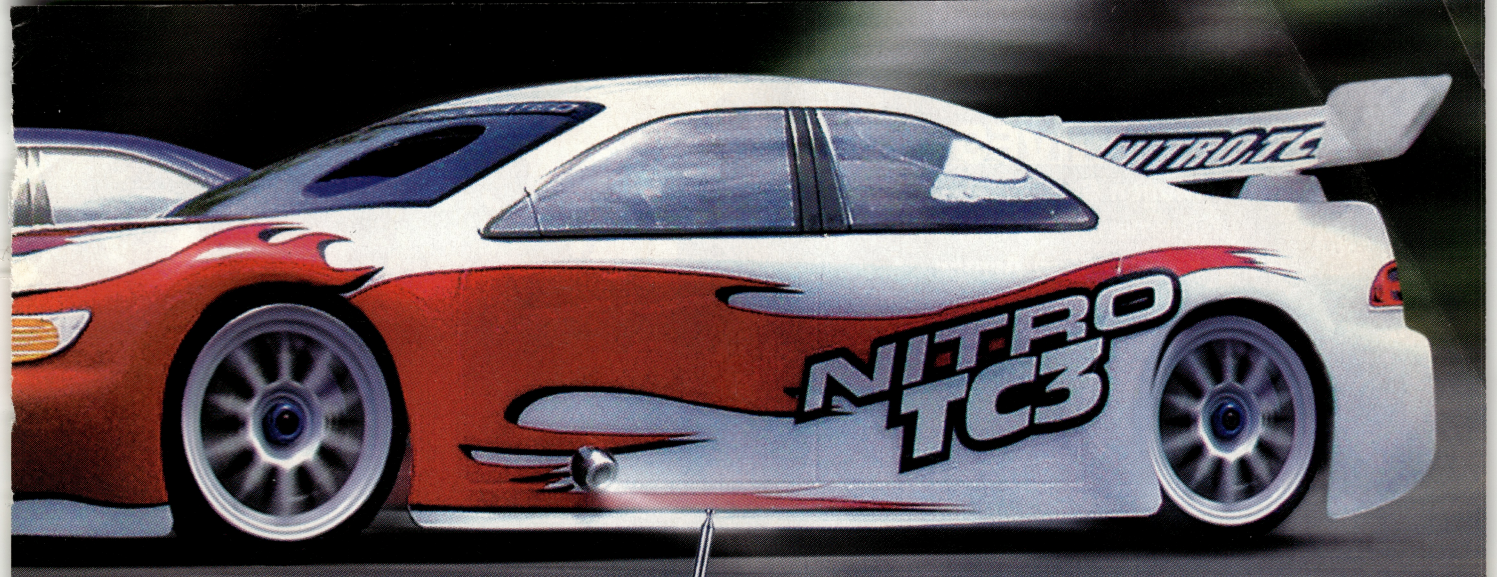


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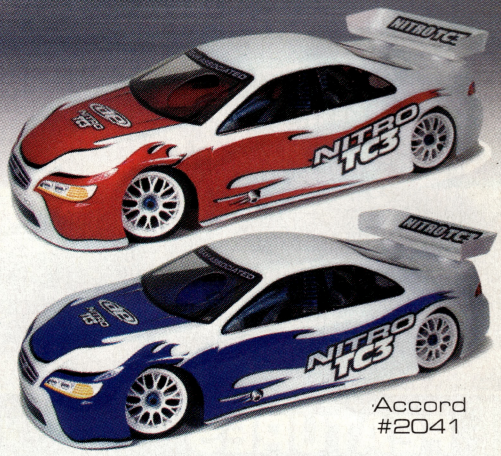


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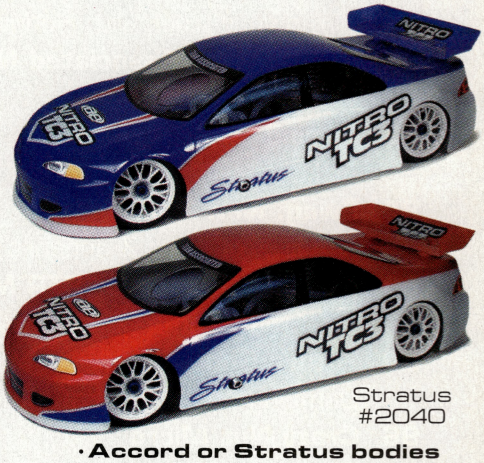


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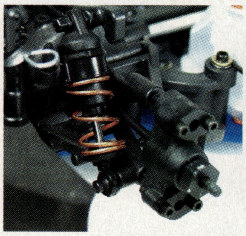
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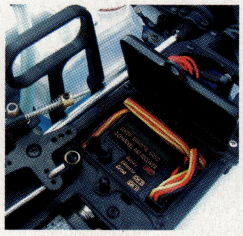
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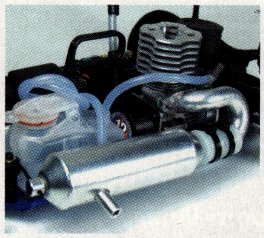
Team Associated's shaft-drive Nitro TC3 changed the face of nitro touring car racing forever. Now the Team introduces the Nitro TC3 Ready-to-Run, the same state-of-the-art 4WD nitro-powered touring car in a factory-assembled package, with a powerful .12 engine and high-quality 2-channel radio gear installed. After all, nobody knows touring cars... or NITRO... like the Team!



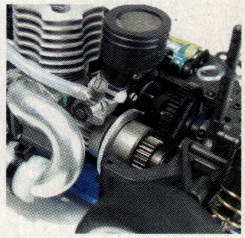
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TEST DRIVES

32 Mugen Seiki MST-1
The newest off-road nitro truck

38 Kyosho Mad Armor
Camo crusher

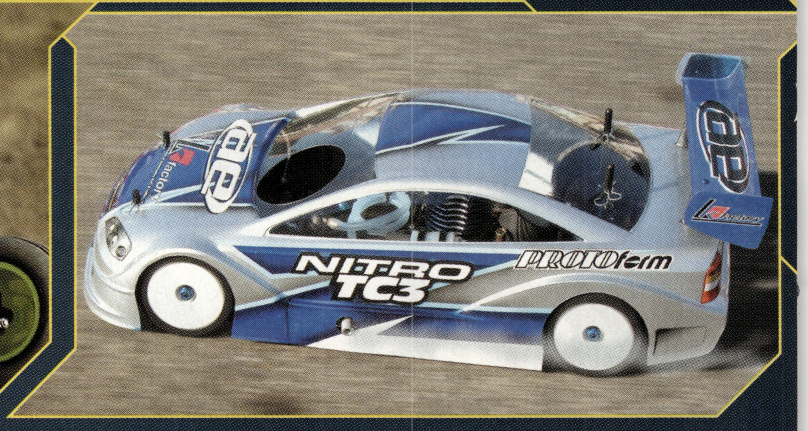
52 Tamiya Ferrari Enzo
Nitro or electric. Take your pick

58 Team Losi XXX-T Sport
RTR racer!

78 Kyosho Xanavi Nismo GT-R
The monster-sedan!







FEATURES

44 Losi XXX-T Tuning Guide
Dial-in your truck with Hodgimoto

64 2nd Opinion: Associated NTC3
We visit the K-Factory

72 Driving 101
Rick Hohwart and driver ed

84 Swag: New Mini-Z Stuff
The first off-road Z appears

88 How To: Make your RTR More Efficient
Lose those lame connectors

90 Future Shock
Damping possibilities of tomorrow

96 Crazy Nut Micro
The Micro RS4 with no HPI parts!

104 First Look: JR Racing XS3
A synthesized radio for under $200

110 Rally Planet Part II
Kyosho's TR-15 Subaru Impreza

116 Freestyle Losi NT
Building a big-jump nitro truck

118 Living Room Whirlybird
Hirobo's XRB Mini Lama chopper

120 Endurance Champs
LRP's 24 hour race

DEPARTMENTS

8 Drivers' Stand

11 Up Front
News, Reader's Projects and more

22 Bench Racing with Skinny
What's the latest skinny, with Skinny?

28 Feedback
Questions and comments

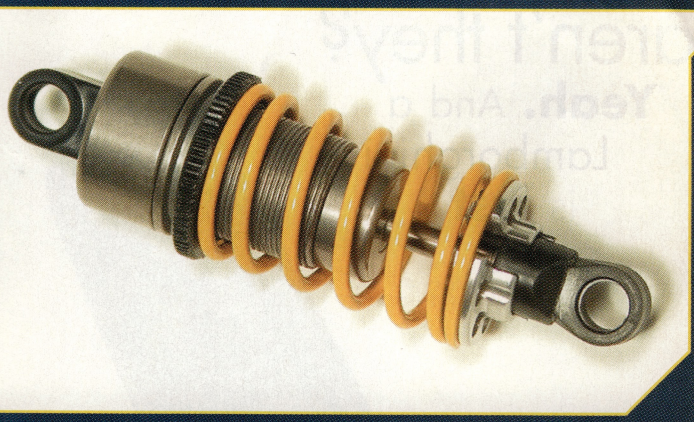
128 Vintage R/C
Kyosho Williams Honda

R/C CAR
THE RADIO CONTROL CAR MAGAZINE
APRIL 2003, VOLUME 6, NO. 4

PRODUCT TESTS

100 Pro-Line's New Rubber
Big Joe and his little friends

108 Tamiya TRF Dampers
New fluorine-coated sedan shocks





One the cover: Kyosho's Mad Armor takes flight (photo by Sparky)

R/C Car Magazine (ISSN 1097-0711, Canada GST 12500#9266RT), CPC. PUB MAIL 40024492, April 2003 published monthly by Daisy/Hi-Torque Publishing Company, Inc., with editorial offices at 25233 Anza Dr., Valencia, CA 91355. Subscriptions $19.98 for 12 issues (one year). Canada add $12 additional postage for one year, $24 for two years. Foreign add $15 additional postage for one year, $30 for two years. Copyright ©2003 by Daisy/Hi-Torque Publishing Company, Inc. All rights reserved. Nothing in this magazine may be reprinted in whole or in part, by any means, without the express permission of the publisher. Contributors: Photographic submissions must be 5x7 or 8x10 glossy black and white, or 35mm and larger color slides. Please mark each photo with owner's name and address. Manuscripts should be typewritten. Unsolicited contributions, manuscripts, photographs and illustrations must be accompanied by a stamped, self-addressed envelope. Unless special arrangements are made in advance, all published material becomes the sole property of Daisy/Hi-Torque Publishing Company, Inc. The publisher does not assume responsibility for unsolicited material. Periodicals postage paid at Santa Clarita, CA 91380 and at additional mailing offices. POSTMASTER: Send address changes to *R/C Car* Magazine, P.O. Box 958, Valencia, CA 91380-9058. Printed in U.S.A.

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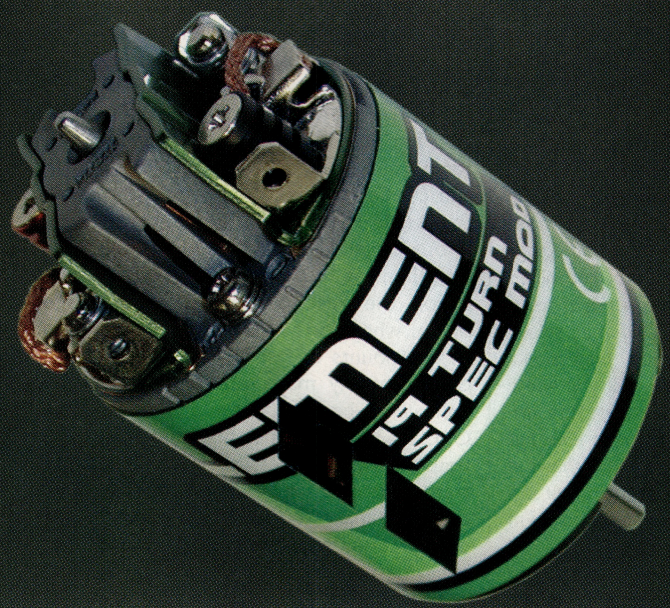
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[Drivers' Stand]

BY FRANK MASI

Big misunderstandings lead to insight

Please let me share with you a letter I recently received regarding my column "Do you know where your money is going?" in the February issue.

I just got done reading your "Drivers' Stand" article and I feel that it is now time to find a new hobby for my son and myself. You touch on a few points of why I feel that this hobby is going downhill in a hurry. The attitudes and actions my son and I have seen from these "professional" drivers have turned us off to the hobby. I'm so proud of the fact that you can hide your sarcasm about a father and his sons starting out and trying to be competitive in the R/C racing realm. Unlike the professional drivers, the rest of us have to dish out our hard earned cash to pay for our cars and equipment; cars and equipment that get hyped and/or recommended by your magazine.

We race in Northern California, so we don't usually see any of the professional drivers at our races. From what you wrote in your article, that's a good thing. Sure, drivers hack each other from time to time, but taking the course in reverse just shows a complete lack of courtesy for the other drivers who didn't make it to the A-main. I'm sure the one privateer you pointed out would have been irate if the professional driver trying to hack his buddy took him out instead.

At the last big on-road race held in our area, we got to see some of the worst behavior from these factory-sponsored professional drivers. These drivers trashed the local track facilities; the pit tables, the provided easy-ups, and even the porta-potties. Some of these "professionals" wouldn't even sign autographs for kids when asked. With the professional drivers acting like spoiled brats, it won't take long for other younger drivers to start emulating their actions. Unfortunately, we are seeing the decline of courtesy and sportsmanship in R/C racing the same way other sports are seeing the same decline. Since you and your magazine seem to favor this decline, I have nothing else to do but cancel my subscription. I hope that by helping other racers and racing to my best no matter what main I'm in will help to keep these "professional" driver attitudes away from the tracks I race at. But with media such as yours promoting these actions I'm afraid that this once great hobby is in for another dark period.

I left this reader's name off because, well, I thought that he might be embarrassed after he realized that, in fact, my goal wasn't to promote poor behavior, but to condemn it. In any event, I did e-mail him back. I asked him to please reconsider his decision to cancel his subscription and of course to re-read the article. Hopefully, he'll have figured it out by now. I haven't heard back from him yet, however.

For the rest of you—especially those who don't know that eating large amounts of fast food every day could possibly make you obese and unhealthy—here's a little disclaimer: Once in a while, I may make up fictitious characters and events to illustrate a point. I may even add a little drama to make the story more interesting. At any rate, the subject of misbehaving factory drivers has at least one person riled up. But I should add that not every paid pro exhibits such bad behavior. In fact, there are quite a number of them who should be recognized for their contributions to the hobby.

Among my list of goodwill ambassadors, R&D geniuses and all-around chuckle-heads are:

Brian Kinwald—Losi's testing/tweaking workhorse, Brian spends more time at the track than anyone I know. If he doesn't quite greet you with a smile and handshake the next time you see him at the Nats, just remember that he's got his game face on.

Mark Pavidis—Mark doesn't race as much as he used to, but he's still fast. He's also one of the nicest and most approachable pro drivers.

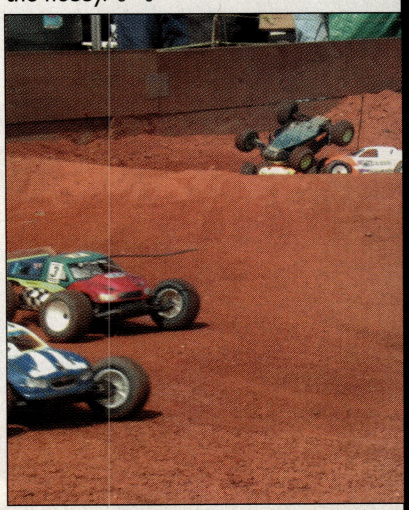
Matt Francis—Matt is almost better known for his personality and visibility than for his world championship titles. Matt is also the most likely to be found wrenching on someone else's car rather than his own at a big race.

Masami Hirosaka—You may never get to meet this Japanese ace in person, but Masami's reputation is global. Few drivers of his caliber are as courteous, polite and generous with their time as this legendary world champion. Masami could write a book on good sportsmanship, but then who would translate it?

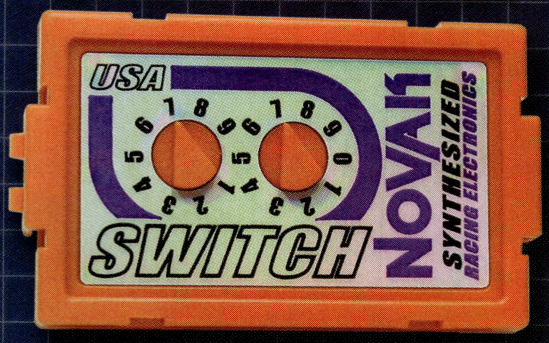
Dave Jun—Dave should win based purely on style points; even in high winds, not a hair dares move from its place. As Tamiya's in-house hotshot, Dave is as friendly in defeat as in victory, and he's always willing to help Tamiya loyalists.

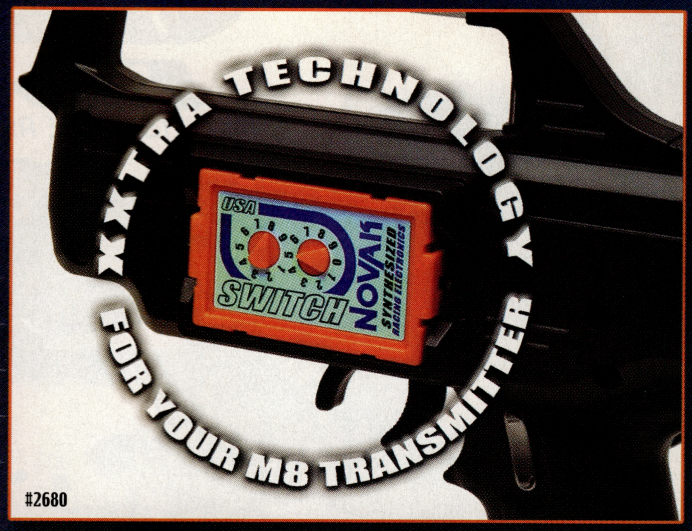
Joel Johnson—Although Joel shunned the spotlight years ago, he was nevertheless the R/C industry's original pinup boy and a model racing hero to thousands. With all this talk about cloning, I'd like to recommend some of that Johnson DNA, as we could use a few more like Joel.

Of course there are many other pros worthy of hero-status (and I apologize for not mentioning all of them here); it's just that lately it seems as if they are becoming outnumbered. In reality, the ones who create the poor image of the factory driver are usually the ones who aspire to be the next Kinwald or Pavidis. It's just unfortunate that while they work on their driving with admirable commitment, they often miss an even more important—and rarer—trait: being a worthwhile representative for the hobby.



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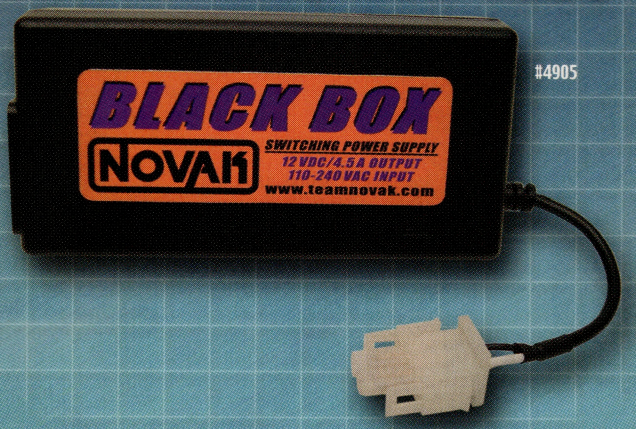
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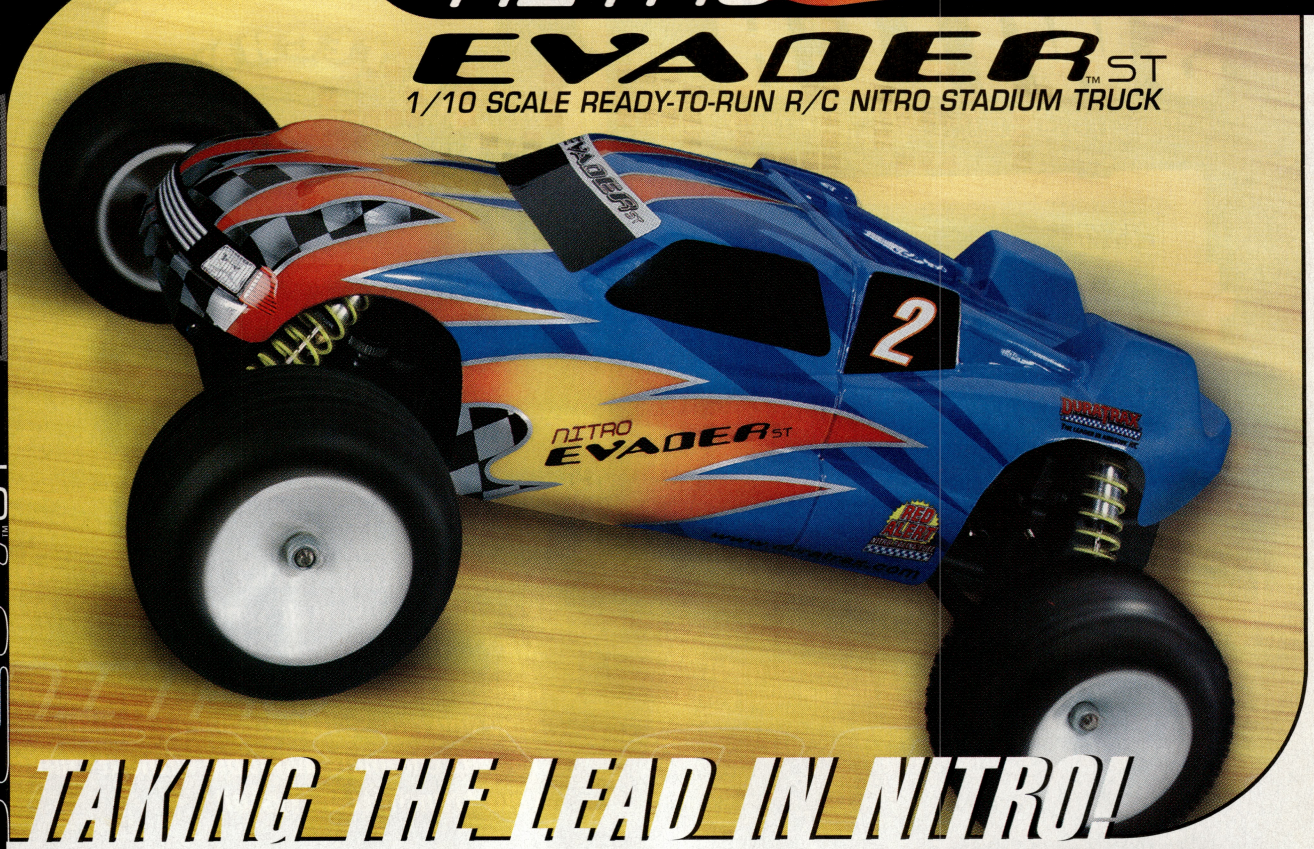
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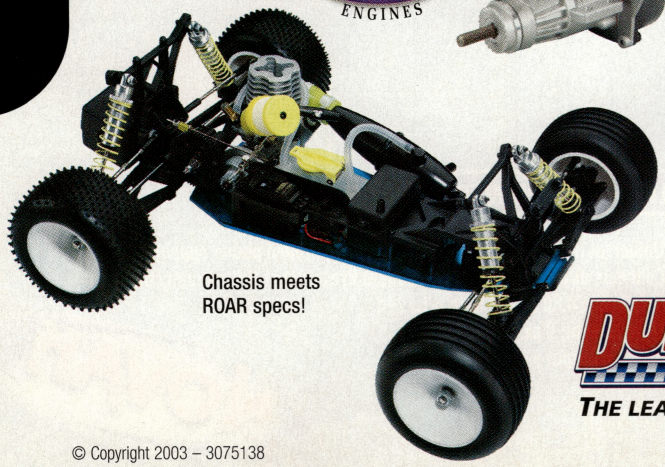
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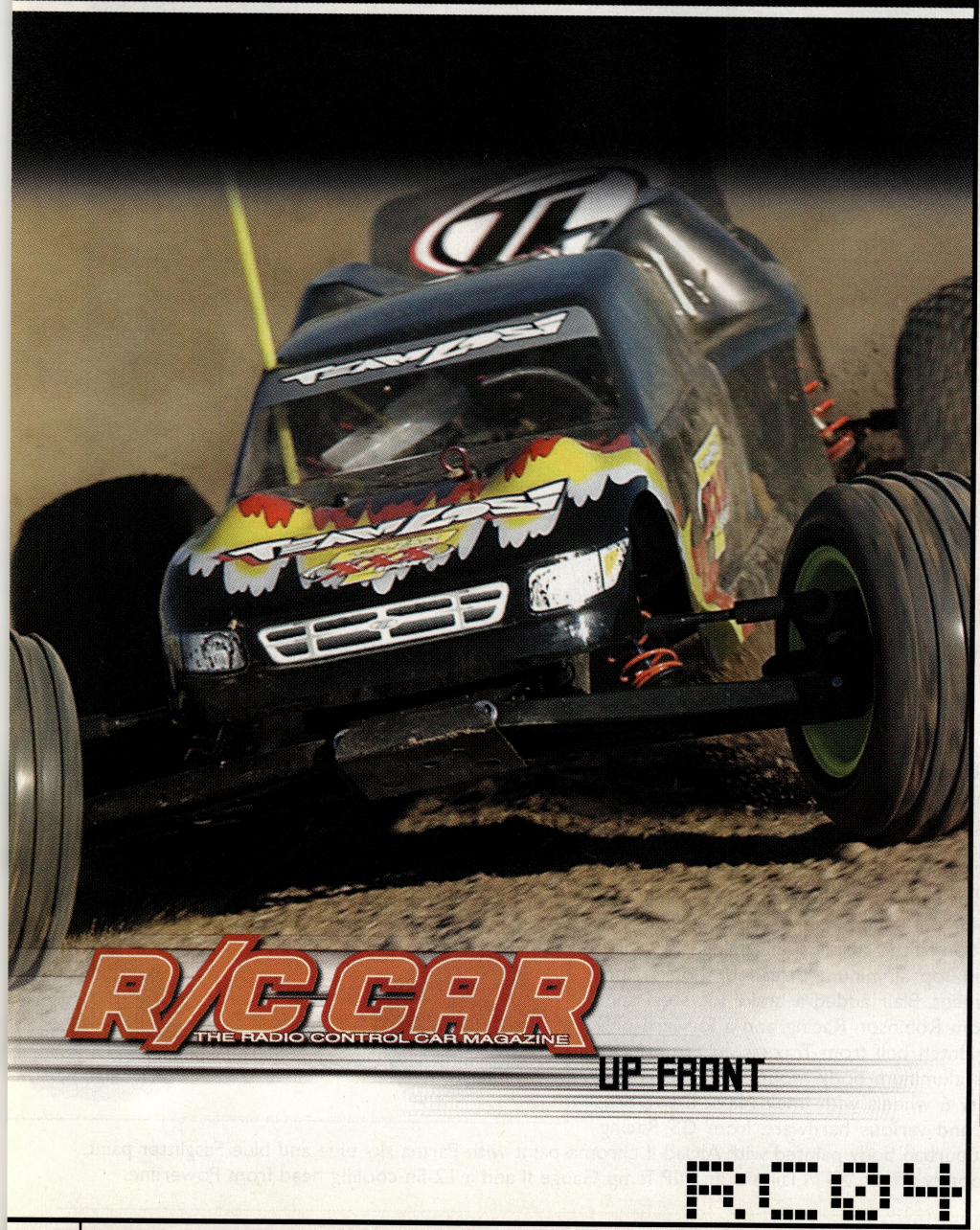
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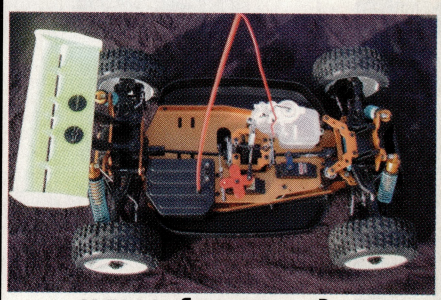
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UP FRONT

RC04



READERS' RIGS [PAGE 12]



NEWS [PAGE 14]

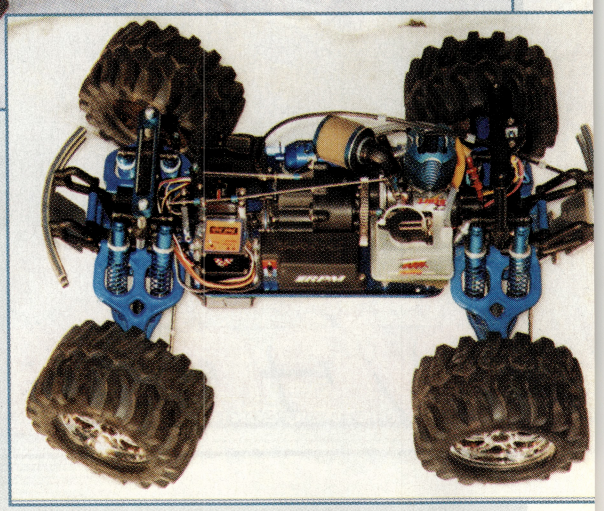


TRUCK COLUMN [PAGE 22]

[Readers' Projects]

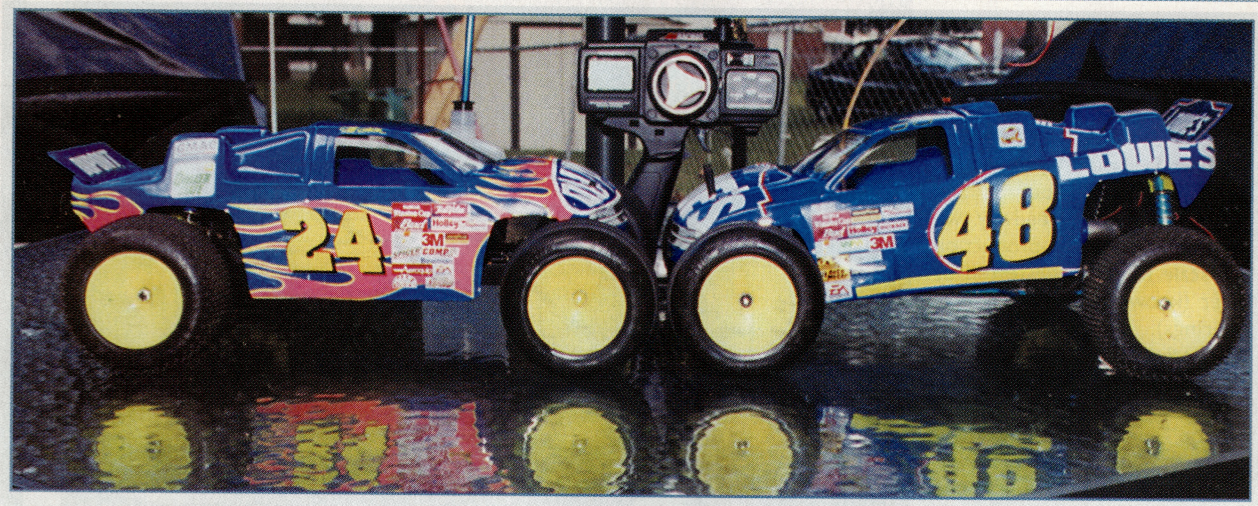
Welcome to *R/C Car's* Readers' Projects. We receive many impressive "home-built" reader projects each month, so we decided to showcase some of them in each issue. How about you? Got a lot of pride in your ride? Snap some pics and send 'em to us here at *R/C Car* Readers' Projects, 25233 Anza Drive, 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!





NORTHERN EXPOSURE

Blair Gartner sent us these pix of his T-Maxx just because he couldn't recall seeing any Canadian rides featured. In fact, he suggests that we do an all-Canadian "Readers' Projects" section in a future issue! Blair's goal was to make his Maxx "air safe," as nothing makes him madder than broken parts. To begin, Blair's truck has been fortified with chassis braces and a servo skid from Ballistic Stupidity and aluminum skid plates from Full Force. He then turned his attention to the suspension, adding RPM wishbones and bulkhead braces and Top aluminum threaded shocks from Integy. In the drivetrain department, Blair added a brake kit, steel spur gear and hardened diff gears from Robinson Racing, and a forward-only shaft, diff locker and 18-tooth clutch bell from Traxxas. In the area of appearance, Blair's truck sports aluminum body mounts and bellcranks from Dynamite, Pro-Line Velocity 6 wheels with Imex Maxx Dawg tires and blue sliders, cone spacers, and various hardware from GS Racing. Topping it all off is a Pro-Line Suburban body painted with Alclad II chrome paint with Parma sky blue and blue Fasglitter paint. Keeping everything running smoothly are an XTM failsafe, an MIP Temp Gauge II and a 12-fin cooling head from Powerline.



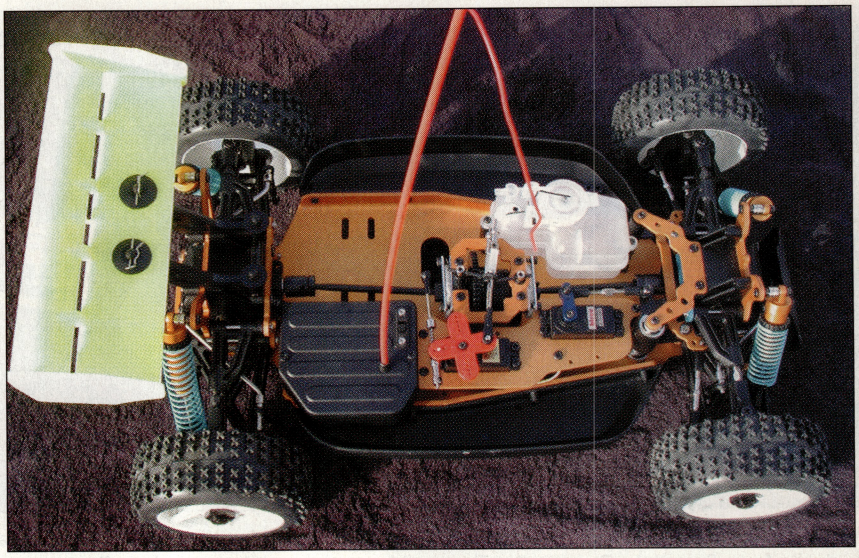
KU-WAIT A MINUTE

Originally from Savannah, Georgia, Sgt. Tommy Mays sends us these photos of his trucks all the way from Kuwait, where he is stationed with the U.S. Army. Obviously, Sgt. Mays likes his NASCAR, as both of his rides feature paint schemes from his favorite drivers. The first is an Associated T3 electric truck sporting Jeff Gordon livery. Inside the shell are a Trinity P2K stock motor, a Novak ESC and "everything else you can imagine," including titanium turnbuckles, aluminum shocks and Pro-Line tires. The gas truck is an Associated RC10GT with Jimmy Johnson colors. Powering this screamer is an O.S. Engines .12 CV-R, and for extra strength, Sgt. Mays added a pair of Factory Team graphite shock towers. He also boosted the GT's curb appeal through the liberal use of Factory Team blue-aluminum hop-ups. The Sarge can't wait to get home to run his trucks, and of course, pick up the newest issue of *R/C Car*. Of course, we'll be sending his free one-year subscription all the way to Kuwait via the APO system.

UPDATED TC

After having his e-mail printed in the January issue's "Bench Racing" column, Joe Maran from Grovetown, Georgia, decided to send us an update on his Terra Crusher. Besides the heatsink head and two-needle carb (as mentioned in his email), Joe has added a host of hop-ups from New Era, including aluminum bottom braces, transmission plate and bulkheads, and an aluminum exhaust header, roll-bar and forward-only transmission gear. Joe also replaced the standard Tamiya exhaust pipe with one from an HPI Nitro Rush, which he found to be just as powerful, yet quieter than stock. Lastly, Joe painted a Parma "Spider-Man" body in candy red, so he can "see it with his old eyes." He also states that the Parma body helps keep his engine running cooler as well.

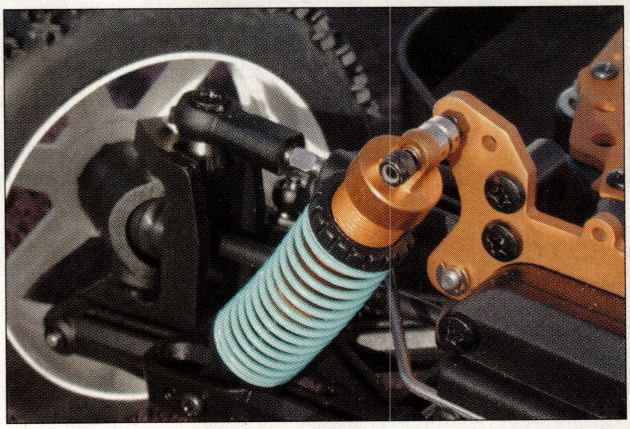




SWOOP OF THE MONTH!
ACER AR-8 PRO

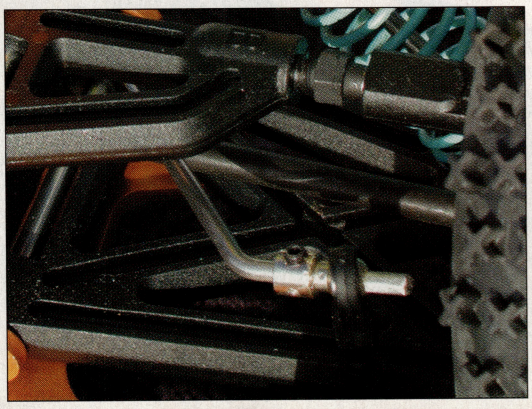
If you read our website—and well you should—you would know that while out at Sun Valley, CA's KZ Speedway, we recently spied a pre-production 1/8-scale buggy being tested by Acer (known for great ceramic bearings). The was pretty impressive, so we did some additional detail-digging during the week following our initial "scoop." Here's what we know about the AR-8 thus far.

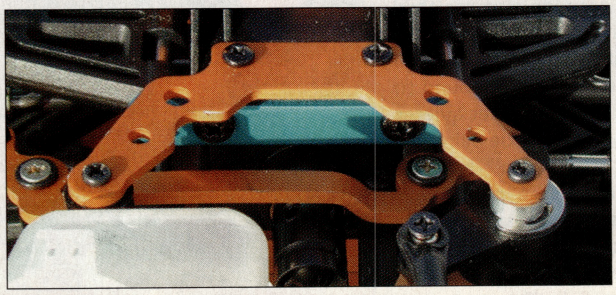
- The AR-8 is the first and only 1/8-scale buggy that will come stock with titanium turnbuckles.
- The car will be fitted with Acer's ceramic cartridge bearings throughout. Another first for the 1/8-scale buggy market.
- The differential gears are spiral-cut, heat treated and beveled.
- The chassis, upper radio plate and chassis braces will all be made from aircraft-grade 6061-T6 aluminum.
- The AR-8 will come standard with front and rear CVD driveshafts. Acer will also offer center CVD driveshafts as optional parts.
- Threaded aluminum shocks will come as standard.
- Get this: Acer is pondering the possibility of an optional two-speed transmission—another first! The mind boggles at the possibilities.



According to our sources at Acer, they claim that the AR-8 will be one of the lightest buggies on the market. It will also be a "build" kit, meaning that you'll have to put it together yourself. It will have front-end kickup (the exact angle has not been disclosed). And the production rear wing will be white rather than the yellow shown here. Lastly, Andy Smolnik will be Acer's "ace in the hole" for the 1/8-scale pro class. Andy is currenly doing race testing and is assisting in R&D (he's also a real nice guy, too). As for price; Acer isn't quite ready to announce pricing yet, but we're told that it will be priced very competitively.

For more information, give Acer a call at (310) 472-8090 or email them at info@acerracing.com.





TRAXXAS® New MAXX™ Monsters!



2WD Nitro Monster Truck!

The Traxxas SportMaxx is a new 2-wheel drive Maxx monster that focuses on the essentials of performance that made the T-Maxx the best-selling hobby class model of all time. The SportMaxx is a lighter weight, more athletic Maxx machine that's motivated with unreal power from the TRX 2.5 Racing Engine and the stability of its race-bred WideMaxx™ suspension. 30+MPH speed is possible from the single speed transmission. Adding features is easy with complete upgrade modules to install 4-wheel drive, two-speed or reverse capability (sold separately).

SportMaxx Features!

- 1/10 Scale Nitro Monster Truck
- TRX 2.5 Racing Engine
- More power and less weight equals quicker acceleration!
- Exciting 2WD performance!
- Ready-To-Race® with a 3-channel radio system.
- Quick and agile.
- Less expensive than T-Maxx

SportMAXX™

UPGRADE OPTIONS

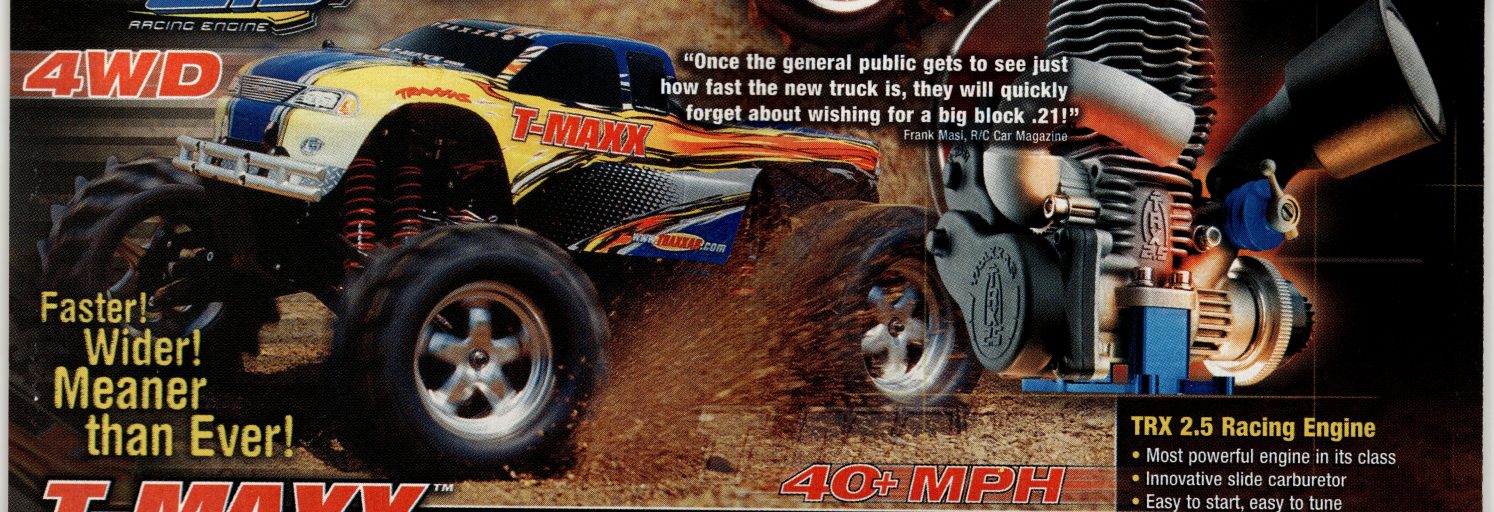
2-SPEED
2-Speed Module - #5192X
2-Speed! Send speeds to 40 MPH!

4WD
4WD Module - #5191X
4-Wheel Drive! Improves traction on any surface!

REVERSE
Reverse Module - #5194X
Reverse! Back out of trouble at the flick of a switch. Even the servo is included!



TRX 2.5 RACING ENGINE



"Once the general public gets to see just how fast the new truck is, they will quickly forget about wishing for a big block .21!"
Frank Masi, R/C Car Magazine

T-MAXX™



4WD Nitro Monster Truck!

1/10 Scale Nitro Monster Truck
40+ MPH! 4-Wheel Drive! Reverse!

Nitro with Reverse!

Only T-Maxx gives you two-speed forward/reverse nitro performance. Our patented design is the only one that delivers full proportional control of the throttle and brakes in both forward and reverse. Anything less is a compromise!

New wider suspension!

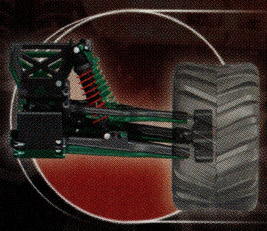
MAXXimum Adjustability! Tougher, wider suspension arms add over an inch of track width over the first generation T-Maxx for incredible stability. Multiple shock mounting positions (up to 10) on the arms and the new shock towers provide the widest range of adjustability. Set it for that famous, bottomless Maxx suspension travel and plush feel, or slam it low and firm for high-speed racing action!

Adjustable Caster

Only the T-Maxx features adjustable front caster for even more race-tuning precision.

TRX 2.5 Racing Engine

- Most powerful engine in its class
- Innovative slide carburetor
- Easy to start, easy to tune
- Push button electric starting with the all new EZ-Start™ system
- Engineered from the ground up for the most power and reliability possible
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www.TRAXXAS.com

www.READYTORUN.org

M-m-m-My-FIORONI

In the world of high-performance hop-ups for 1/8-scale buggies, few companies have the reputation of the Italian firm Fioroni. Here are a couple of brand-new Fioroni mods for your GS Racing Storm and Storm Pro. The first hop-up is this sweet blue-anodized C-hub set. Made from 6061-T6 aluminum, these C-hubs are a great way to beef up your Storm without adding excess weight (the aluminum hubs weight just slightly more than stock). Skinny has been running these hubs on his Storm for weeks, and has never broken one (and this is Skinny we're talking about, so you know these parts are tough!). Fioroni also makes a set of rear hubs, also in blue-anodized aluminum. These have a four-position toe-in adjustment block for added ease of tuning.





Fioroni also offers this ultra-trick "decomposable" center diff mount for the Storm series. By "decomposable," Fioroni means that this blue-anodized aluminum center diff mount is composed of several pieces that make it much easier to remove the center diff for maintenance and tuning. The side bulkheads are two-piece, which allows you to simply remove the top plate and the top bulkhead pieces to expose the diff. And of course, this hop-up greatly reduces flex and will make your Storm look "factory."

For pricing and additional information, contact General Silicones at (626) 445-5036.

H2: OH!

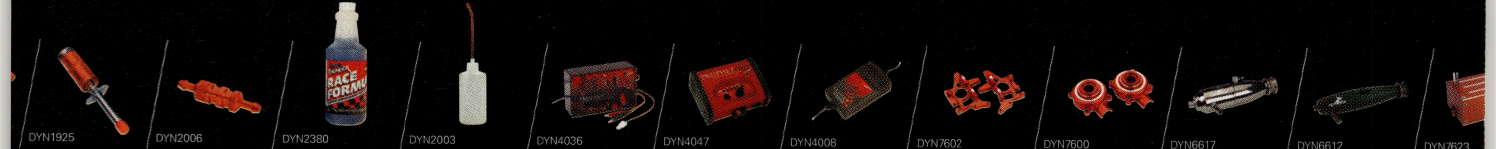
The newest Hummer, the H2, is really making its mark among status-seeking well-to-dos and high-end soccer moms. All right, we admit it: the H2's pretty cool. Anyway, Pro-Line has made it easy for any Maxx-truck owner to experience the luxury and curb-appeal of this stunning SUV with its all-new Hummer H2 body. Molded from super-tough .060 lexan, Pro-Line's H2 body comes with protective overspray film, plenty of molded-in detail, a complete set of high-quality vinyl graphics and an extended rear body-mount. The Hummer H2 (part no. 3150-00) sells for only $32.00—a lot less than the H2's 50-grand starting price.



Contact Pro-Line at (909) 849-9781 for more information.

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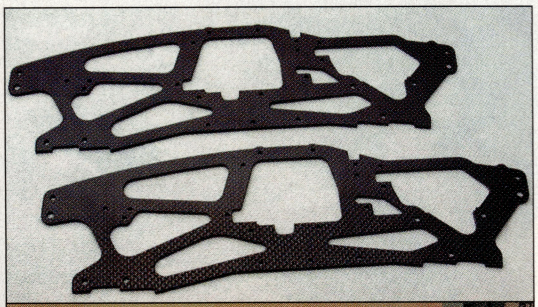
it's boom time.

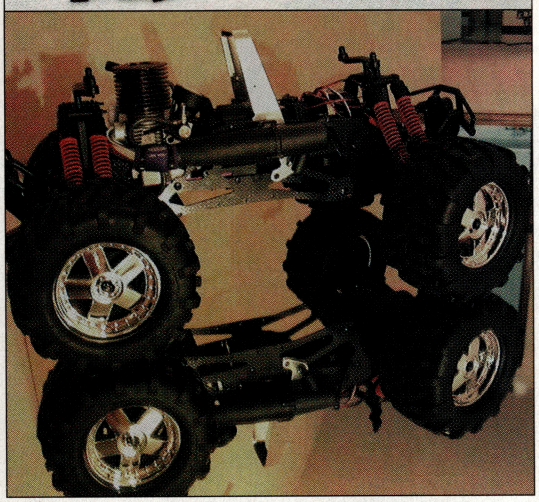


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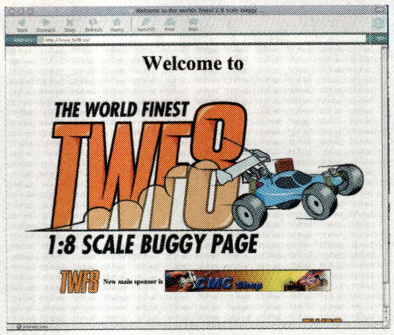
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A SAVAGE CASE OF VERTIGO

Vertigo announces the release of its quasi-grade high-torsional-strength graphite side plates for the popular HPI Savage 21 nitro monster truck. The Vertigo plates weigh 1/3 less than the stock truck's aluminum plates, yet offers similar if not improved strength and rigidity. Of course, graphite is less likely to retain a "memory" during a collision, so it's unlikely that your Savage will retain a tweak. The plates are also designed to accept Vertigo's forthcoming transmission skid plates. The Savage Carbon Graphite Side Plates (VER4000CG) sell for $99.95 per pair. Contact Vertigo at (604) 209-7710 for more information.



WEBSITE OF THE MONTH

If you're interested in 1/8-scale buggies, then you owe it to yourself to visit TWF8's spot on the web at www.twf8.ws. This is one of the most comprehensive on-line resources for all things nitro buggy. There is a huge database of technical information, the latest news from the world of nitro buggies, and a lively forum of enthusiasts. There's even an online shop where you can pick up your very own TWF8 caps and shirts.

UNLIMITED MONSTER JAM

January 11, 2003—Ultimate Hobbies sponsored an R/C demo at a huge Monster Jam monster truck event at SoCal's Anaheim Stadium. A group of 15 lucky drivers had the honor of showing 50,000 raving fans what R/C monster trucking is all about. Of course, R/C Car was there to cover the action as well as bust some big-air moves of our own!. It was a great event, and judging by the crowd's response, they were really digging the R/C trucks. Look for our complete coverage next month.



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WHEN WORLDS COLLIDE

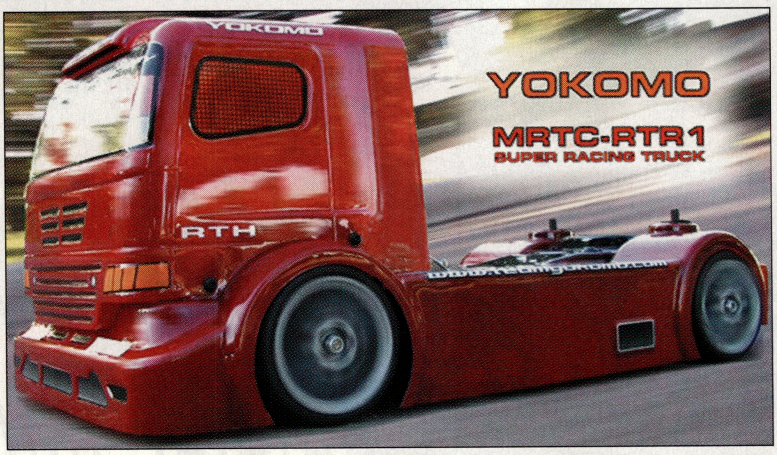
What do these two famous people have in common (other than their first names, that is)? Give up? They're both first-time world champions; how's that? Introducing Greg Degani and Greg Herbold. Both are world champions in their own respective fields. Of course, we R/C people should know that Mr. Degani just won the 1/8 scale off-road world championship, and is the first American ever to do so. Mr. Herbold, on the other hand, comes from another sport altogether—mountain biking! Greg Herbold is the first-ever world champion downhill racer, and of course, the first American to win that title. Pretty good for we Americans, eh? Herbold was out visiting our sister magazine (Mountain Bike Action), and after he was done, Greg wandered over to our area and insisted we go "pull-Trigger" with him out at the local track. It turns out that "HB" is a major R/C junkie and drives whenever he can (check out his "Freestyle Losi NT" feature elsewhere in this issue). While we were all putting in some hop laps and testing some new products, who shows up but Greg Degani. To make a long story short, it was fun to see HB get slaughtered by Degani. Herbold hates getting beat, which made this all the more enjoyable. Of course, Degani never accepted HB's challenge to try it again—this time on bikes!



ACER 1800s

We met up with the boys from Acer the other day at KZ Speedway. When we caught them testing some new stuff (see elsewhere in this column), Mr Hammid tried to steer our eyes away from their "secret project) to these new 1800mAh AA-size NiMH cells. According to Acer, these new 1800s have a great charge and discharge rate, have no memory problems (unlike Skinny) and no need to discharge. Hammid went on to say that they work great in micros as well as in your transmitter and receiver packs. Skinny installed a set in his Nikon, and they are still going strong. Acer is selling the cells for $6.99 for a set of four. Definitely not bad!

For more information, give Acer a call at (310) 472-8090 or email them at info@acerracing.com.



STREET RIGS

Yokomo hopes that its new Super Racing Truck bodies and kits will help in the creation of a new class of racing for 1/10-scale touring sedans. Based on the European Super Racing Truck category of big-rig racers. Yokomo's four-piece body shell comes molded in clear lexan so you can paint it any way you'd like. The bodies will be available in both narrow (190mm) and wide (200mm) configurations. Yokomo is also planning to release a special version of its MR-4TC electric touring car in RTR form with this unique body.

Call Yokomo USA at (949) 252-8663 for more information.

boom.

HOP-UPS



Oh, the difference a little anodized aluminum can make. Dynamite's huge selection of hop-up parts for RC's most popular cars and trucks make the ordinary extraordinary. Each part is CNC-machined to exacting specifications that meet or exceed those of the original stock parts. T-Maxx, Terra Crusher, HPI Savage, XXX-S, Nitro TC3, Micro RS4—Dynamite® has parts for all of these in a variety of color choices too.

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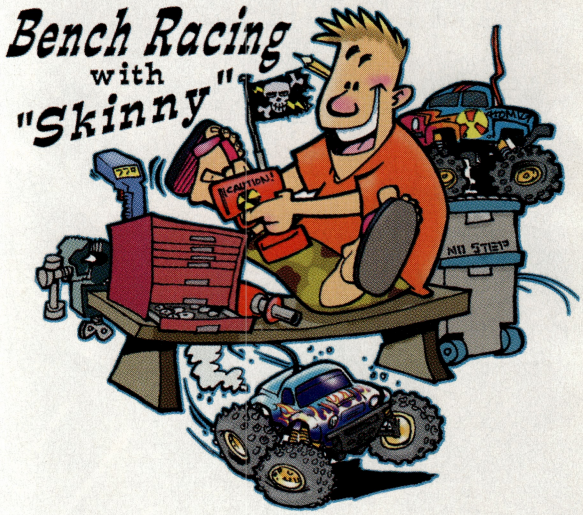
I have my rant for this month! It's been a while, too, but over the last few weeks, I saw some comments on the web that kind of got me going. I also heard the guys at the track saying the same thing. And to top it off, I heard it from inside the industry!

What is it? What's got your pal Skinny in a froth? "Corporate payoffs," that's what! What are you talking about, Skinny? I'll tell you; it seems a lot of people think that magazines are paid off, or more like magazines pull their punches about products they review because the companies that advertise are paying money for ads and because of this, we soft-shoe the outcome so they will run more ads. And that if they don't advertise with us, we may be extra critical on their products. So untrue! Not for us, anyhow. I guess this rumor is set so far into peoples' thinking that both sides of the fence think this. I could be wrong, I could be right; I can only speak for *R/C Car* and myself. We try to be as fair as possible, we try our best to put your interests in the forefront of our tests, along with the manufacturers interest too! Yes, my friend, it's a symbiotic relationship.

R/C Car knows that you look to the magazine to get your info, and manufacturers look to us to get the information out. *R/C Car* is not swayed by anyone but our own conscience. The truth of the matter is that most of the products that come across our desks these days are very good; the people and manufacturers that are making the products we test have been doing their homework. As with anything, they have strong and weak points, and that's our job: to find this stuff out and let you know.

The whole goal is to make this R/C thing as cool as possible. To let you, and the manufacturers, know what's what. As far as I know there is no "perfect" car or part. The point is that this is a hobby, and your job as a hobbyist is to tinker and tweak things. That's what makes this so much fun. Look at the T-Maxx; it started out as a plaything, but look at it now. Parts companies and regular people have come up with all sorts of stuff to compensate for its (admittedly few) shortcomings or to enhance its strong points.

As for us at *R/C Car*, it does us no good to play games. We want to improve the breed, expand the consumer base, and help you to make an educated decision. We want to help the companies, too. In short, *R/C Car* does its best to work with everyone (I know I'll get bit in the behind for this, but I just had to say something!). So next time someone tells you that the magazine just said it was great because company "X" pays them a lot of money, just think of *R/C Car* and your old pal Skinny and know that we're like Switzerland—neutral.





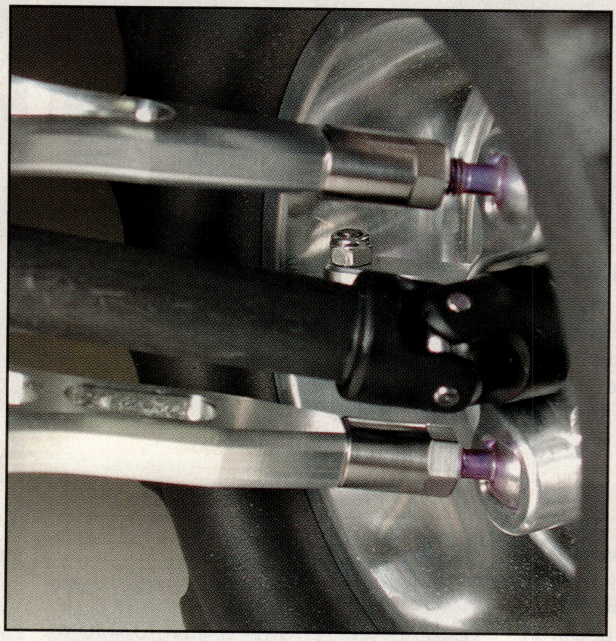
I SPY WITH MY LITTLE EYE!

I went to Hardcore Racing's "Chaos Christmas party" for the purpose of sneaking around a little and getting some spy shots.

Look what I found; Santa's helpers have been busy. While the entire gang were out racing and jumping their cars in the parking lot, I snuck into the plan-check room, and look what I found: an extended aluminum T-Maxx A-arm. I found the old style A- Arm sitting by it, so I snuck a shot of them together to give you a better idea of the difference.

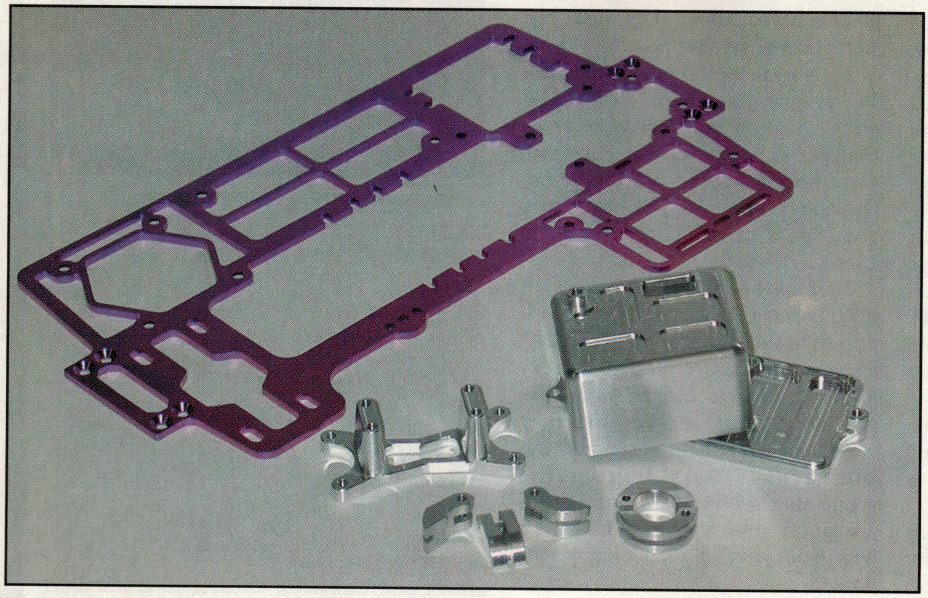


BY BRIAN SKINNER



As I turned to put the parts back, I saw a Mutant Maxx sitting in the corner; it looked different, so I had a closer look. Lo and behold, it had these cool Ti extenders on current A-arms that pushed the wheels out to where the new 2.5 T-Maxx dimensions are. Now that's a good idea! There are a lot of older T's out there that could use these! I would suggest you call Hardcore and ask about these new items, but don't tell them I told you. I had a blast at their party this year, and want to get invited back for 2003!





UPDATING THE HARDCORE FILES

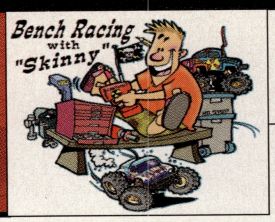
Speaking of HCR, I've wanted to show this photo of some new things HCR has got, but Frank (that editor guy) keeps sidetracking me! Since I was breaking the news on the parts I found at the party, I thought "What the heck? I'll do this, too!" They've been out for a while now, but I haven't seen much on these new parts, so here you go.

That purple thing is their new Pro T-Maxx chassis and it's way cool! Made of Ti and very strong, it's also extremely lightweight. I have been testing one here at the mag for five or six races now and it's sweet; easy to clean and to get to all the parts, too.

Also new for this year is the engine mount, receiver box, and clutch shoes for the T-Maxx and for 1/8-scale clutch systems. All smartly machined from 6061-T6 U.S. grade aluminum. The finish on these parts is truly eye-candy, and you can't help but get all tingly when you see parts this chi-chi!

I have this full setup on my small-block T-Maxx, and of course they work just fine. The engine mount and aluminum shoes were just the trick for me, as I have busted so many stock mounts that it was a blessing when HCR gave a set to us to try out. I would suggest the shoes too if you're looking for more "hit" from your truck. Ever since I started testing aluminum clutch shoes I have fallen in love with the performance and longevity of these babies, and will stay with them until I see something better come along.

[Truck Column]





ATOMIK R/C

Spencer, that fun-loving guy at Atomik, has been busy lately; not only making new bodies and graphics for your monster truck, but swelling his ranks as well. Congratulations on your baby girl, Spencer, did you go with my suggestion and name her Atomik? Anyway, Atomik's got some great new graphics, and at good prices too! Let me remind you that not only do these bodies come pre-painted (or clear for your personal paint job), but the Lexan is much thicker than that of most bodies on the market. So check them out; remember, he's got a kid to put through college now! Call Atomik at (805) 499-7003 or visit online at *www.atomickrc.com*.

THE *www* FILES

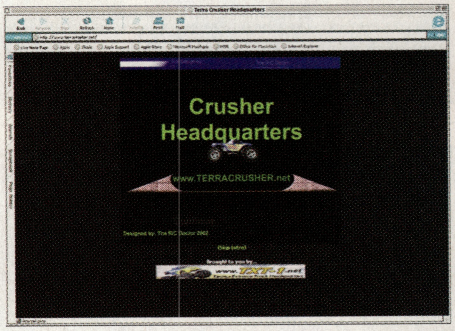
Frank is always asking me for MT sites to go to. Finally he just said; "Skinny! Why don't you list some places in your column, that way I can just get them from your page as I go through your files?" Alrighty, Frank, here you go! And to my fellow MTs out there, check 'em out. I visit these places all the time and check up on what's going on around the world. Heck, I even learn things too! By the way, for you people here in the U.S. of A., check out Maxxbashing in the UK. The boys from across the pond are going off on monster trucks. Seems the MT bug has bitten them too! So help them out over there, and tell them Skinny sent you!

HINT: Use Google! This search engine works the best for finding sites; I have never failed to find a website with Google.

1. *www.maxxtraxx.com.* This place is *the* spot for MT people. I think maybe you might know of the place, but for the new people coming into the hobby, go here. Be warned, though; this site gets a lot of people, and some of the posts can be kind of sketchy, but then again, most places have some, let's just say, "interesting" people posting.

2.) *www.terracrusher.net.* For you TC people out there, this is the place to go. If you like your Terra Crusher like I do, you can get some great hop-up ideas from this place. For non-TC people, they have some good ideas on this site that cross over to other trucks, too.

3. *Maxxbashing.* Just type in Maxxbashing in Google and it will pop right up. This is a site in the UK; it's very new, as are monster trucks in the UK! These "blokes" have now got the MT bug, and I'm sure they would love our help getting all the latest from us "Yanks" stateside. The group that are regulars on the site are good guys and would love to hear from you. Tell them Skinny sent you!





NEWS FLASH!

This just in! It seems ROAR (or one of those sanctioning bodies) actually sees that we monster truck folk like racing, and are working on making rules for a class for MTs. I'll try to find out just who it is and get back to you, but if you know anything about this, contact me here at the mag. If this rumor is true, we need to start sending in our suggestions quickly! I really don't want them to dictate to us what we can and cannot do with our trucks for racing. After all, that's what makes MT's so fun; run what you brung! That's what I like. This is just a rumor to me thus far, so help me out here. Thanks.

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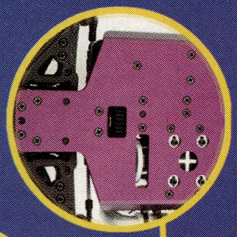






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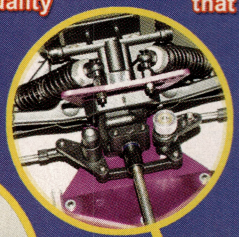
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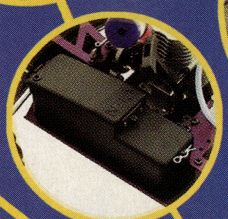
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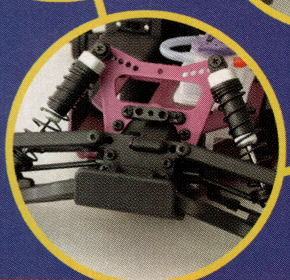


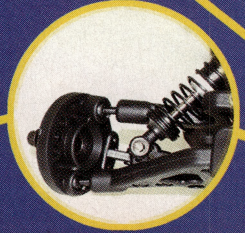












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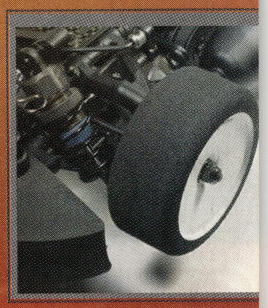
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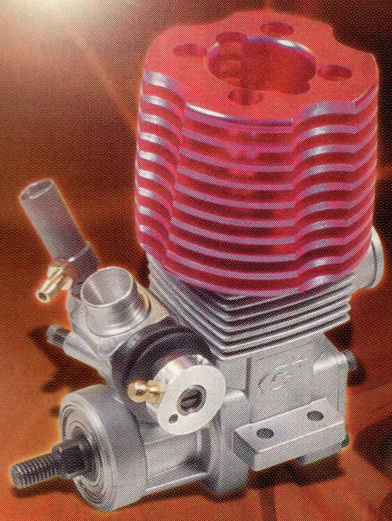
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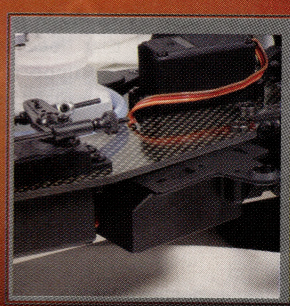
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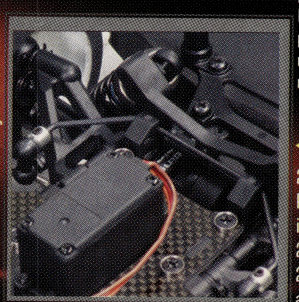
75cc Fuel Tank w/spillguard and internal fuel filter.



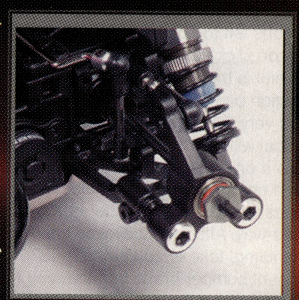
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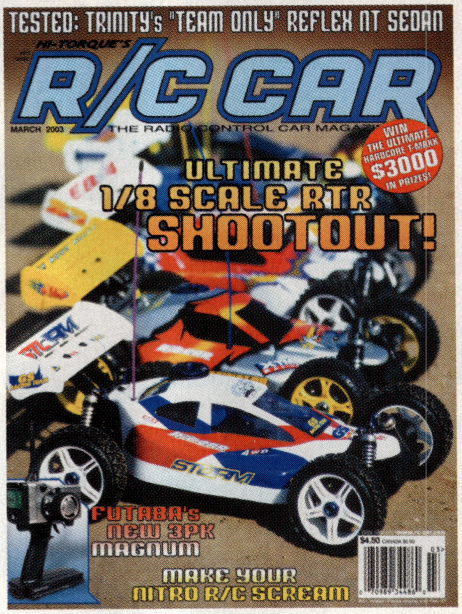
TEAM LOSI TECH-TALK

Tech Tips #14

The **XXX-S Sedan** has shown its potential by winning national and international championships. The product of this race experience is that the Team Losi development team has come up with new ideas and parts to enhance the performance either in general or for particular track conditions. The new XXX-S Graphite Plus model has most of these new parts included but many of you XXX-S owners will find them beneficial for your track as well. The first items are the A-9854 "offset" rear hub carriers and the A-9860 rear arms needed to use them. These parts change the rear suspension geometry drastically and offer improved performance on smaller tighter tracks. Specifically, you will find that the chassis rotates in turns a bit easier and squares up on exit quicker. This is often referred to as "point and punch" and describes most indoor and carpet tracks. The rear hubs are also available with an extra 1/2° (A-9855) and extra 1° (A-9856) of toe-in per side. These toe-in hubs allow you to either add or subtract rear toe-in. Reducing the toe-in typically frees up the back of the chassis allowing it to rotate easier. The cost for this freeness is a little less forward traction. Adding toe-in locks the rear end in harder and can slow down rotation but increases forward traction and stability under acceleration. So there is always a trade off these hubs just allow you to find that perfect balance for your track conditions. The new A-9860 rear arms serve double duty as they also have the correct mounting holes for the existing stock and stock toe-in rear hubs as well as the new offset hubs. This feature allows you to easily change between the two different types of hubs as track layouts or surfaces demand. The rear arms and all of the offset hubs are molded in Team Losi's exclusive graphite/composite material for both extreme strength and lightweight. The new A-1229 front and rear low-roll center pivot blocks are useful on both indoor and outdoor tracks. The stock front roll height is ideal for a great deal of track conditions and has proven very easy to drive. Lowering the front roll center allows the front to roll easier giving quicker response and added steering. This would be especially good for high bite and carpet tracks. The rear generally benefits from the lowered roll center on a great deal of tracks including carpet. The lowered set-up allows the rear end to rotate quicker in the center of the turn. The higher roll center keeps the rear flatter through the turns but transitions left to right quicker and may prove to be better on slick surfaces. Another new item you may find useful is the A-3250 Front Spool Pads. Using these friction pads and removing the balls in the diff make it a very limited slip solid axle. Running the front spool will give your car less off-power steering, but like a one-way, it will give you more forward drive and on-power steering. It also tends to make the chassis more stable under heavy braking unlike a one-way. Although they won't have an effect on the handling, take a look at the A-4238 upper body mount/bumper brace and the new A-4233 extra resilient foam bumper. These items really improve impact protection while keeping the body in place. Speaking of bodies, if you haven't already seen the A-8053 Alfa 156 used on the XXX-S Graphite Plus look around the track. This body has proven to lower lap times and is very popular with the traveling racers due to its excellent balance and spectacular lap times. If you don't think the body makes a difference just ask a pro and they will tell you. As always, Good Luck & Good Racing.

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[FEEDBACK]



LOOKING FOR GPM

Hello, can you please give me information from your "Readers' Projects" page in the August '02 issue? I believe it was called "SAC-TOWN E-MAXX" by George Vangelatos of Sacramento. He equipped his impressive E-Maxx with an aluminum GPM transmission that he ordered from Hong Kong. So my question is, can you help me find contact on this company or give me George's e-mail? Thank you very much for your help.

Karel
Via *rc-car.com*

Karel, GPM products are available in the US through Hobby Etc., 90 West Pearl St., Nashua, NH. Their number is (603) 883-4919.

ON THE BLOCK

I was very intrigued by Richard Trujillo's article on the Kyosho Optima. I own a never assembled, still in the original box, never touched Losi JRX-T. I looked over the web trying to find an approximate value. Do you know of any websites where I could possibly find the vehicle's value? I am not interested in selling it, but I am fairly curious as to what it may possibly be worth. Thanks.

Jason Oakes
Via *rc-car.com*

Jason, we couldn't find a mint-in-box JRX-T either, but we recommend that you periodically check eBay (www.ebay.com), as it is the largest and most popular of the online auction sites. We're not certain of the JRX-T's status as a collectible, but given enough time, just about everything becomes sought after by someone.

SQUEAKY WHEELS RESPOND

After reading your January issue in the editorial, Frank asked for input on different types of racing—oval to be exact. I am like the other guy who wrote asking for more oval articles. There are a lot of races going on around the country; you just have to look for them. I wish all the magazines would cover this segment, as there are companies and pro drivers going to these races. This tells me there is interest; just not as big as the Maxx. I think if you took a good look at this segment you would find it worth your while to publish material and stories, because if you were the only magazine doing something for us, there would be more of us buying your magazine. Thanks for your time and I hope to see oval in your fine magazine.

Chuck Manning
Via *rc-car.com*

Here is a squeaky wheel. In your article you stated that "because manufacturers aren't supporting the category aside from maintaining their current customer base. As a result, there's not much new product for the magazines to cover, and new products to drive interest." Then why do oval racers

have several new cars to choose from? Associated has come out with the 10L4O, Hyperdrive has the 700 EASE, a new company called KSG has a new car called the Extreme CS (corner speed), and KGB has a new car, just to name a few. I know that these are mostly small companies, but they are out there and they deserve the credit for their hard work. So are magazines responsible for oval racing (or any other small segment) not being popular? I don't think that you are responsible, but you don't help our cause either. I have helped several people get started in R/C oval racing, and every magazine that they pick up has no oval coverage in it. I believe with a small amount of coverage in your magazine, more people would know that oval racing is out there. The more they see, the better the chance the will come out to an oval race to join in the fun. The only place that we have to get new information is on the Internet.

Troy
Via *rc-car.com*

I think that the article you wrote was just fine (January's "Drivers' Stand"), but I don't think it's the manufacturers that drive this sport (yes, sport), it's the people that race. The notion that if you build it they will come is not always true. It should read "if you build it and they like it then they might buy it." I'm sure that you missed more than you mentioned. But I feel all in all you're doing a good job, so keep it up!

AJ
Via *rc-car.com*

WANTS MORE SUPERTENS

I really like your mag, and I buy it monthly. The car tests are really interesting, and what I would like to see is the Kyosho TR-15 Rally tested some day—maybe even with an O.S. four-stroke engine. I know there are a lot of thumper fans out there these days. Over the past years, one article I really enjoyed was the battle of SuperTens where two modified Supers, one with two-stroke and the other four-stroke, were run for comparison. It made me purchase my two supers eventually. They promised a continuation for that, but it never came. What about doing that in the future, too? Thanks a lot for your great magazine.

Mika Rinne
Via *rc-car.com*

Mika, look no further than ????? issue for the latest on Kyosho's new TR-15 Rally chassis. Our resident rally nut Mason Solo takes a look at the new Kyosho Subaru Impreza. Check out his "Rally Planet" feature elsewhere in this issue. As for the SuperTens, we do have something in the works, but there's no decision on when the finished article will be printed. Stay tuned, and your patience will be rewarded.

SHIFT POINTS

I have just purchased a GS Vision RTR 1/10-scale R/C car. It has a two-speed transmission, but I cannot grasp how it changes gears and I am convinced that it is stuck in second gear because I cannot hear it change. Can somebody explain to me how the gear changing system works in these cars?

Ashley
Via rc-car.com

The Vision, like many higher-end racing nitro sedans, uses a clutch-style two-speed that works through centrifugal force. As rpm builds, the clutch shoes are flung out and the second-speed is engaged. When the rpm is reduced, the shoes close and the car "downshifts" into first gear. If the clutch is set too tightly (the screw or screws are turned in too far), the centrifugal force generated by the engine won't be able to overcome the force of the clutch springs, and the shoes won't open. If the clutch is set

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[FEEDBACK]

too loosely, the shoes open almost immediately, and the car will seem as if it is starting out in second gear.

HANGIN' OUT BACK

I just got back into R/C cars, and I have a question about gear ratios. What is the difference between using a 85-tooth spur gear and a 21-tooth pinion gear or using an 88-tooth spur with a 22-tooth pinion?

Duane
Via rc-car.com

Duane, although the resulting ratios are the same, using the larger spur gear will move the motor further rearward in the chassis, thus "hanging" more of the chassis' weight out beyond the rear wheels. This will generally provide more rear traction and less steering. For tighter tracks, using the smaller spur gear - which will move the motor forward - will usually provide improved steering response and will allow the vehicle to turn more quickly.

IN SUPPORT OF MONSTERS

Just wanted to say thanks for the excellent coverage in the February '03 issue of our All American Monster Truck Championship Race last September. Having Brian Skinner here was great PR, both for your publication and for the sport in general. I cannot tell you how much impact this article has had for the overall attitudes of our local racers and the amount of pride it has generated within our organization; it has been very positive and uplifting. Everyone is looking forward to a great '03 racing season and future events that hopefully will be covered just as positively. Is there someone I can contact for additional information regarding future events and information regarding advertising in your magazine. Please relay to Brian our many thanks for his coverage and thank you very much for your support of this great pastime.

Rick Noack, owner
Delta R/C Raceway and Hobby

E-mail your letters direct to the editors! You can get ahold of Frank Masi at evaone@pacbell.net. 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

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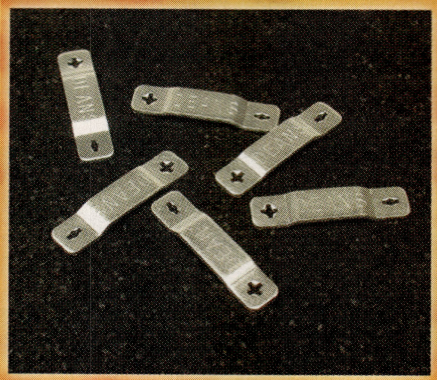
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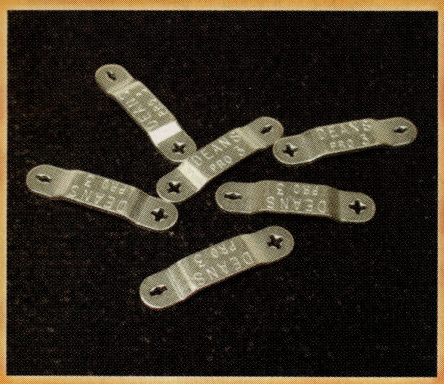
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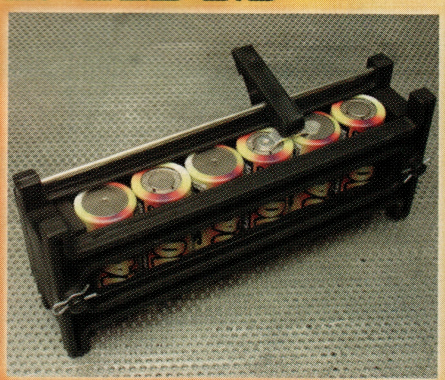
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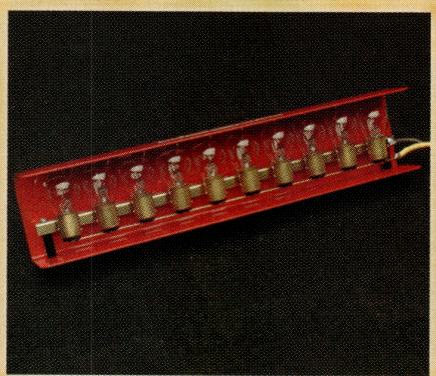
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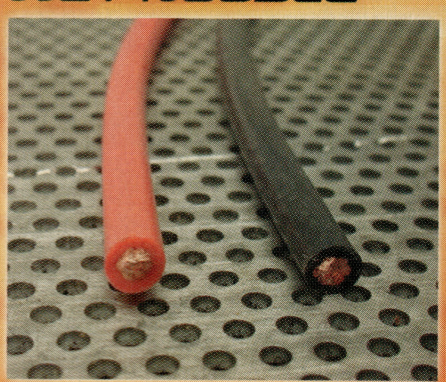
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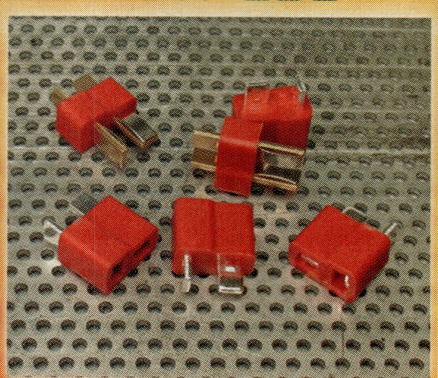
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MUGEN SEIKI

If you mention Mugen Seiki Racing, you will realize that its heritage includes a number of National and IFMAR World Championship Titles. With their vast experience in nitro-powered vehicles, Mugen Seiki has just released the new MST-1 into the hotly contested 1/10-scale Nitro Stadium truck class. While the kit, parts and box appeared to be top-notch, let us get to the building and racing part of the test to determine how good the Mugen Seiki MST-1 really is.

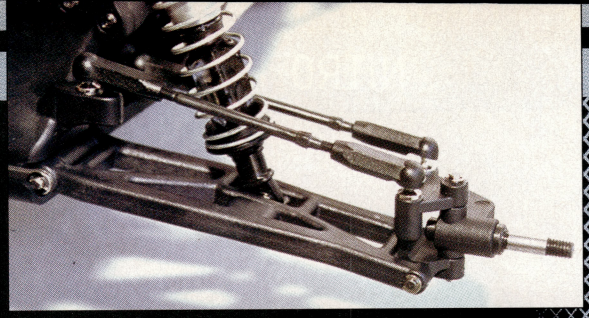
THE BUGGY MASTERS ENTER

2WD UNASSEMBLED KIT NITRO POWER

MST-1



THE TRUCK SCENE



OUTSTANDING FEATURES

OUTSTANDING FEATURES

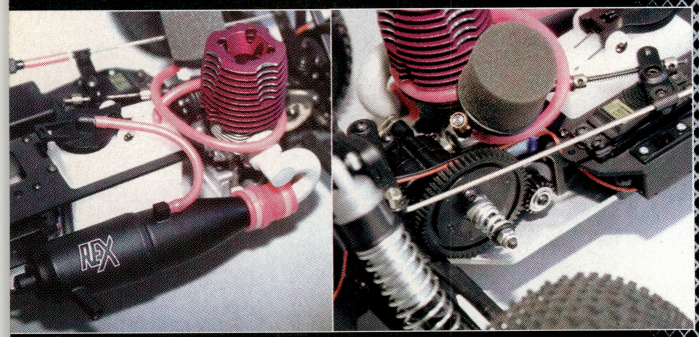
COMPOSITE COMPONENTS

Virtually all of the MST-1 is produced in plastic composite components that are thick, beefy and built to withstand the rigors of the 1/10-scale nitro truck racing category. From fore to aft, the MST-1 is adorned with this virtually flex-free plastic composite. From a performance standpoint, these parts will allow the racer to have a vehicle that has consistent handling characteristics and the strength to back it up.

CHASSIS

The chassis of the MST-1 is 3mm-thick hard-anodized aluminum. There is virtually no flex with the chassis alone and zero when the kit is put together. The bottom is countersunk nicely, allowing friction-free landings in case the truck bottoms out.

The MST-1 has been designed with form and function in mind when it comes down to the maintenance process. Almost every component, from the radio gear to the motor, transmission and pipe, is readily accessible at the turn of a few screws.



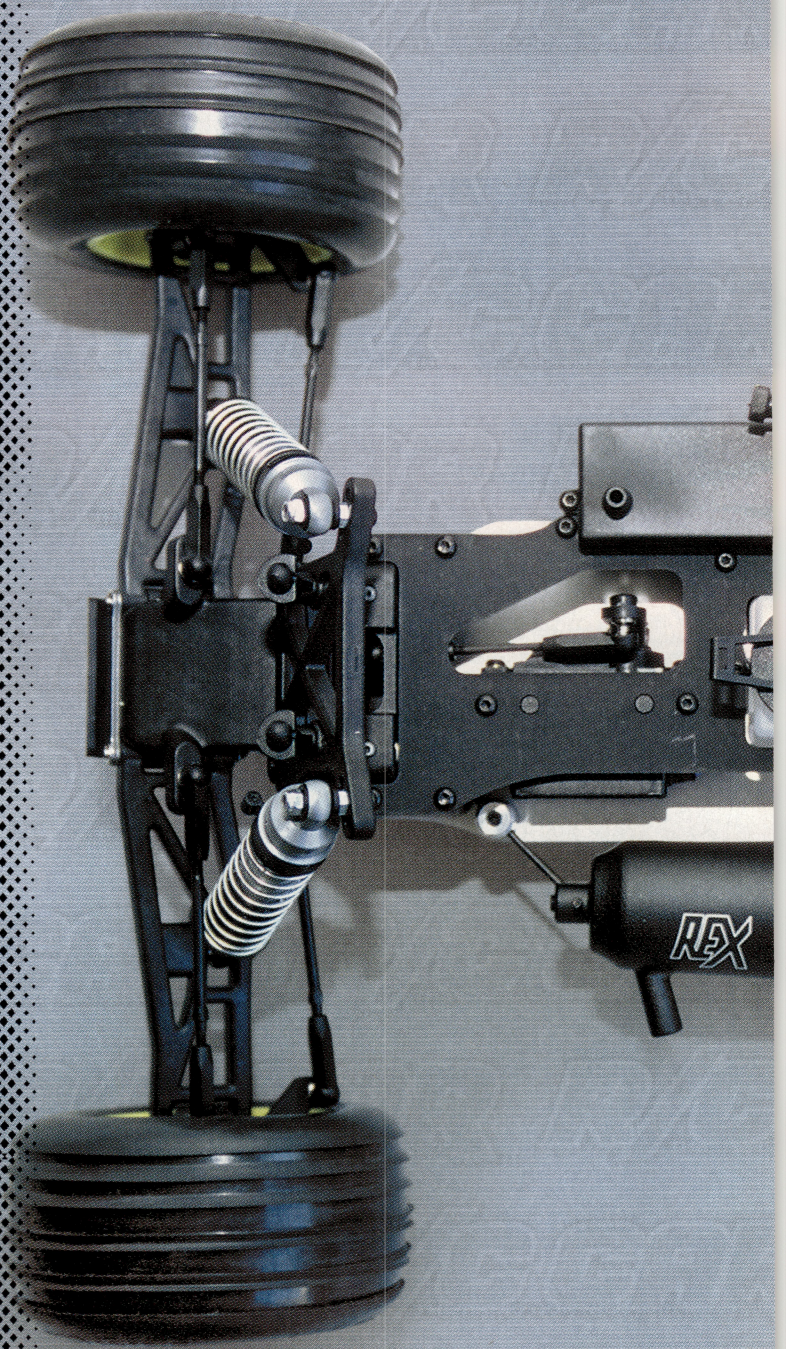
ENGINE & TRANSMISSION

A well-designed transmission provides the power transfer in the MST-1. From the smooth ball differential to the functional slipper clutch, the transmission appears to be top notch. The brake rotor and cam assembly attaches to the opposite side of the idler shaft and does provide the MST-1 with precise and reliable braking. The instructions do provide close initial adjustments of the differential, slipper and brake adjustments, but final adjustments are mandatory when the MST-1 hits the track. With any high quality ball differential, make sure that the diff is *not* allowed to slip under *any* circumstance. High quality ball bearings are used everywhere, especially in this transmission.

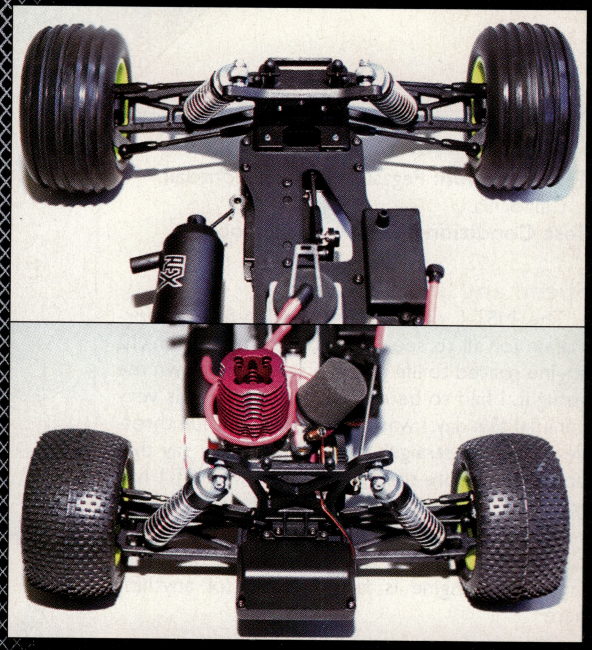
Included with my test kit were a Mugen .12 engine, slide carb and Rex pipe. This Mugen .12 engine has been seen at tracks all around because of its speed, reliability and ease of tuning. It is a definite powerhouse from my past experience and will surely be ample horsepower for the MST-1. The clutch supplied is a two-shoe assembly with a surrounding spring.

SUSPENSION

Loyal Mugen racers will recognize the familiar hard-anodized aluminum shocks on the MST-1. Brought over from Mugen's 1/8-scale buggy, these oversized dampers will surely provide smooth, reliable and consistent performance.



MUGEN SEIKI MST-1



needed for those hour-long mains. From the upper damper cap to the lower shock boot, these babies are nice! Completely built, the MST-1 provides impressive ground clearance to handle the roughest of the circuits out there.

In the front, the suspension of the MST-1 appears to be straightforward and functional. Caster is at 30 degrees and the camber rod is mounted in a vertical position, which allows the user more finesse in tuning for high and low traction conditions, and on and off-power steering characteristics.

The rear suspension offers multiple tuning options such as two, three and four degree toe-in blocks, spacers to alter the wheelbase by as much as 4mm, eight different camber-link mounting positions and rear axles with two positions for the cross pins. Mentioning the axles sounds trivial, but I have found that this is a very user-friendly feature that will prolong the life of the axles once one set has been worn out. My recommendation is only that you use the same set of holes for both sides. If you are wondering, pay close attention to the wheel cross pin on part L0207 when building and use the same set of holes when building your axles.

On both front and rear, multiple upper and lower shock mounting positions are available for fine-tuning, and adjustable turnbuckles for easy changes. Also worth noting is the efficient and geometrically correct dual-bellcrank steering assembly, functional servo saver and near-zero bump steer front suspension—all "thumbs up" features.

TIRES & BODY

Mugen took zero shortcuts here and offered the proven Pro-Line tires and body as box-stock items. The Edge fronts and Bow-tie rears will provide ample traction for the racer and enthusiast. The Crowd Pleazer body offers the MST-1 an aerodynamic and sleek look for both function and form.





MUGEN SEIKI MST-1



REPORT CARD

Test Location: Pegasus Hobbies, Montclair, California

Test Conditions: Dry, rough and loose

Speed and acceleration: A+

The MST-1 displayed its friction-free performance for all to see at the track. The Mugen .12 engine roared to life and just screamed down the straight. I had to be careful, as traction was very minimal this day. I was never able to hit full throttle down the straight, but I could easily say that power was more than impressive. The MST-1 had good coasting speed throughout the layout. Even with the lack of traction, the MST-1 could easily clear all the sections with short blasts of power. Gosh, this engine is fast! No lack of anything here!

Braking: A

I had to grab my M8 and turn down the brakes because it was all there. Since the surface had minimal traction, the brakes would literally cause the MST-1 to spin out. Turning down the brakes made the MST-1 very responsive and instantly able to carve out intricate and tight lines on the course. Altitude corrections in the air were also fun to watch. Tapping the brakes on a nose-high jump brought the front end down nicely, lap after lap.

Low Speed Steering: B

Lifting the throttle and letting the MST-1 coast through the turns was the most efficient method of the day. It seems like the MST-1 had too much static damping here; maybe a choice of different shock springs, pistons or oil would have helped.

High Speed Steering: B

No problems here. I usually run my slipper kind of on the tight side, so grabbing a handful of throttle swung the rear end of the MST-1 around nicely. Not out of control, but in a consistent fashion—one that I use quite often for racing.

Jumping: A

Hang time galore. One of off-road's biggest selling points is air time. There is nothing like watching an off-road vehicle soar through the air, and the MST-1 did not disappoint. Again, I would like to have had lighter suspension damping, but since this was a box-stock test, I would have to say that the MST-1 was built to jump. Adjectives included: flat, level and controlled.

Durability: A

Good grades here. Nothing broke. I had a ball cup pop off, but nothing failed—a firm testimony considering the amount of abuse that I put the MST-1 through!

SPECS

Price:	$459.99 w/engine; $279.99 w/o engine (varies with dealer)
Length:	16.73in/425mm
Width:	12.8in/325mm
Wheelbase:	11in/280mm
Track (f/r):	10.6in/270mm; 10.7in/272mm
Weight:	1950g
Chassis:	3mm aluminum plate
Suspension:	ind. lower arms, adj. upper camber links
Drivetrain:	three gear sealed
Diff(s):	adjustable ball diff
Damping:	Aluminum oil-filled shocks
Bearings:	Steel ball-bearings
Tires:	ribbed fronts, block-tread rears
Wheels:	one piece dish

Final Score

HIGHS: The Mugen Seiki MST-1 is different, and that's a positive attribute. With the proven Mugen Seiki racing heritage and plentiful factory support, the MST-1 will surely be a great racing vehicle. All the parts in the kit are strong, the motor is super fast, and the truck is ready, willing and able.

LOWS: The suspension needs more optional parts such as shock pistons and springs. The Mugen .12 engine should have a rotary carb for more precise throttle controls. I'm not saying that you cannot be competitive with the existing suspension, but more options would be a welcomed feature.

THE VERDICT: Mugen Seiki Racing has unleashed a very competent and potent contender in the 2WD nitro stadium truck class. The MST-1 is a very agile truck that is more than willing and able for the most serious levels of competition. Whether you get this truck because it is different or because of the good factory support, you can be assured that you will have a winner in your hands.

SOURCES

Airtronics: 1185 Stanford Court Anaheim, CA 92805, (714) 978-1895
Mugen Seiki Racing: 20914 Bake Parkway, Suite 106 Lake Forest, CA 92630, (949) 707-5607
Pro-Line Racing: 201 W. Lincoln Banning, CA 92220, (909) 849-9781

SIDEWINDER



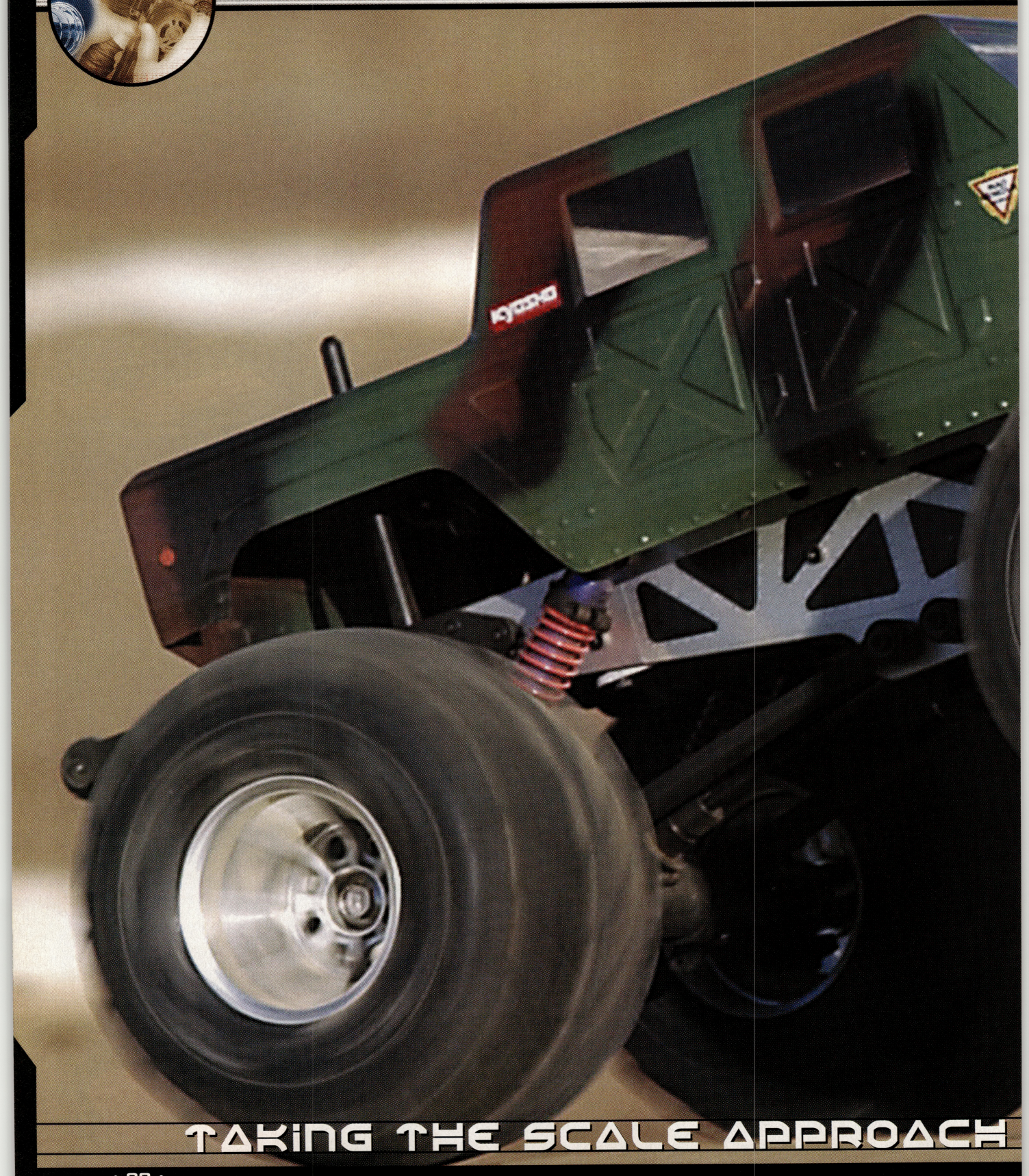
team 03 : jimmy babcock greg degani jeremy kortz travis amezcua

wins
1 Kyosho Challenge 2002 (1/10)
1 Sidewinder Nitro Explosion (1/8)
1 Pro-Line Nitro Maxx Challenge 2003 (1/8)
1 Norrca Nats 2003 (1/10)
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1 U.S. Gas Championship 2003 (1/8)

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KYOSHO



TAKING THE SCALE APPROACH

MAD ARMOR



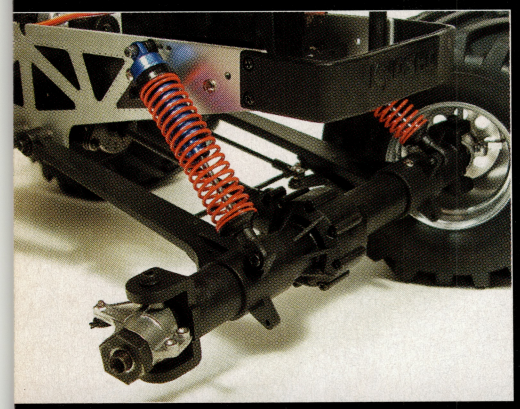
It seems Kyosho has been in the monster-truck-jam mood lately. First the Mega Force, then the Mad Force, and now for your consideration, the Mad Armor (are they mad?). We test it all here at *R/C Car*, and the new Mad Armor is no exception. A direct descendent of the Mad Force, the Mad Armor shares all the great things the Mad Force has, but Kyosho has added a cool U.S. military-style Hummer body. Now you and your buddies can have mock battles between the Kyosho Mad Armor and the soon-to-be-released Tamiya Wild Commando (which is based on the Terra Crusher truck). The Mad Armor is definitely well-suited for battle out in the wild. With its true monster truck suspension, you will be able to go four-wheeling in the gnarliest of places. The Mad Armor is great for backyard bashing, and more than capable of climbing the steepest hills and tackling the rock crawling sections with ease. Yes sir, we had a blast looking for obstacles and areas to test the Kyosho's amazing low-end power and tall suspension, and seeing what kind of trouble we could get into. Tired of putting around and trying to conquer that hill? Turn the Mad Armor around and head for that long open section and let it rip! This thing has speed too! Enough of the small talk, let's see what makes the Mad Armor tick.

TO MONSTER TRUCKING

FIRST THINGS FIRST

In our opinion, the Mad Armor is best suited for bashing and going four-wheeling; these are the types of activities you would love to do with this type of monster truck. Although you could go out and race the MA, this is not the style of truck to do that. It would be like pitting the Grave Digger against a pre-runner desert truck; they are built for two completely different things.

Out of all the nitro monster trucks out there today, the Mad Armor is the only one based off a true monster truck, e.g., the Grave Digger, Bigfoot, etc. Although we have seen another of these true nitro monster truck style vehicles in the works from another company, we're not going to tell you (we have to keep you in suspense, you know)—not til we get it to test it (hint: next month!).

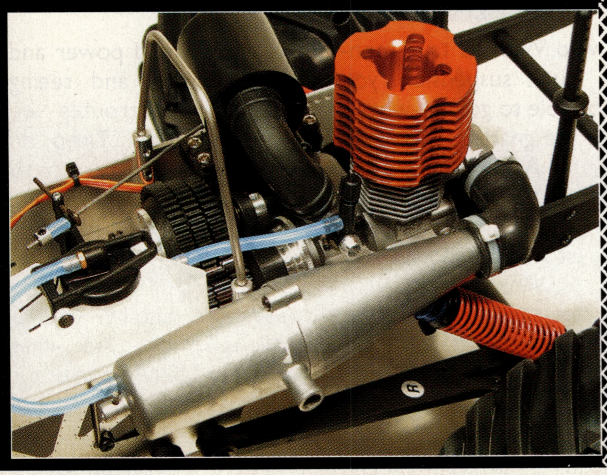


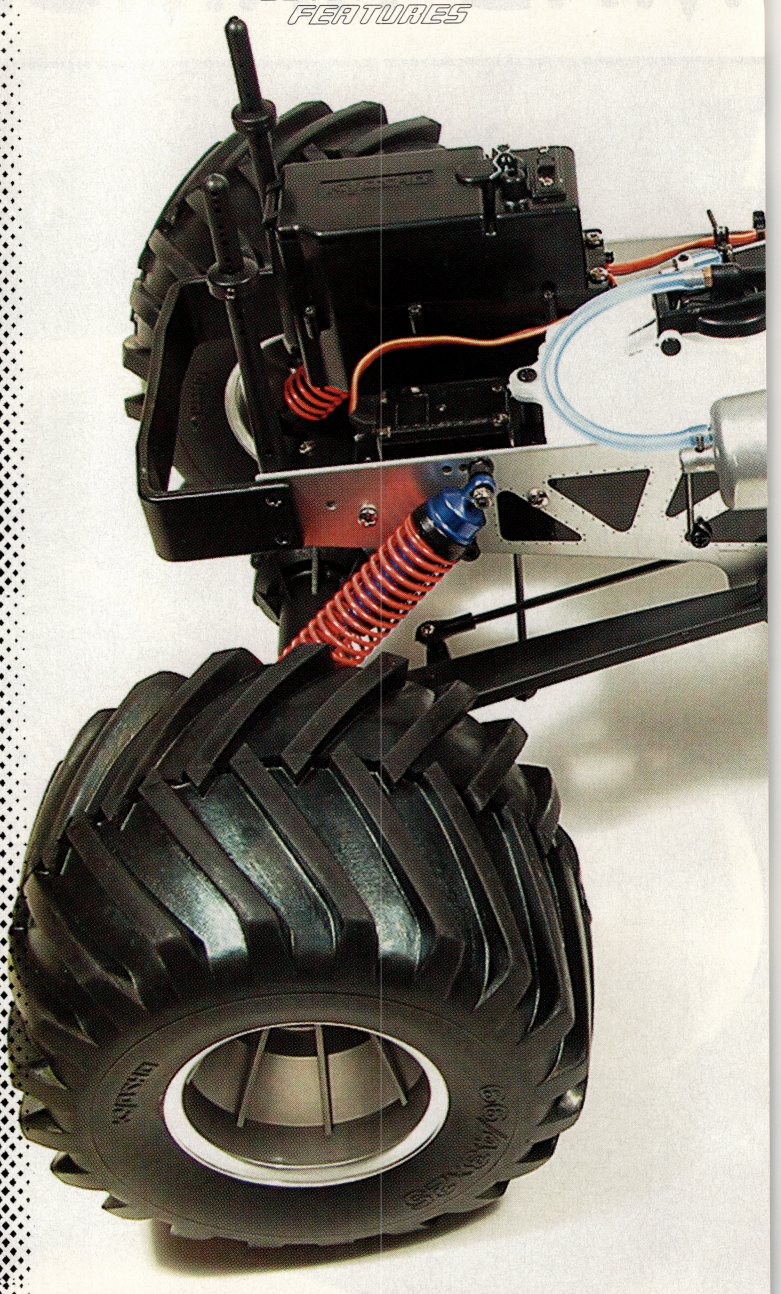
MMMM, BEEFY!

Yes, the chassis is normally the place you hang all your parts on, but in the Armor's case, it is an integral part of the suspension. The differential, trailing arms, shocks and vertical chassis plates all work together to make a unitized suspension configuration, which is really a simplified version of a real monster truck. Needless to say, Kyosho has you covered when you're doing the extreme articulating stuff; mimicking what the Grave Digger does in real life. We love the look of the straight diff setup, and the overall monster truck layout.

One thing Kyosho should look into is the fact that the vertical chassis plates bottom out on the plastic diff housings. A rubber bumper at the contact point might be a good idea. Although we have not heard of one breaking yet, peace of mind would be nice.

Out of the box (note that you have to build this yourself), the suspension is okay for starting out, but as soon as you get to the point of really being aggressive with the Mad Armor, it would be best to go to a heavier shock oil. The shocks themselves are killer, and are based on the world famous 1/8-scale shocks we all know and love. For the Armor's intended purpose, the entire chassis/suspension setup is great.





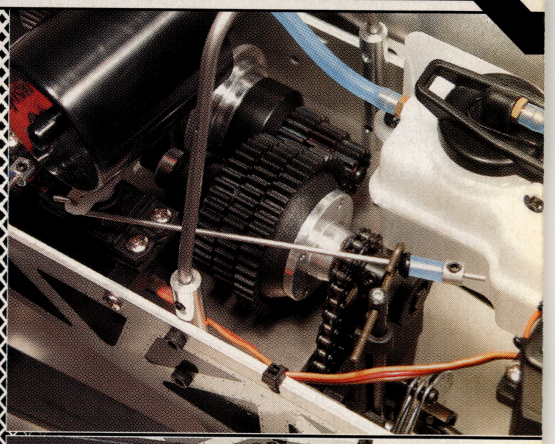
WANT TORQUE WITH THAT BEEF?

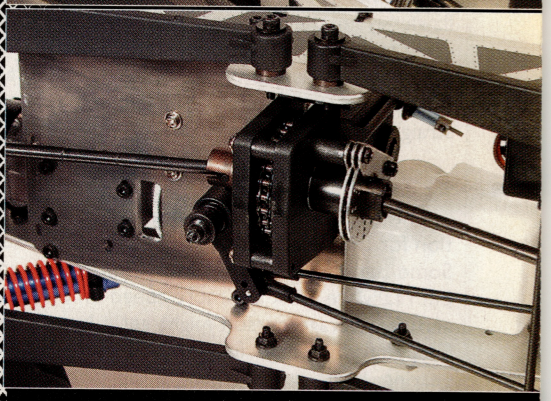
The Kyosho GS21-R engine is perfectly suited for the task of powering the Mad Armor anywhere you want to go. Combined with a three-speed tranny, you would be surprised at the range of torque and speed this thing has. You can putt along gnarly terrain at two mph, then in the blink of an eye, punch it and be going 40 mph before you know it; all with plenty of torque.

The engine is of ABC construction, which will give you longer piston/sleeve life (a good thing). Once broken in, the engine will deliver great power. Another nice thing is the plastic carb, which helps keep fuel delivery constant by not absorbing too much heat like an aluminum carb does (in theory). And out of the box, the Kyosho engine worked flawlessly during the test.

MAD ARMOR







GET YOUR GEAR HERE

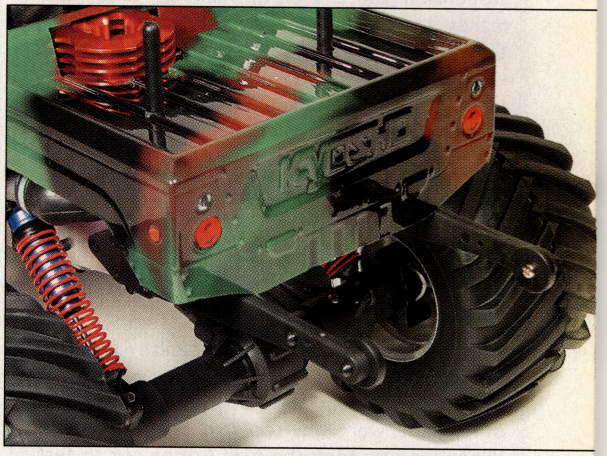
As with the Mad Force, the Armor has a three-speed tranny. The gearing on the Armor is great! Tons of low-end, then right to top-end, we loved it. The gearing is set up so you can have stump-pulling power then on to high speed; it was good for all-around bashing. The unique feature of the tranny is the chain drive that moves power from the gearbox to the transfer case—that is SO 4WD! We just love that idea.

BODY & WHEELS

Since the Mad Armor is the brother of the Mad Force, they use the same wheels and tires. They seem to work fine for bashing, but we wonder why Kyosho doesn't feel the need to include foam inserts. Without foam, it seems that the wheels are a little more bouncy than they should be. Perhaps one day we will be enlightened on this approach.

The body, on the other hand, is cool! We liked the look of the Hummer body sitting on top of the big beast. And thanks for Chris at C&C, we were able to duplicate the camo scheme shown on the Armor's box.





WHEELIE BARS: NOT OPTIONAL

The mad Armor has so much torque and such a short wheelbase that it needs a wheelie bar—this is the "Wheelie King" of monster trucks, and Kyosho knows it! That's why the wheelie bars comes stock; good thinking on Kyosho's part, because it isn't hard to get this thing to stand up!

MAD ARMOR



REPORT CARD

Test location: The Nation's largest off-road track, KZ Speedway.

Test conditions: Sunny and warm, dry to loamy conditions, loose dirt mounds and steep embankment climbs.

Engine: A+

The GS21-R is the perfect match for what the Mad Armor is designed to do. The engine worked flawlessly in the test, and we don't see where going to another engine would be a benefit. The GS21-R was easy to break in, easy to tune and was pretty good about starting and running straight out of the box.

Acceleration and speed: A

The engine and tranny were a good combination for the parameters of the Mad Armor's test. Some people think it could use more top end, but really, we think any more speed on this beast and the average person might get a little "swap-happy" trying to go full tilt with more top-end gearing. In its current gear setup, Kyosho gave you the proper hill-clawing power with an almost controllable top-end. This thing is pretty darned fast for its size.

Suspension: B and C (huh?)

This is a hard one to call. Since the Mad Armor is based off a "true" monster truck design, we would have to give it a B because it works so well in slow crawling and trials-through-obstacles type of conditions. But when you start to turn the wick up on the speed, it soon becomes a bouncing marshmallow. The combination of the suspension and the poofy foamless tires really makes it a handfull to drive at warp speed. So that's why it gets a "C" along with the "B"! If you were to go to an aftermarket tire such as Pro-Line's new Big Joe 40s, the Armor would probably be more stable in all conditions.

Steering and Braking: C

Although the steering is well balanced against the size of the tires and the weight of the truck, it does feel a tad on the slow side. We recommend you invest in a good strong steering servo when you build your Mad Armor (did we mention you have to build this yourself?). After finding this out, we put in a beefy servo and this helped the steering immensely. The brakes, on the other hand, were way too strong—well, sort of. When we first took the Mad Armor out to test, we hit the brakes and the thing stopped with such force that it just flipped right onto its lid! It was pretty cool making it endo. We adjusted the brakes a bit, but they were still too strong. We guess this is a good thing, but we like a little more linear response from brakes.

SPECS

Price:	$499.99 (varies with dealer)
Length:	21.6.6in/550mm
Width:	16.5in/420mm
Wheelbase:	12.4in/315mm
Track (f/r):	12in/310mm
Weight:	155oz
Chassis:	3mm aluminum ladder frame
Suspension:	dual torsion-link, flat axle
Drivetrain:	chain/shaft driven full-time 4WD w/3-speed
Diff(s):	hardened metal gear diffs
Damping:	Aluminum oil-filled shocks
Bearings:	Steel ball-bearings
Tires:	paddle-style rubber
Wheels:	chrome-plated plastic

Final Score

HIGHS: Kyosho really has a great truck here; it is well built and very tough. The engine is first rate, and for bashing around town and seeing how your 4WD skills are doing, the Mad Armor is the top of the heap in this style of nitro monster truck.

LOWS: Nothing really! Our only complaints are personal in nature. If we are to give constructive criticism, we would like to see foam inserts for the tires, rubber bottom-out bumpers for the chassis/diff area, and a better ratio on the steering system. And maybe a fiber brake disc to make the braking a little smoother.

THE VERDICT: This is a great nitro monster truck. It is a good truck for bashing and playing "Mr. 4WD." It is fun to see what you can climb over and to see what sections you can clear with this beast; it is well suited to do this. We would like to see an RTR version of the Mad Armor, and it would be interesting for Kyosho to change a few concepts on this chassis design and make a racer version with it. But as it sits now, we really had a blast seeing what we could do with the Armor. Keep up the good work, Kyosho; we monster truck people need all we can get!

SOURCES

JR Racing, distributed by Horizon Hobby Distributors, Inc., 4105 Fieldstone Rd., Champaign, IL 61821 • (217) 355-9511

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

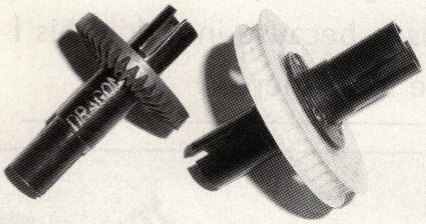
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THE SMOKIN NEWS

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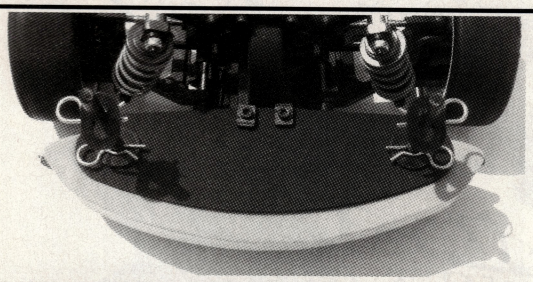
DRAGON'S TC-3 SOLID DIFF'S NOW IN STOCK



Dragon R/C's "NEW" SOLID DIFFERENTIALS for the Associated TC3 are now in stock. This diff will help pull the front end through the corners while maintaining better control when breaking. Included with the TC-3 kit (DR-360) you will receive.

- Lightweight Aluminum Diff Spool
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- Pin Pillows (increase life of your Diff Spool).

DR-260	**Solid Diff Losi XXX-S**	$ TBA - Available Mid Dec.
DR-360	**Solid Diff for Assoc. TC-3**	$ 54.99

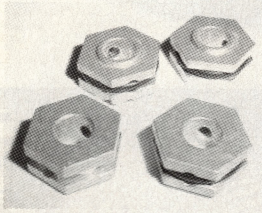


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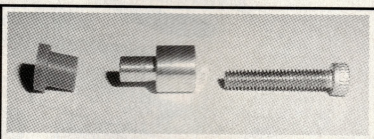


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DR-151	**TRAX. Shock Bushings (T & E MAXX)** (Set of 8 - Available in Red, Blue or Black) (not pictured)	$ 12.99

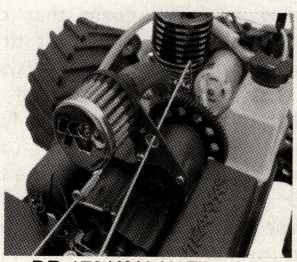
COMING SOON
K&N AirFilters for RC10-GT, TC3 Nitro, XXXNT, RS4-Pro2 & RS4-Pro3, & Traxxas 2.5 T-Maxx

Dragon R/C Products will be releasing their popular line of K&N AirFilters for the Team Associated RC10-GT & TC3 Nitro, Team Losi XXXNT, HPI RS4-Pro 2 & Pro 3 in mid-December. The K&N AirFilter for the Traxxas 2.5 T-Maxx will be available in mid-November.

Dragon's K&N AirFilters will increase the air intake and air pack on these vehicles by up to 25% over the stock paper and foam air filters. K&N AirFilters give you better running, stronger performing engines because they are the most air efficient air filters on the market for Nitro powered R/C cars and trucks.

Dragon R/C's air filter mounting system moves the filter away from the engine so the filter can capture cooler air so the engine can run cooler, ramp up faster, and generate more horsepower.

Dragon R/C also has K&N AirFilter Systems for the original T-Maxx .15 engine and most Big Block .21 T-Maxx conversions.



DR-170 K&N Air Filter Kit

TRAXXAS T-Maxx

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DIALING IN

By Todd "Hodgimoto" Hodge

Your complete pro tuning guide

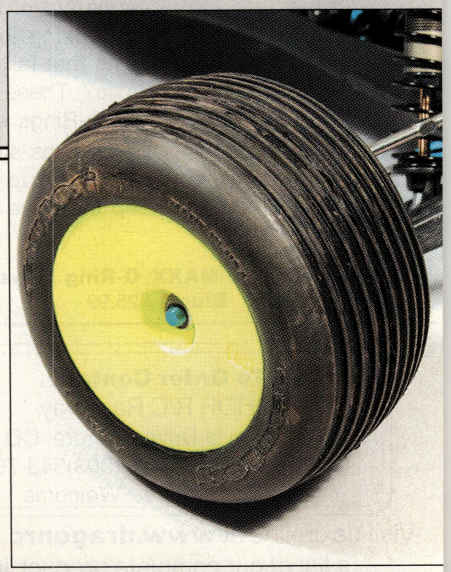
In this article I am going to go over the basic adjustments that I use from track to track on my Team Losi XXX-T Matt Francis Edition. I generally start with the same setup for each track I go to. The reason for this is because in doing this I have a known factor on how my truck will feel. I then tune from there.



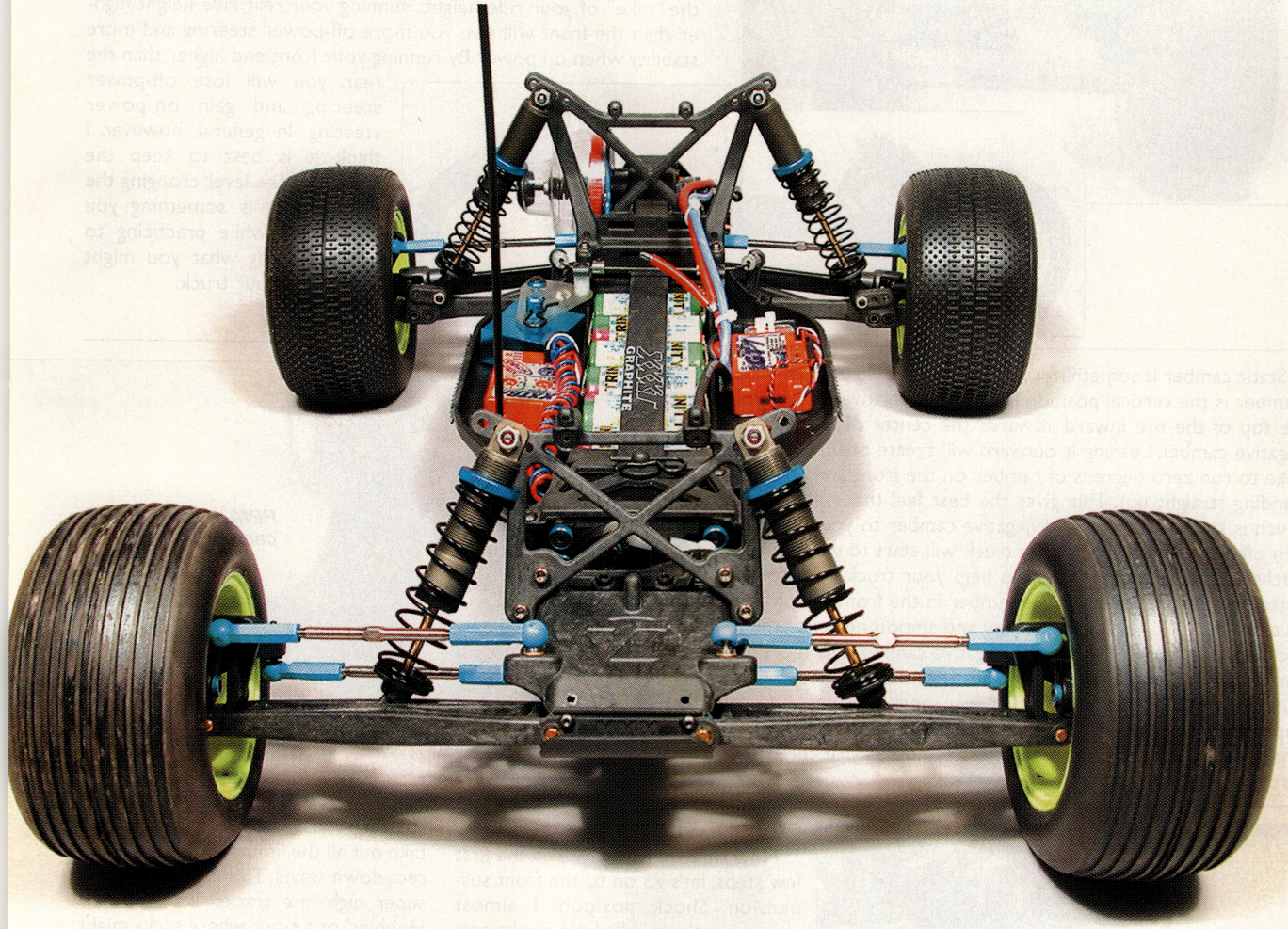
WHERE TO START: HOW ABOUT TIRES?

The first thing I do when I go to an unfamiliar track is to find what other racers are running for tires and foam inserts. This helps eliminate the number of tires and foam I'll have to bring and a lot of the headache of tire testing, which can be time consuming and expensive. Usually what the locals are running is what works on a club-level racetrack. Now on a national-level track, it is harder to say because of the groove that comes up from all the racers and the amount of running on the track. I know that a lot of racers get confused on what tire inserts to run and when to run them.

Here is a little info for you. On a hard packed track, I always use the stock Team Losi firm foam that comes with the front tires. For the rear, I always start with Team Losi firm foam because it has the most traction and goes through the bumps really well. However, if the traction starts to rise I will then start increasing my rear foam hardness to

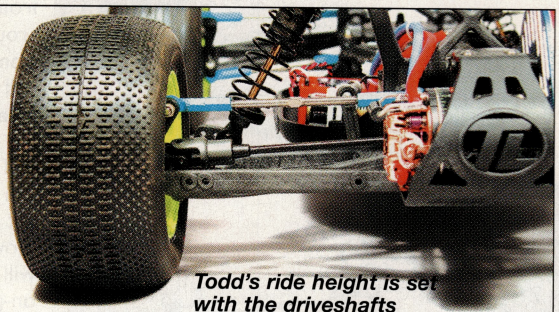


YOUR XXX-T





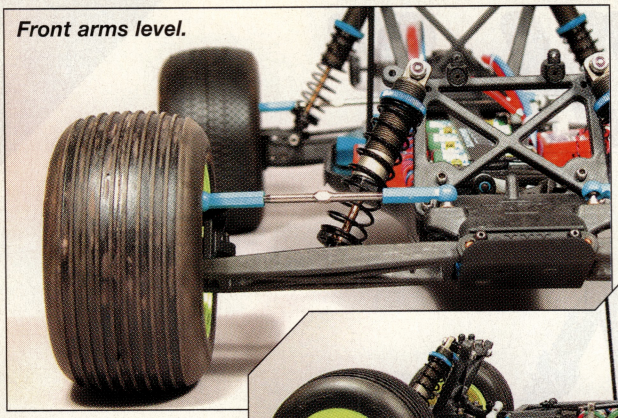
gain more rear stability and more on-power steering. The next step is Trinity Bomb 2 Soft foam, then ultimately to a Trinity Bomb 1 firm foam. The nice thing about the Trinity foam is that it does not break down like other foam. A lot of times I will cut my old foam out of my tires and reuse it. Remember that tires are 80-percent of your setup—don't ever forget that. If you are getting schooled by one of your homies, just go check out what tire setup he or she is running. I am sure it will be different.



Todd's ride height is set with the driveshafts slightly above level.

SOME STATIC IN THE AIR

Now that we have covered tires, let's go on to what should be adjusted next. A lot of people take ride height and static camber adjustment out of the scenario for setups. These are two things that are very important. Generally, I like to run my ride height on my truck with the rear dog bones just above level. I then adjust the front of the truck so that the chassis is level from front to rear. This usually ends up with the front



Front arms level.

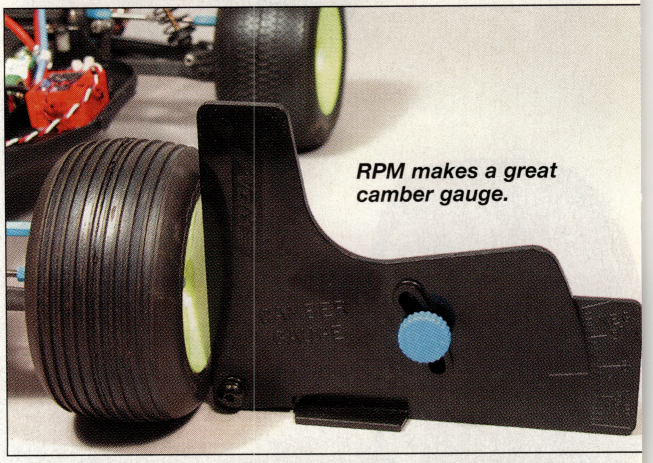
arms being level. By running my truck in this position I am assured it will have good traction and stability. As the traction starts to increase on the track, I will generally lower my ride height to make the rear bones level with the ground. And as before, I'll make the chassis level from front to rear. This will lower the CG (center-of-gravity) of the truck and make it easier to drive.

Another tuning option with ride height is that you can change the "rake" of your ride height. Running your rear ride height higher than the front will give you more off-power steering and more stability when on power. By running your front end higher than the rear, you will lose off-power steering and gain on-power steering. In general, however, I think it is best to keep the whole chassis level; changing the truck's rake is something you should try while practicing to get a feel for what you might like out of your truck.

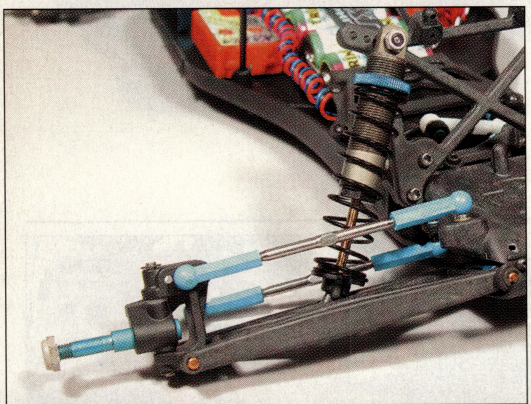


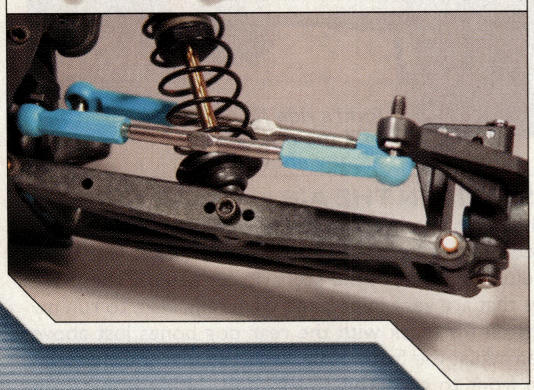
Chassis level from the side.

Static camber is something to which you should pay very close attention. Camber is the vertical position of your tire relative to the ground. Leaning the top of the tire inward, towards the center of the chassis, will create negative camber. Leaning it outward will create positive camber. Generally I like to run zero degrees of camber on the front and the rear (the tire is standing straight up). This gives the best feel that I like out of my truck, which is stability. As you add negative camber to your front tires, you will gain off-power steering and the truck will start to get grabby on high-bite tracks. Negative camber can also help your truck go through the bumps better. By running less negative camber in the front—even going into positive camber—you will gain stability and smoothness. For the rear, I always stick with zero to 1/2-degree of negative camber. Any more negative camber usually makes the truck unstable and it starts to dump the rear end. Running less negative camber or even positive camber in the rear will improve forward traction, increase side bite and the truck will jump better. The only negative side to running less camber is that the truck will not go through the bumps as well.



RPM makes a great camber gauge.





FRONT SUSPENSION

Now that we have covered the first few steps, let's go on to the front suspension. Shock position; I almost always run the middle hole on the arm and the second hole out on the shock tower. I feel this gives the best overall feel. Here is what you would expect from moving your front shocks around. As you start to move the front shocks out on the tower, you will gain responsiveness and off-power steering. As you lay the shocks in on the tower, you will gain a smoother feel and less off-power steering. This can be good when your truck starts to get grabby on the front end. As you move the shocks in on the arm you will gain off-power steering and lose on-power steering. You will also have to add some limiting to the front shocks to get the same down travel. A stiffer spring will also help when running the inside hole on the arm since the front shocks are going to feel softer once they are moved in on the arm. Moving the shock to the outside hole on the arm will give you less off-power steering and more on-power steering. Most likely you will have to take out all the limiters to get the correct down travel. This can be good on super high bite tracks like Hot Rod Hobbies' or a track where slicks might work.

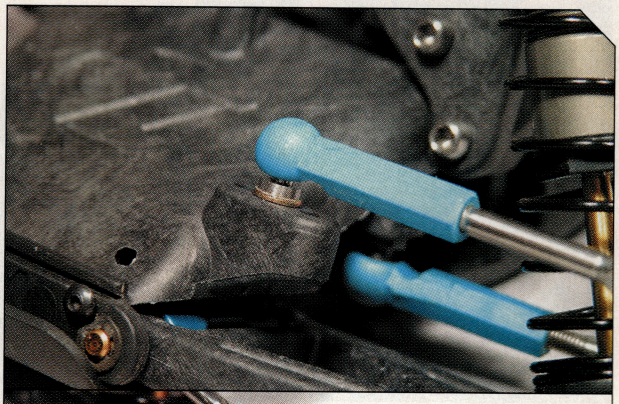
For springs, I like to keep it fairly firm. A red spring is what I normally run and it keeps a good balance. As you go stiffer on the front spring, the truck will react faster and the front suspension will remain flatter during cornering. However, going too stiff can cause the rear end to dump over when you're on the throttle, which may give you some on-power steering. As you soften up the front of the truck, you will gain rear traction and more off-power steering. For oil and piston, I like to run 35wt shock oil with no. 55 pistons. I feel this helps keep the truck flatter through the turns and helps when hitting jumps. This also helps keep the truck stable through bumps. Depending on your climate, 35wt might be on the thick side. If you are in a colder climate you might want to run 2.5 to 5wt lighter oil.

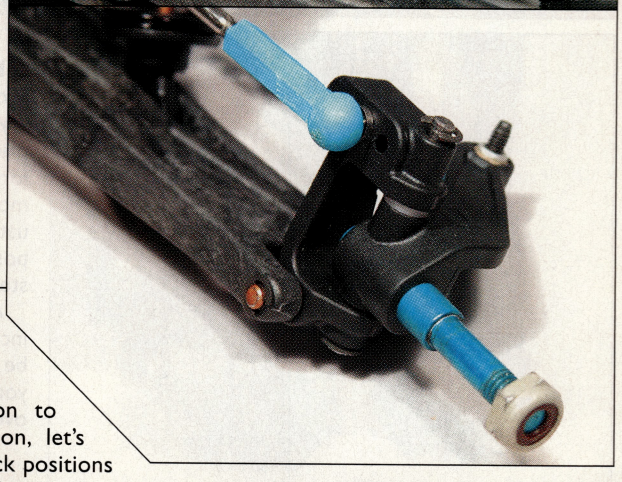
DIALING IN YOUR XXX-T

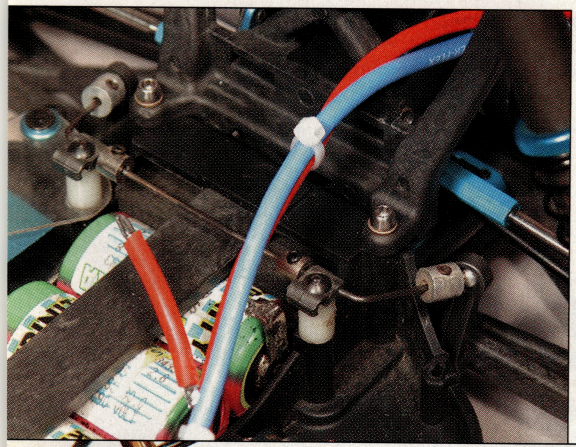
Front camber link; I generally like running the "2/B" combination (no. 2 hole in bulkhead and the "B" hole in the upright) with one gold washer beneath the inner ball-stud. I feel this gives the truck the best overall combination of steering and responsiveness. By keeping the same camber-rod length as 2/B but moving in on the bulkhead and in on the spindle (a "1/A" combination), you will lose off-power steering and gain on-power steering. Now moving that same length link to the outer position of the bulkhead and spindle (3/C), you will gain off-power steering and lose on-power steering. The use of 3/C can be good for small, tight "point and shoot" type tracks, where 1/A would be good on a big high-speed track where a lot of on-power steering is needed.

By shortening the length of your front camber link, your truck will turn in more smoothly and gain some on-power steering when compared to using a longer link.

Another tuning option with your XXX-T is the height of your inner camber-link ball stud. Generally, I start with one gold washer beneath the stud, but I might add a washer if the front of my truck becomes grabby on high bite tracks. As for a front sway bar, generally I do not run one. It seems to take away some off-power steering and is not very good through bumps and jumps. However, if you run on a smooth track and you are looking for more on-power steering and a smoother off-power transition, then a front bar may be the ticket.



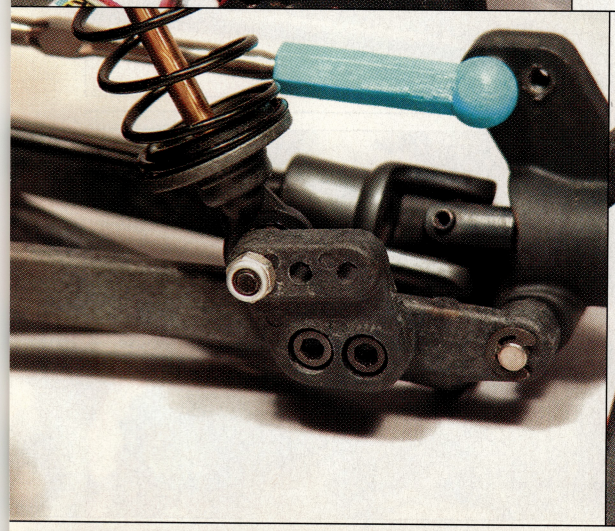




REAR SUSPENSION

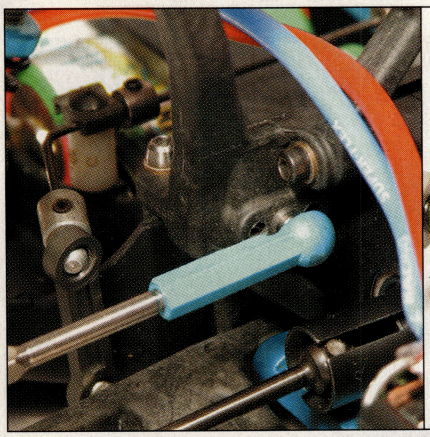
Now, moving on to the rear suspension, let's start with the shock positions and what they do. I generally run my rear shocks on the inside hole on the arm and third hole out on the tower. I also run a .050-inch sway bar to counteract the roll my truck has because I'm using the inside hole on the arm. The sway bar also gives the truck more rear stability. As you move the rear shocks out on the tower, you will gain forward traction and side bite. As you move the shocks in (towards the center of the chassis) you will experience less forward traction and more roll, which can cause the truck to dump over the rear end. By moving the rear shocks out on the arm you will gain more rear stability but less forward traction. This is something a few of us did at the ROAR Modified Nationals in New Caney, Texas, when we had to run slicks to make our trucks more "fluid" throughout the track and keep their front ends on the ground.

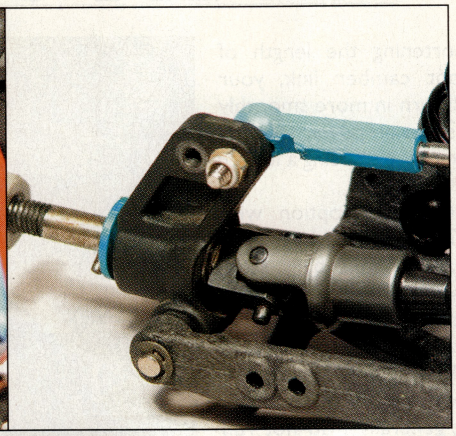
Generally, when you move the shocks outward on the arm you will need to soften up your spring rate a bit. The reason for this is that you are gaining leverage as you move the shocks out on the arm. For pistons and oil, it is usually no. 56 pistons with 30wt shock oil—unless you are in a colder climate, in which case you will want 2.5 to 5wt lighter oil.



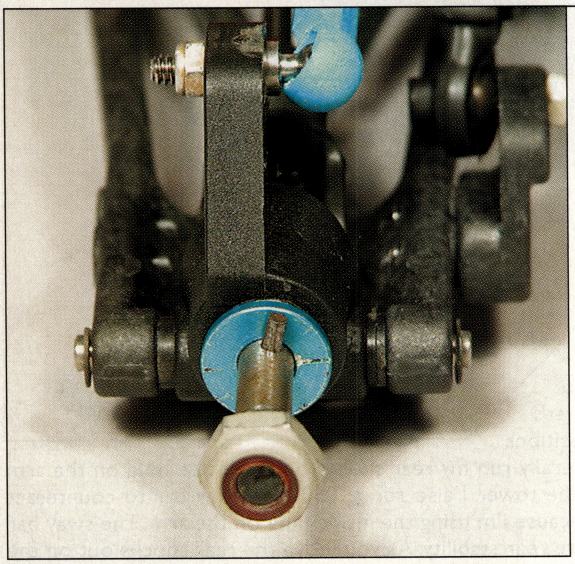


DIALING IN YOUR XXX-T



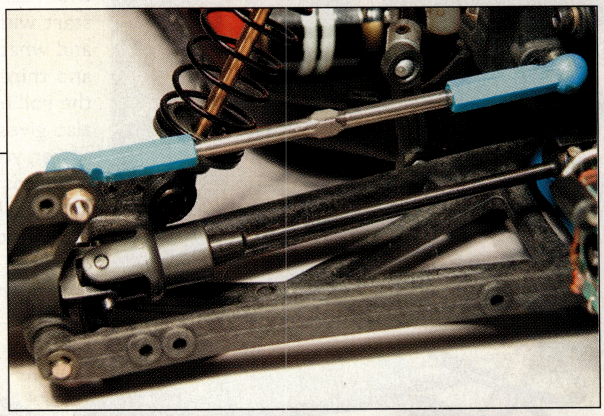


Rear camber link position: for me, it's always 2/A, as this camber link always provides great steering and helps the truck square-up better out of the turns. By running the same length link, but moving it out on the bulkhead and out on the hub (3/B), you will gain rear side bite, which results in less steering. This position also makes the truck feel numb. By increasing the length of the rear camber-rod, you will just gain more forward traction and the truck will transfer more weight to the front, giving you more off-power steering. Another point to keep in mind is that when you run the outer position on the rear hub, your truck will not go through the bumps as well.



Rear hub position: this is something that some racers also forget about, even though it can make a huge difference in rear traction. I generally run my rear hubs in the middle position. However, if I come across a track condition where I need more forward traction, I will move my hubs forward. Doing this gives the rear dogbones more angle, which creates more bind, and this equals forward traction. I have never came across a situation where I felt that I needed to move my hubs to the full rearward position. This would only decrease forward traction and increase overall steering.

Anti-squat: this is usually set to two degrees on my ride. As you increase the anti-squat you will gain forward traction, but your truck will be more sensitive to your throttle input. As you decrease the anti-squat your truck will feel more fluid and smooth, and it will carry more of an arc over jumps. This means that it will not want to be "nose happy" in the air.

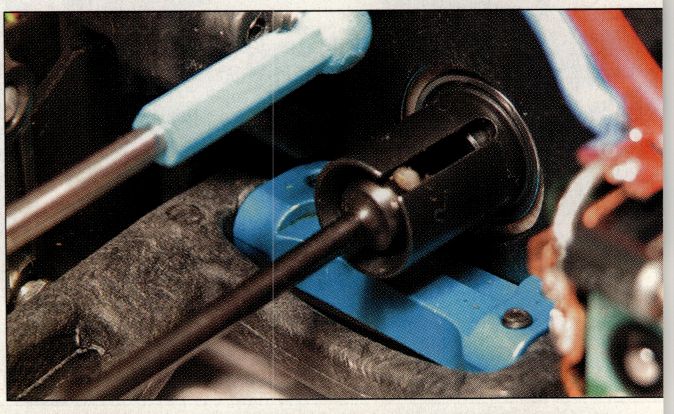


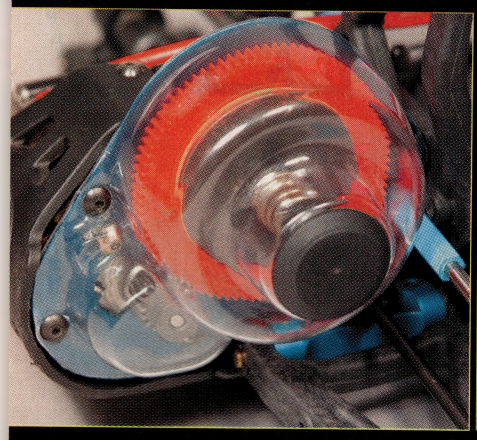
THE DOGBONE DEBATE

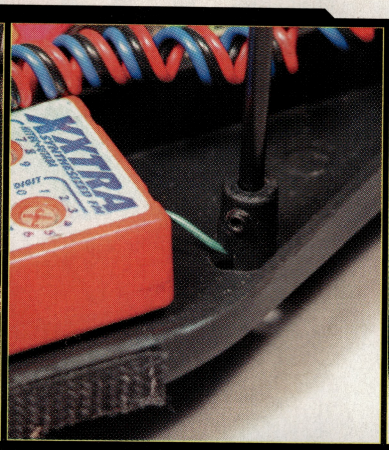
One thing that I have had a lot of people ask me is why do some drivers run Losi dogbones and others run MIP CVDs? The answer is that Losi dogbones tend to give the truck more steering and do not seem to create the rear traction that the CVDs provides. A CVD will give your truck more forward traction, because it has more friction because of the steel-on-steel in the axle and the coupler. This is especially true once they have a little wear on them. The Losi dogbones have less friction because they use a plastic yoke and a steel pin.

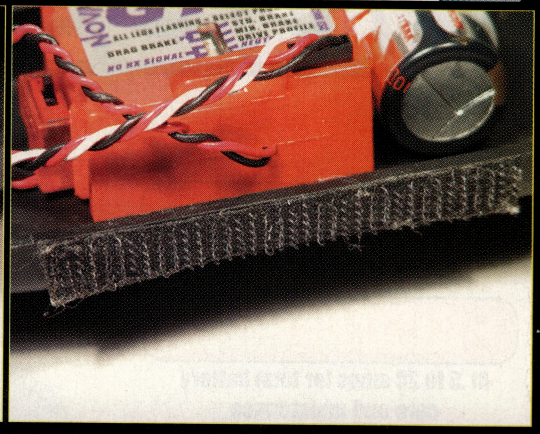
OUT-DRIVE YOUR COMPETITION

Other drivetrain things that make a difference are outdrives. Team Losi offers both steel and plastic outdrives. A lot of stock truck racers like to run the plastic outdrives for weight reasons; however, plastic outdrives do reduce forward traction. The reason being that the steel dogbone pin creates less friction on the plastic outdrive, which in turn creates less traction. With steel outdrives, you gain forward traction because the steel pin tends to bind in the steel outdrive. Personally, I like the steel outdrives because they create more traction, which gives you more stability. This comes in helpful when you have a 9-turn strapped in your truck!





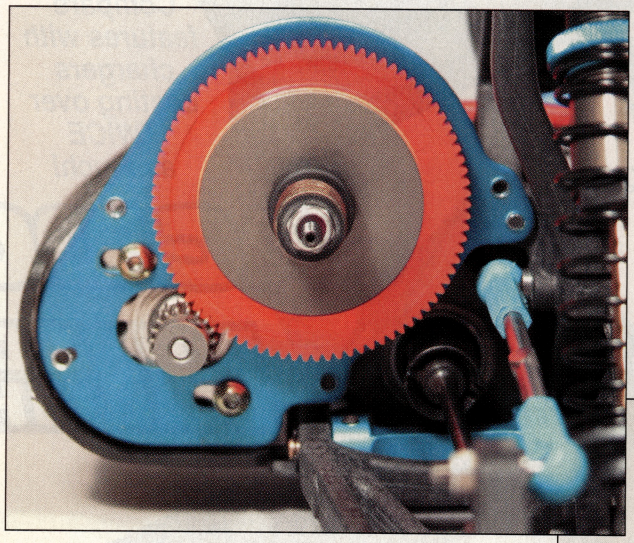




TODD'S TRICKS

As a Team Losi employee and factory driver, Todd Hodge spends a lot of time wrenching on his trucks. Over the years, Todd has picked up a few little tricks that help his Triple-XT finish what it starts.

From left to right: To prevent his gear cover from breaking (a common occurance), Todd drilled and tapped a hole for a third button-head screw (visible to the left of the pinion). To keep his antenna from falling overboard, Todd drilled a hole and installed a small setscrew. And to prevent dirt from entering the chassis and to provide additional body support, Todd applied small strips of Velcro to the sides of the chassis and to the lower body "skirts."



MOTOR POSITION: HANGIN' OUT BACK

One last thing to keep in mind is your spur gear. By changing the size of your spur gear, you can change the way your truck handles as well. The larger the spur gear, the further your motor will be behind the rear axles. This creates a pendulum effect, which can make your truck want to "whip" around tight turns. This will also make your truck gain forward traction due to the weight being further behind the rear axles. So if you are on a super loose track where forward traction is a must, a larger spur gear might be the answer. As I mostly race on medium to high bite tracks, I like to run an 86-tooth spur, which is the smallest spur you can put on your truck. The smaller spur keeps the pendulum affect out of my truck and makes it super smooth to drive.

WEIGHT DISTRIBUTION

Lastly, there's weight distribution. You can move your batteries around a lot on your XXX-T. I like mine in the middle position. At times I might move my batteries back a 1/4 in. of battery foam to gain some more rear bite. Another thing I like to do on my truck is to add one ounce of weight on the chassis. I put a 1/2 ounce piece of lead in each of the front inner corners of my chassis, near the servo. In the rear, I put two 1/4-ounce pieces in the inner position near the sway bar mounts. On medium to high bite tracks this seems to help calm the truck down and make it easier to drive.



CONCLUSION

Well, hopefully this article will help you dial in your truck at your local track or major event. If you ever see me at the track, please don't be hesitant to come talk to me about any setup issues that you may have with your car or truck. I love R/C and it's my passion, and if I can help you have fun then that's all that matters. Until next time...L8R!!

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Step right up and claim your Ferrari Enzo. That's right! For the price of a night out on the town, you too can own a piece of automotive history. Of course, the roughly $649,800 price difference between the real Enzo and the Tamiya versions means that you might not be the only person in your hemisphere to own one, but hey, think what you could do with the spare change!

Tamiya announced its first Enzo R/C kit - based on the electric TB01 chassis - at the'02 Chicago Hobby Show. But soon after the electric Enzo arrived at our door, another sexy redhead showed up, but this time, it was perched atop Tamiya's venerable TG10 nitro touring chassis. Wow! Two shiny new Ferrari's! What else could we do but gang them both up in the same test.

YOUR PICK

OUTSTANDING FEATURES

OUTSTANDING FEATURES

ELECTRIC ENZO

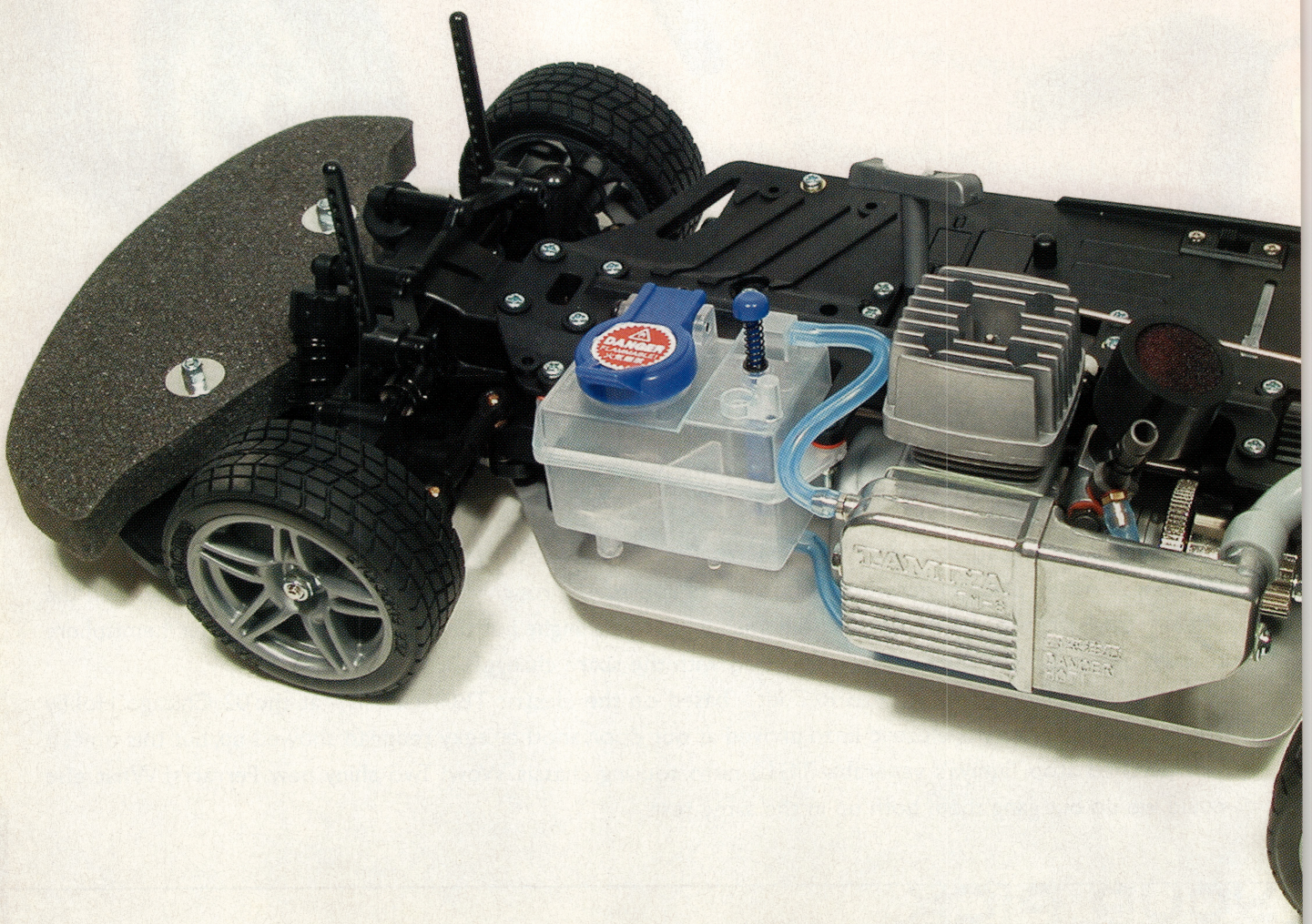
If Tamiya's TB01 looks vaguely familiar, you just might be a redne... err, we mean an Associated TC3 owner. But did you know that Tamiya actually released its shaft-drive 4WD before Associated? It's true. Now whether or not Tamiya conceived their first that remains a mystery.

The TB01 is a novice racer's best friend. Its sealed drivetrain renders it virtually impervious to rocks, sand and other common cul-de-sac debris. The only exposed bit is the main drive gears (the pinion and spur), but they are well shielded.

Although not the most tunable sedan on the street, the TB01 holds its own against other member of its class. Out-of-the-box, you can't do much more than adjust the wheels' camber, but Tamiya offers a ton of hop-up items than can transform the somewhat mundane stock TB01 into an exotic race machine.

Also included are a sealed-endbell Mabuchi 540 motor and a three-step forward-and-reverse mechanical speed control. There's nothing really wrong with mechanical speed controls, however they aren't all that efficient, nor do they provide the type of throttle response we've come to expect. With this in mind, we installed an LRP Sprint ESC, which is one of the least expensive models on the market. While we were at it, we also swapped out the kit motor for a machine-wound mod motor from Fantom Racing.





TAMIYA FERRARI ENZO





NITRO ENZO

Like its electric sibling the TB01, Tamiya's TG10 also broke new ground with its shaft-driven 4WD system, longitudinally mounted nitro engine and rear-positioned spur gear assembly. Before there was the Nitro TC3, there was the TG10. Not many people seem to know this little bit of trivia.

The latest TG10 - the one that comes under the Enzo shell - features full ball bearings in its drivetrain. This is wonderful news, especially to those of us who suffered with previous TG10s and their sloppy, fast-wearing plastic bushings. The bearings have much less slop and they'll improve the car's top speed and acceleration, too.

Also among the improvement list is the TG10's new FS12-LT pull-start engine. This is a high-quality powerplant that puts out good horsepower, and its displacement makes it "legal" should you ever want to try your hand at club racing. The engine also gets a new, slim-line aluminum muffler system that is simply light-years ahead of the old TG10's restrictive airplane-style muffler. Remember that long rubber exhaust tube? Talk about hard breathing!

The TG10 is unique among most nitro touring cars in that its chassis fits into the "narrow" 190mm category; the "wide" 200mm cars have become the norm for this class. But as the Tamiya is narrow, it will work with most of the stunning Tamiya bodies that are already on the market - including, obviously, the Enzo!

Otherwise, the TG10's suspension is best suited for the entry-level enthusiast or the person who might be intimidated if given a host of tuning options. Straightforward best describes the TG10; the upper camber links can be adjusted to alter wheel camber, and you can play with the front wheels' toe-in or toe-out. Otherwise, just fill the shocks

TAMIYA FERRARI ENZO

REPORT CARD

Test location: Hot Rod Hobbies, Santa Clarita, CA

Test conditions: dusty asphalt, medium traction

Assembly: A

We gave both of these kits to a novice hobbyist for building, and he had them completed within three nights! He reported what we already knew; Tamiya kits are among the easiest to assemble correctly, and their instructions are second to none. Even with the added complexity of the nitro TG10, our rookie had no trouble getting everything just right. Heck, the car even ran when he was done!

Acceleration and speed: B and C, respectively

The nitro-powered TG10 got the "B," while the underpowered TB01 Enzo received the lower grade. Tamiya's FS12-LT engine is very easy to start and to break in. It delivers exciting speed with good acceleration and a great nitro sound and smell (isn't this what lures us to nitro in the first place?). On the other hand, the electric-powered TB01 simply needs more horsepower; that little 540 motor just can't move this heavy drivetrain with any kind of authority. Still, if you're a beginner, you won't get bored with the TB01 for at least two batteries. You'll then want to upgrade to a hotter motor like we did.

Handling: B

With full-time 4WD, Tamiya's Enzos are probably easier to drive than the real thing (with its 650 horsepower and rear-wheel-drive). The Tamiyas are supremely neutral in that they achieve an excellent balance of steering and traction. The nitro TG10 with its additional horsepower and torque is bit more fun, as you can break its tires loose and perform wild power slides. The electric version is more sedate, but it's a very good car with which to cut your R/C teeth.

Overall quality: B+

Tamiya makes good stuff. If you compare the TB01 and TG10 with racing kits, you might come away thinking that the Tamiya's are of lesser quality. You'd be wrong. Tamiya engineers most of its kits to survive in the hands of beginning drivers, and because of this, you'll find suspension that flexes a bit more than usual. But if you keep the targeted owner of these kits in mind, it all begins to make sense. We do criticize both kits for the amount of slop in their steering linkages; there's just too much.

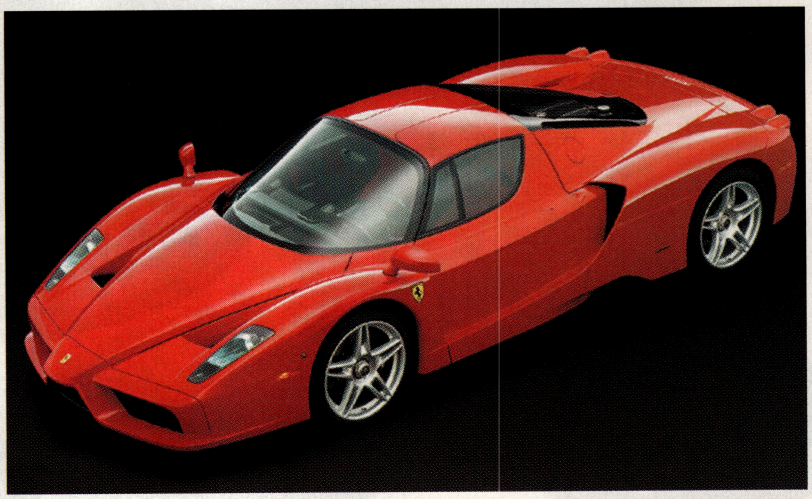
I'LL TAKE ONE IN RED, PLEASE!

The racetrack has always been the testing ground for the advanced technological research that goes into each and every Ferrari road car. The Enzo is Ferrari's latest V12, and its design is drawn from the results of Ferrari's last four years in Formula 1 racing. Enzo Ferrari himself always believed that the design of his company's road cars should stem from the racecars, so it was logical that the newest supercar for the street should bear the name of the late company founder, Enzo Ferrari.

Built in a limited run of 349 units, the Enzo was styled by famous Italian design firm Pininfarina, which wanted to break away from the styling of the previous Ferrari GTO, F40 and F50. The engineers tried to create a road car that had plenty of visual links to the world of F1, to which the Enzo owes much of its technology. The bodywork makes good use of advanced composites, with parts made of sandwich panels of carbon fiber and Nomex.

The Enzo's 65-degree 12-cylinder engine is a completely new design that draws upon the experience of Ferrari's F1 engine development. It boasts such features as a "pentroof-type" combustion chamber with four valves per cylinder. The block is aluminum with press-fit sleeves lined with nicasil, and the rods are all titanium.

The 660 horsepower gets to the ground through an F1-style electrohydraulic gearbox automatically activates the gearbox and clutch for the fastest shifting possible. The driver controls the six-speed "manu-matic" just as an F1 driver would - via a pair of paddles positioned behind the steering wheel. In fact, one of the goals of the Enzo project was to cut gear change times down to 150 milliseconds - in the interest of "sporty" use, of course.



Final Score

HIGHS: Fantastic Ferrari bodies! What else do we need to say? No company can top Tamiya when it comes to scale realism. Using sophisticated CAD modeling and working from the real car, Tamiya's builds incredible multi-piece molds that produce near-perfect replicas in miniature. We also have praise for the kits' simple construction.

LOWS: Too much steering slop. Also, the electric car's RS540 motor is just not enough to motivate the TB01 Enzo with any kind of drama.

THE VERDICT: If you're looking to be the next national racing champion, you'd be best off looking elsewhere. However, if you are interested in full-sized cars and have wanted to try your hand at R/C, then there are few kits that will meet your needs better than this Tamiya duo. Sure, you have to build them yourself, but as with all Tamiya kits, you'll find the Enzos to be an enjoyable experience, both before and after their built.

SOURCES

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

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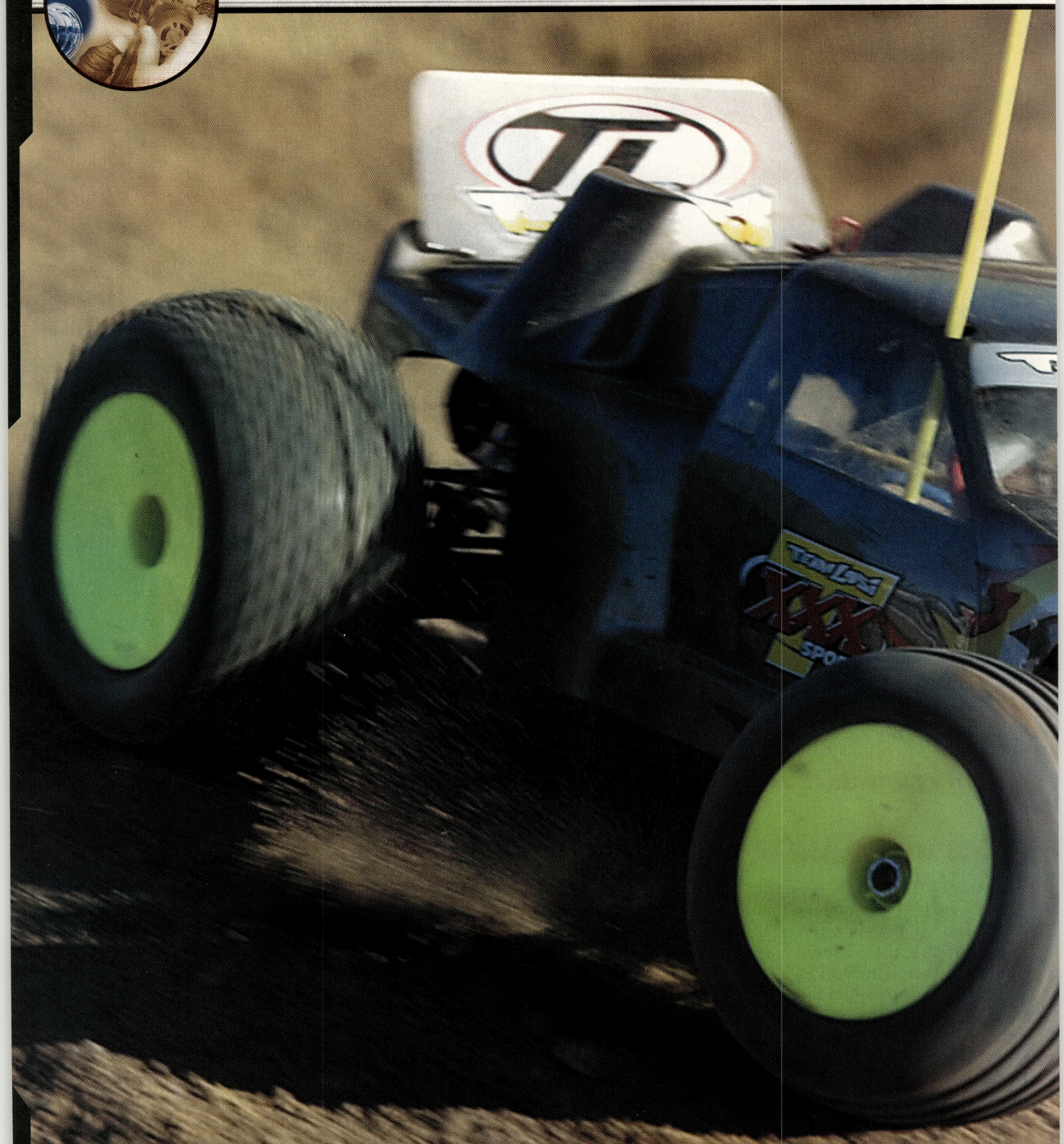
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TEAM LOSI



BUY IT AND RACE

TRIPLE-XT SPORT

By Frank Masi

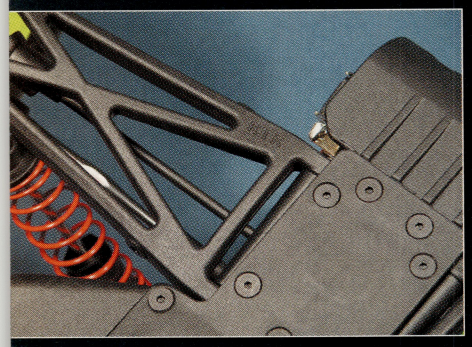
Where was this truck when I was starting out? I mean, I like building kits as much as the next guy, but the new Triple-XT Sport from Team Losi is so well built that I doubt even Brian Kinwald could do it much better! This newest addition to Losi's Sport lineup should prove to be one of their most popular offerings; trucks are the "in" thing right now, and Losi has one of the best ones. The new Triple-XT Sport should have immense appeal to several types of hobbyists; beginning racers should find it a willing accomplice, and those whose taste lie more along the curb-jumping lines will also see the Sport as a durable, high-performance plaything.



THE SAME DAY!

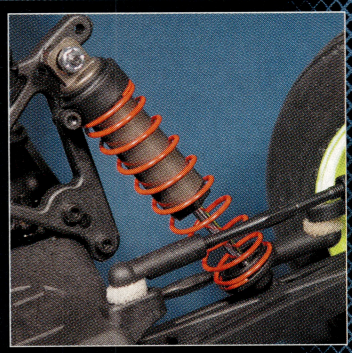
IT'S A TRIPLE-XT ALL THE WAY

Here's the formula that Losi uses to create its RTRs: it creates tooling using the CAD drawings from the original Triple-XT race kit; the only difference is that the Sport's parts have "RTR" molded into them. This is how hobby shops can tell the difference between the kit parts and those from the RTR. Also, most of the molded pieces are made from a slightly different material, one that is a little more flexible (it's also a bit darker in color). The flexible nature of the RTR's parts isn't for cost-savings, but to afford the Triple-XT Sport a greater resistance to breakage. Racers want the stiffness of Losi's Stiffezell or graphite-composite materials and are willing to accept the increased fragility. Sport owners are far more likely to put their trucks into curbs and other immovable objects, and they'll be thankful that their chassis and suspension pieces are a bit more forgiving. And if they do break something, they'll have the option of installing a stock replacement piece or one made from Stiffezell or graphite; any will fit.

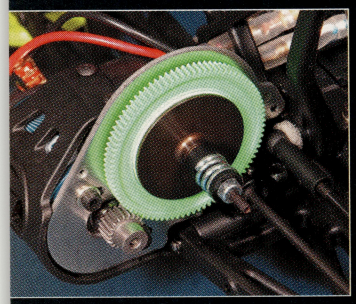


The other main difference between the Sport and kit versions is that the RTRs are made overseas; a necessity to keep the prices as competitive as possible. Virtually every RTR vehicle originates from across the Pacific. And like most manufacturers who choose this route, Losi has taken great pains to ensure the quality of the pre-assembly, which is truly first-rate.

If you were to compare the Sport to any kit-built Triple-XT, you would be hard-pressed to tell which is which. The Sport benefits from Losi's low-CG molded-tub chassis, which places the centrally located batteries low to the ground, yet with its raised sides, prevents unwanted ground contact during cornering.



Each corner of the truck is supported by a long-travel lower suspension arm, outer hub assembly and finally by an adjustable upper link. These links are actually heavy-duty steel turnbuckles that allow you to precisely set the camber of each wheel quickly and without hassle. Those familiar with Losi products will instantly recognize the Sport's hard-anodized aluminum oil-filled shocks. Although these may look slightly different from the kit versions, their "spec" is the same; their durability and performance is identical. Even the springs receive the same color-coded matching system Losi uses for all of its vehicles.



And thankfully, the Sport's drivetrain is also indistinguishable from that of the kit version. Inside the sealed gearbox you'll find an efficient three-gear transmission that features an adjustable ball differential and a full complement of ball bearings. In fact, not only does the tranny receive ball-bearings, but so do the wheels—no bushings here! You'll also find that Losi has provided its patented dual-disc slipper clutch so you'll be sure to hook up on virtually any surface.



PACKAGE DEAL

Being preassembled is only part of the RTR equation. The better ones come with just about everything else that's needed to run. Losi has included a JR XR2i—the newest version of this two-channel radio computer system. Everything you'll need to fine-tune the XT Sport you'll find at your fingertips with this transmitter, including such race features as steering dual-rate and travel adjustments for both the steering and throttle channels. What's more, you'll be able to use the XR2i with not only your new Sport, but with any additional vehicle of your choice thanks to the radio's two-model memory feature that lets you store the settings for two vehicles without having to reprogram.

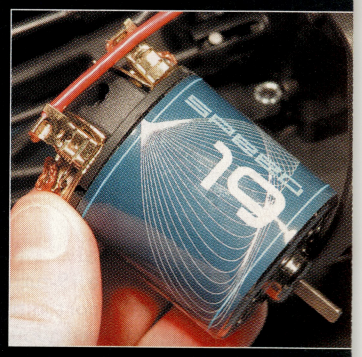


OUTSTANDING FEATURES

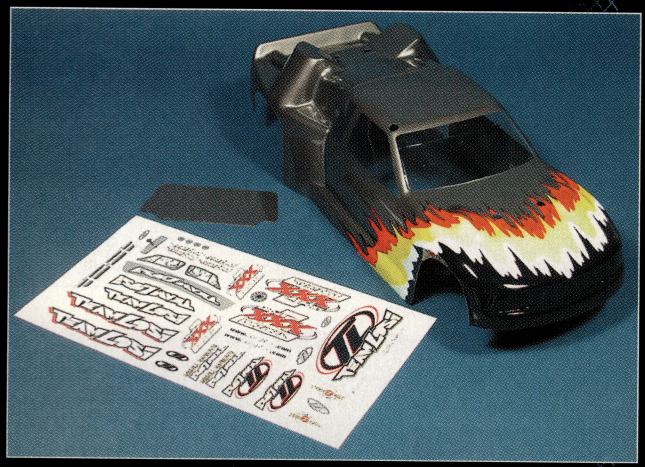




And you won't have to upgrade the onboard electronics with this truck. You'll be happy to see a high-quality GM V3r reversible ESC already attached to the chassis. This micro-sized speedo is good for motors down to 15 turns, and its reverse can be dialed-out for racing (where reverse is considered illegal). The ESC is pre-wired for easy plug-in motor and battery installation, but if you should choose to race and wish to do away with the less efficient stock motor and battery connectors, the V3r has handy solder-tabs for the power wires (we would at least eliminate the power-robbing bullet motor connectors).



Knowing that even beginners want speed, Losi has eschewed the typical sealed-endbell RTR motor in favor of a powerful 19-turn mild modified motor. The open-endbell design of the Sport's motor permits easy periodic maintenance including brush replacement and commutator cutting.



BODY & TIRES

Losi offers a choice of three pre-painted bodies with the Sport. Although all share a common design, you can get the bodies with a base color of either indigo, yellow or the graphite color of our test truck. Losi has also overcome an obstacle common with pre-painted/screened bodies, and that is the window areas. Bodies that are pre-screened (the color is applied prior to the body being vacu-formed into shape) cannot have clear windows, as the distortion that takes place during molding prohibits accurate placement. What Losi has done is to pre-screen the body's frontal area, which has a cool flame scheme, but leaves the remaining portion clear. After this, the windows are masked and the main body color is sprayed.

Up front are four-ribbed rubber tires that will work well on most dirt surfaces. The rear tires have a combination of block tread and small step-pins. These tires are best for dirt that is fairly well-packed, but with a layer of looser dirt on top. All four wheels come pre-glued to bright yellow one-piece molded dish wheels.

TRIPLE-XT SPORT





REPORT CARD

Test location: KZ Speedway, Sun Valley, CA
Test conditions: Typical SoCal weather; large bumpy off-road course; the track was just watered.

Completeness: A

If you're looking to get running in a hurry, you can't do better than the XXX-T Sport. Everything has been done for you (with the exception of the decals, which, however, are precut). The tires are glued (well), the body is trimmed and the radio is perfectly set. With this truck, you can literally go from box to track in the time it takes to charge up a battery pack.

Radio: A+

What can we say about the new JR XR2i that comes included with the Sport; it's a computer radio with multi-model memory (two models qualify as "multi") and a bunch of useful trim settings such as dual-rate and end-point adjustments for the steering and throttle channels (very useful for gas cars).

Speed and acceleration: B-

This is the same 19-turn motor that we tested with the XXX-S Sport in the March issue. On the roadcourse, we raved about this open-endell mild mod, but when we ran the XXX-T Sport on dirt, it felt a tad off the mark. Since the Sport is geared toward the newcomer - and we need to keep this in mind - we deem it adequate in the horsepower department. In large areas, the truck felt a little slow, but on a closed-course, it's similar to a normal 27-turn racing stocker.

Handling: B

Out of the box, the Sport is pretty well dialed-in. All of the settings - from the steering trim to the ESC - are spot-on. The rear end felt a little stiff on the hard-packed track, and wanted to come around a bit when entering corners; the stock tires are a bit better suited to softer dirt. Jumping was one of the truck's strongest areas; the Sport flies straight and the suspension soaks up hard landings with aplomb.

Durability: A

Losi uses the finest materials when making their vehicles and it shows here. Everything was well thought out and lasted the entire test, even when we were "lawn darting" to get that endo-cross-up for the photo! Yes sir, testing is hard work.

SPECS

Price:	$269.99 (varies with dealer)
Length:	16.25 in./413mm
Width:	13 in./330mm
Wheelbase:	11.7 in./298mm
Track (f/r):	10.75 in./273mm
Weight:	4lbs, 3oz
Chassis:	Molded tub
Suspension:	Ind. lower arms w/adj. upper links
Drivetrain:	Three-gear transmission (2.43:1)
Diff(s):	adj. ball diff
Damping:	aluminum oil-filled shocks
Bearings:	Steel ball-bearings
Tires:	Front 4-ribs, rear block/step-pin
Wheels:	One-piece yellow dish

Final Score

HIGHS: Superb quality in a RTR. Everything has been professionally pre-assembled from the factory to exacting standards. The XR2i computer radio is a nice touch and adds great value to the package. The body also drew praise for its tasteful colors and graphics.

LOWS: The ESC is good for motors down to 15-turns. Not to nit-pick, but trucks love 12-turn mods, and so do we! In all fairness, however, we can't really complain too much.

THE VERDICT: The XXX-T Sport represents the future of the R/C hobby. The quality of this type of RTR is phenomenal to say the least, and we like that any off-the-shelf XXX-T part will bolt right on. Add to this a great body and radio, and the ranks of the stock truck class at local tracks should swell.

SOURCES

Team Losi, Inc., 13848 Magnolia Ave., Chino, CA 91710 • (909) 390-9595; fax (909) 590-1496
Trinity Products, Inc., 36 Meridian Rd., Edison, NJ 08820 • (732) 635-1600; fax (732) 635-1640

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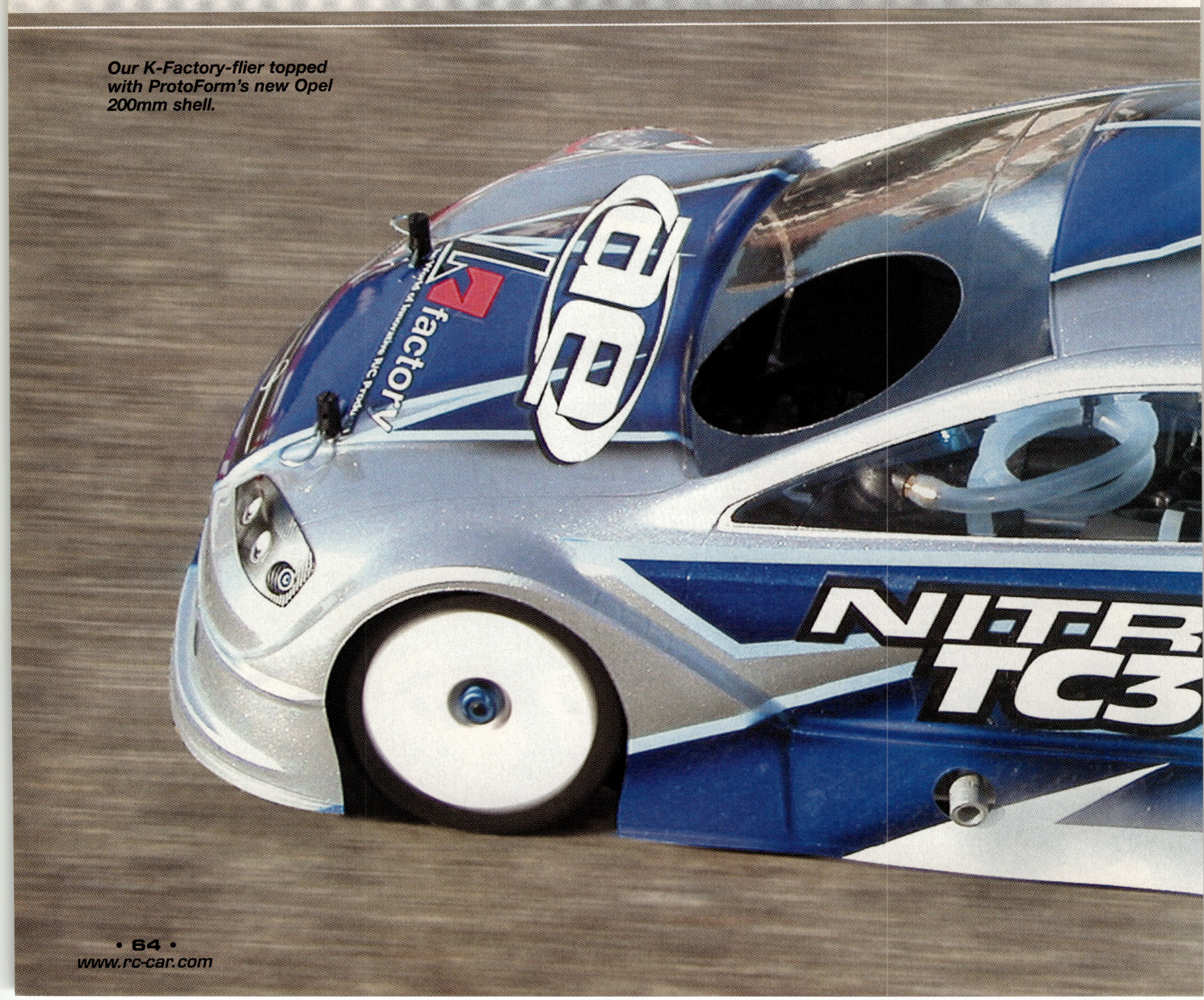
Second Opinion: Associated

A visit to the K-Factory

As expected, Associated's Nitro TC3 has emerged as the most popular member of the nitro sedan class. Not only is the kit version of this potent performer a hit among serious racers, but the recently released RTR version has become hugely popular with first-time R/C hobbyists.

As its popularity has risen, so has the number of aftermarket companies that have stepped up to support the Nitro TC3. One such company is K-Factory. Imported exclusively by Trinity, K-Factory is renowned for its cutting-edge hop-ups that improve durability, performance and of course, appearance.

We recently persuaded the folks at Trinity to participate in a "K-Factory NTC3" project. They sent us virtually everything in their catalogue for the Associated nitro hauler, and we set about building what could very well be the trickest NTC3 on the planet!



Our K-Factory-flier topped with ProtoForm's new Opel 200mm shell.

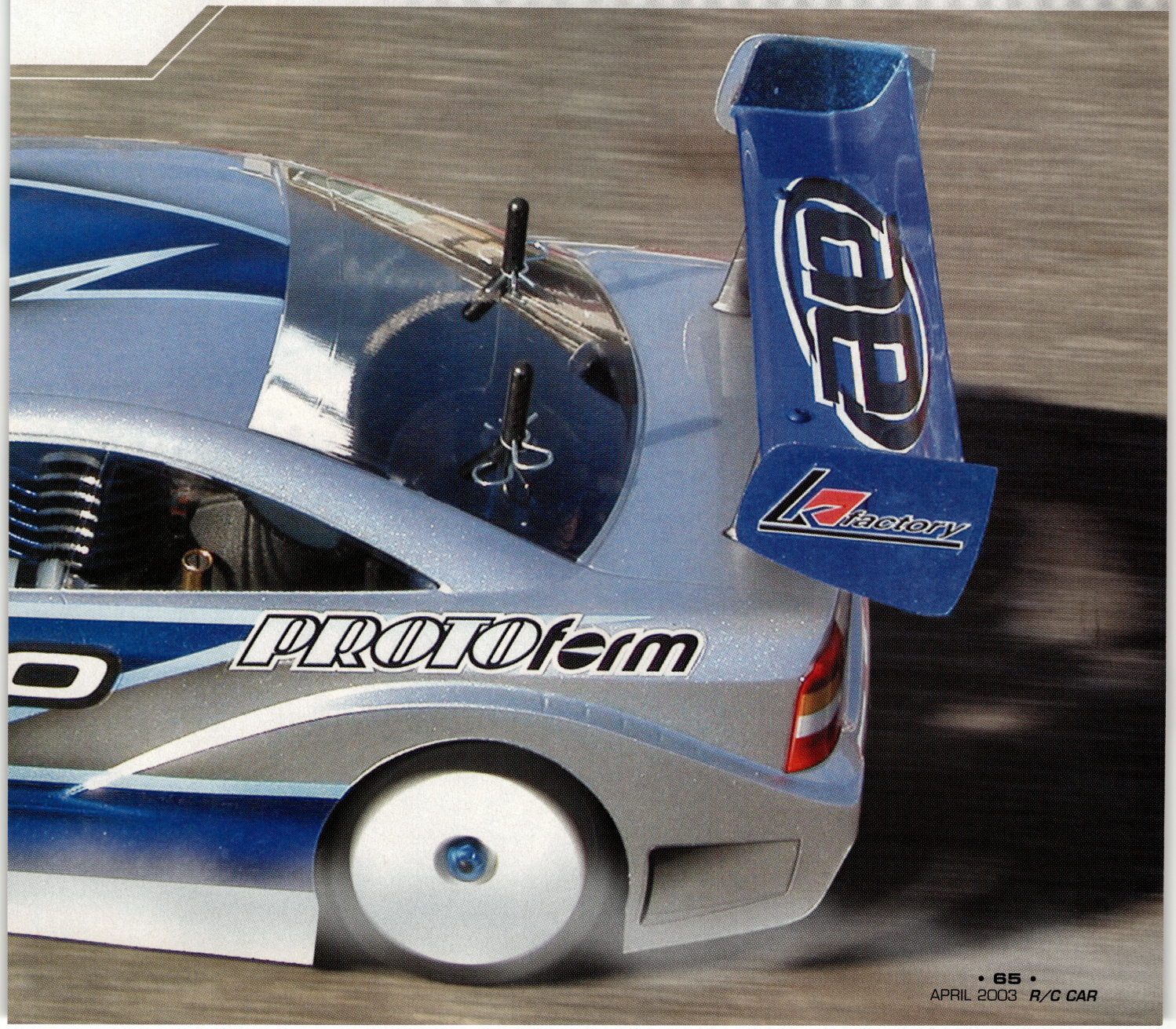
Nitro TC3

CHASSIS IMPROVEMENTS

The first order of business was to give our NTC3 a lighter, and even stiffer platform. The stock aluminum chassis is very well made, light and stiff, however K-Factory's lightweight aluminum chassis is both lighter and stiffer. Machined from 7075 aircraft-grade aluminum, the K-Factory chassis has been lightened in all the right areas either by end milling or by material removal. The chassis' blue-anodized finish, which has a glass-beaded texture that is common to all the K-Factory aluminum parts, is engraved with the K-Factory logo.

The stock chassis has bent-up sides that improve longitudinal stiffness, but the K-Factory chassis is flat. To make this setup even stiffer than stock, we added K-Factory's one-piece carbon radio tray and left-side carbon brace. These pieces, made from 3mm-thick graphite, replace the stock molded chassis braces and span the entire length of the chassis. Additional strength is provided by four additional aluminum standoffs, which tie the upper brace and plate to the lower chassis.

Like the left-side brace, the carbon radio tray replaces the stock three-piece molded tray and chassis braces. The tray spans from the front diff case to the rear, and is keyed into the molded bosses just like the stock pieces. Another nice feature is that the K-Factory tray fits the stock radio box, so the receiver remains protected from fuel and dirt, and it offers the same flexibility as stock in regard to battery configuration.




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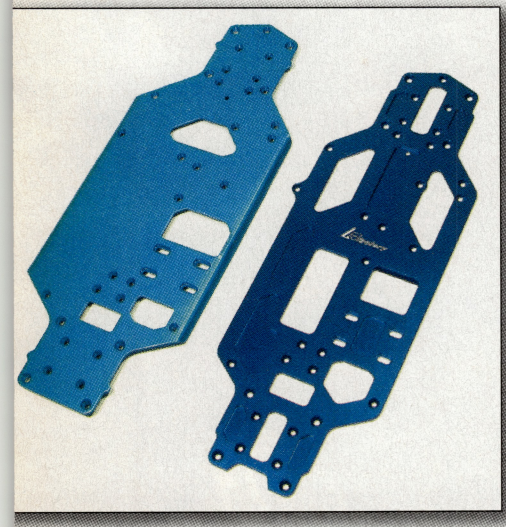
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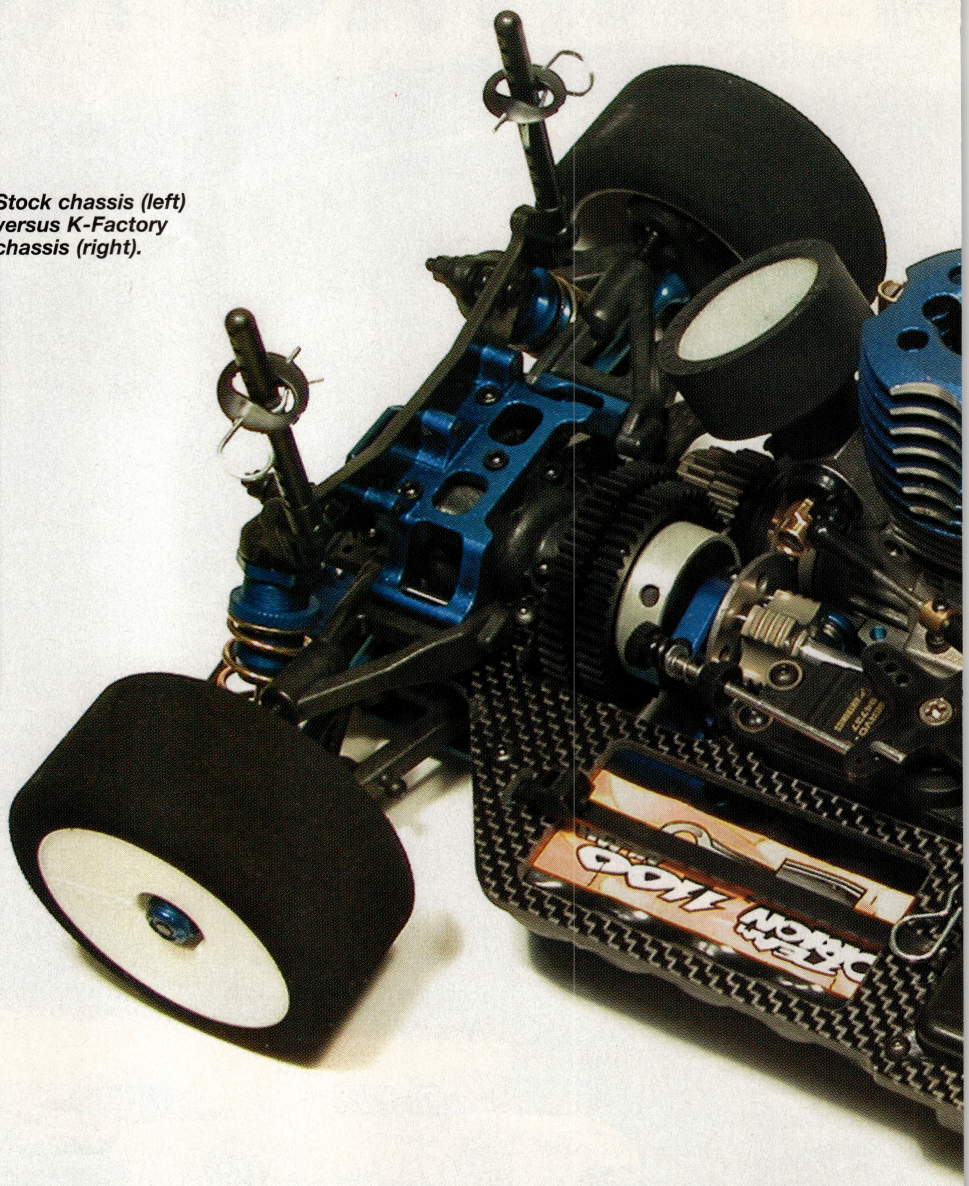
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Second Opinion:



Stock chassis (left) versus K-Factory chassis (right).

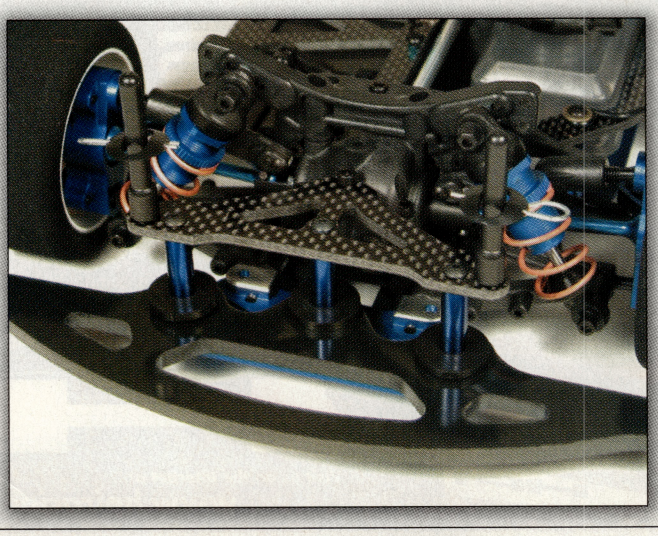


When the K-Factory radio plate is used, it's a wise idea to also install a set of K-Factory's billet-aluminum steering servo mounts. The stock molded mounts can be used, but the K-Factory mounts are not only stronger, but they extend to the lower chassis where they are further secured by a pair of 4-40 flathead screws (through the holes in which the stock radio tray would be attached).

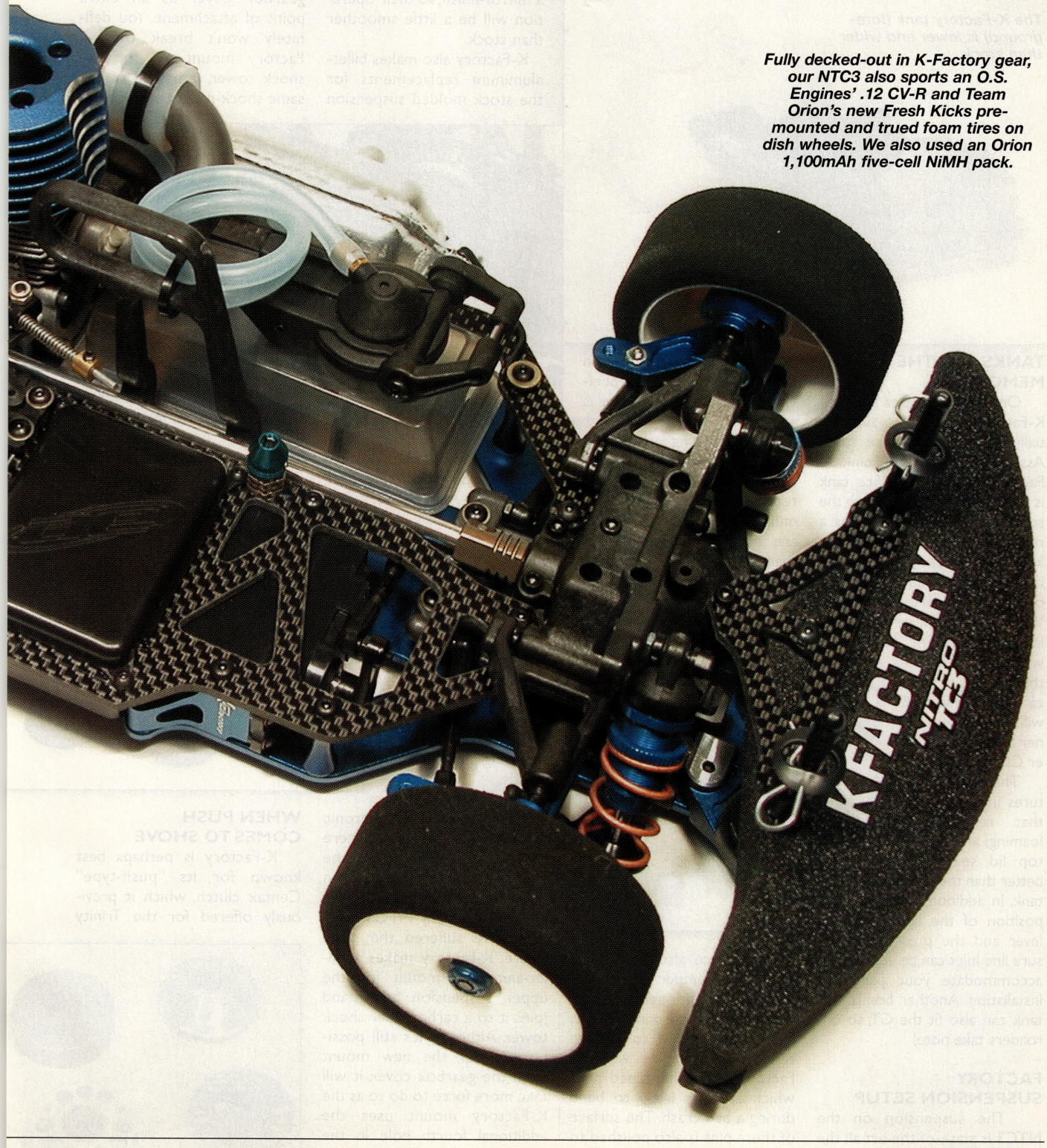
The K-Factory radio tray also comes with a clamping-style aluminum antenna mount - also anodized in blue. This style of mount holds the antenna tube much more securely than the press-fit type that is incorporated in the stock radio tray.

BUMPER CAR

The next area to receive the K-Factory treatment was the front bumper. First, we replaced the plastic lower arm/bumper mount with a machined-aluminum piece from K-Factory. This provides a more solid base for the bumper area and to the front body-mounts. Then, we installed K-Factory's carbon front bumper brace set, which also replaces the stock molded piece. The carbon brace set ties to the lower mount with a set of three blue-anodized aluminum standoffs. Once complete, the front bumper and especially the front body-mounts are vastly stronger; the front of the body will be much more stable. As the stock two-piece Kydex/foam rubber bumper remains in place, the beefed-up bumper/body-mount area shouldn't yield an adverse effect on the car's ability to survive a crash without damage.



Associated Nitro TC3



Fully decked-out in K-Factory gear, our NTC3 also sports an O.S. Engines' .12 CV-R and Team Orion's new Fresh Kicks pre-mounted and trued foam tires on dish wheels. We also used an Orion 1,100mAh five-cell NiMH pack.

Second Opinion: Associated Nitro TC3



The K-Factory tank (foreground) is lower and wider than stock.

TANKS FOR THE MEMORIES

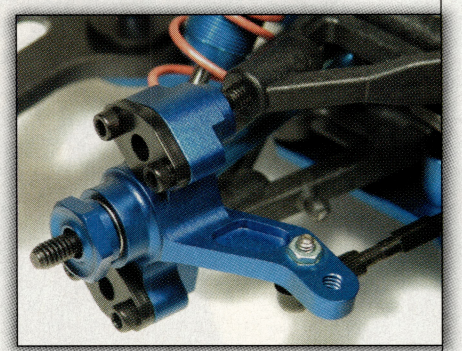
One particular area in which K-Factory was able to substantially improve upon the stock Associated kit is the fuel tank. K-Factory's low-profile 75cc tank is a lot lower and wider than the stock tank it replaces, and as a result, the weight of the fuel is kept lower to the ground, yielding an improvement in the car's overall CG (center-of-gravity). Why is this important? The lower the CG, the less the car will lean in the turns. All other things being equal, a car with a lower CG will always out-corner a car with a higher CG

The tank also features internal baffles that reduce fuel foaming, and its flip-top lid seals even better than the stock tank. In addition, the position of the lid's lever and the pressure line inlet can be adjusted to accommodate your particular installation. Another bonus: this tank can also fit the GT, so off-roaders take note!

FACTORY SUSPENSION SETUP

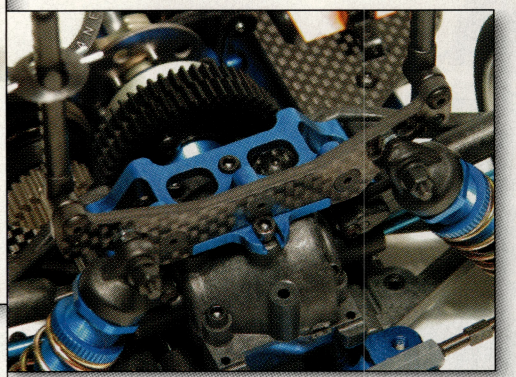
The suspension on the NTC3 is state-of-the-art all the way. But this doesn't mean that it can't stand a little beefing up. After all, nitro racing is as much about finishing the race as it is going fast.

All four lower arm mounts on our project car have been replaced with K-Factory's aluminum lower mounts, which are obviously much stronger than the stock plastic mounts. If you follow the logic of "something's got to give during a crash," you know it won't be these mounts. Like the stock front arm mount, the K-Factory piece also doubles as the front bumper mount (as previously mentioned).



While the suspension was apart, we decided to replace the stock hingepins with K-Factory's super-hardened pins, which are less likely to bend during a bad crash. The surface of these pins is also polished to a mirror-finish, so their operation will be a little smoother than stock.

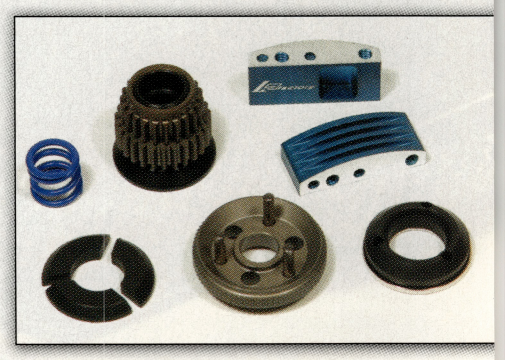
K-Factory also makes billet-aluminum replacements for the stock molded suspension



uprights (in blue-anodizing, of course!). These pieces are exactly like stock, but they are of course substantially stronger (although a bit heavier). We elected to install K-Factory's uprights to the front end only, as this is usually the area that receives the brunt of the force during a crash. All of the stock pivot balls and retainers fit the K-Factory uprights perfectly, but you'll want to use threadlock on the steering linkage's ball-studs.

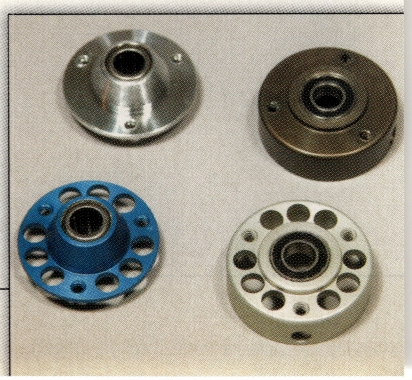
We also decided to address the NTC3's chronic weak point: the area where the shock towers meet the gearbox covers. We've broken quite a few of these, and we've heard that many NTC3 owners have suffered the same failure. K-Factory makes a billet-aluminum mount for the upper suspension arms, and joins it to a carbon-fiber shock tower. Although it's still possible to tear the new mount from the gearbox cover, it will take more force to do so as the K-Factory mount uses the additional fourth hole in the gearbox cover as an extra point of attachment. You definitely won't break the K-Factory mount. As for the shock tower, it has all of the same shock-mount positions as the stock tower, and you don't have to add spacers to duplicate the proper shock angle, as the billet mounts place the tower exactly where it should be.

If you look at the photos, you'll see that we installed the K-Factory upper-arm-mount and tower to the rear only. This is because we have never suffered from a broken front tower - just the rear.



WHEN PUSH COMES TO SHOVE

K-Factory is perhaps best known for its "push-type" Centax clutch, which it previously offered for the Trinity

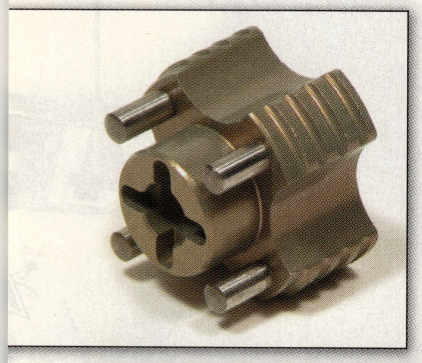


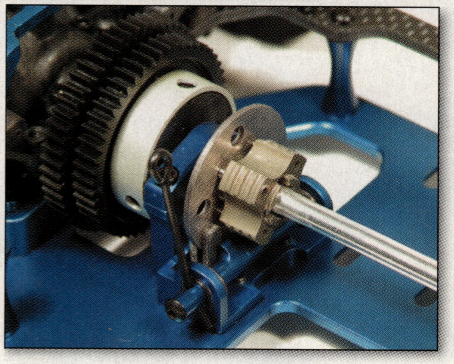
Reflex and Kyosho V-One R cars. Now, K-Factory offers the push clutch for the Nitro TC3 as well.

The push clutch differs from stock in that its shoes are forced away from the engine, in line with the crankshaft, rather than flung outward with the engine's rotation. Hence the name "push." The advantages of this clutch are that you can adjust the point at which the clutch engages externally and without having to modify any part. If you're used to tuning clutch shoes by removing material, you'll like the ease at which the K-Factory clutch can be tuned.

The clutch set also comes with hardened aluminum pinion gears (22 and 26 tooth) as well as a pair of blue-anodized, finned aluminum engine mounts that substantially lower the engine in the chassis (again, for a lower CG). A small-diameter, lightweight flywheel is also part of the set, as the stock flywheel won't work with the lower mounts.

PART NO.	DESCRIPTION	PRICE
Factory Team		
1700	Factory Team lightweight two-speed one-way hub	$22.00
1701	Factory Team lightweight two-speed clutch housing	$15.00
K-Factory		
K1201	3mm 7075 Light Weight Chassis	$110.99
K1202	3mm One Piece Carbon Radio Tray w/chassis brace	$79.99
K1203	3mm One Piece Left Side Carbon Chassis Brace	$36.99
K1204	3mm Carbon Bumper Top Brace $27.99	
K1205	NTC3 Alum. Center Bulkhead (w/Alum.Bearing Cap)	$39.99
K1206	NTC3 Low CG Fuel Tank	$49.99
K1207	NTC3 Alum. R/L Steering / Hub Carriers (2)	$59.99
K1208	NTC3 Hard Coated Alum. Brake Cup	$19.99
K1211	NTC3 Super Hardened Hinge Pin (F or R Lower) (2)	$6.99
K1212	NTC3 Super Hardened Hinge Pin (Front Upper) (2)	$6.99
K1213	NTC3 Super Hardened Hinge Pin (Rear Upper) (2)	$6.99
K1214	NTC3 Super Hardened Hinge Pin Set (8)	$15.99
K1215	NTC3 Centax Clutch	$159.99
K1216	Alum. Front Lower Bumper & Arm Mount	$41.99
K1217	Alum. Front Arm Mount	$18.99
K1218	Alum. Rear Arm Mount (front of arms)	$16.99
K1219	Alum. Rear Arm Mount (rear of arms)	$33.99
K1228	Alum. Light Hex Wheel Hub	$21.99
K1229	Alum. Light Brake Cam w/bearings	$19.99
K1230	Alum. Brake Cam Bearings	$9.99
K1239	Carbon Shock Tower with Aluminum Shock Mount. Fits front or rear.	$70.99





One "must have" item for NTC3 owners is K-Factory's aluminum center bulkhead and brake cam set. This replaces both the stock plastic bulkhead as well as the steel brake-cam holder with one solid piece of machined aluminum. Of course, the aluminum center bulkhead, which supports the two-speed and center driveshaft, won't flex at all during acceleration. The K-Factory brake cam is supported by a pair of included ball bearings instead of the stock bronze bushings.

Hard-anodized aluminum parts replace the stock plastic brake hub and center-shaft drive cup. Under heavy braking, the aluminum hub won't distort at all. And with the K-Factory hub and front cup, the center shaft will be more effective at power transfer under heavy acceleration and torque conditions.

To reduce weight in the drivetrain, we also installed a lightweight two-speed one-way hub and clutch housing from Factory Team, Associated's own in-house hop-up division. These will allow the car to accelerate harder and get up to speed more quickly.

THE FINAL WORD

The quality of the K-Factory parts is incredible. Each and every part fit the Associated chassis like a glove, and each comes with a full-color, illustrated instruction sheet that makes installation a breeze.

Our project car was not only made more durable, but the overall driving experience is even more impressive than the stock NTC3, which is one of the best handling nitro sedans available. Small changes add up to noticeable results. The K-Factory car felt more precise during cornering, and it definitely felt more nimble through tight, twisting sections of our test track (KZ Raceway in Sun Valley, CA). But the biggest difference was felt in the overall acceleration of the car, which was substantially more "direct" feeling than stock, thanks to the installation of the K-Factory push-type clutch. It takes a little trial and error to get this clutch set correctly, but once it's dialed, your car launches like a missile.

While you don't have to go whole-hog as we did, we found that each and every one of these modifications was worthwhile. K-Factory makes parts that not only look good, but are engineered to provide performance improvements as well.

SOURCES

Associated Electrics, Inc., 3585 Cadillac Ave., Costa Mesa, CA 92626 • (714) 850-9342; (714) 850-1744 fax
K-Factory, distributed by Trinity Products, Inc., 36 Meridian Rd., Edison, NJ 08820 • (732) 635-1600; fax (732) 635-1640
O.S. Engines, distributed by Great Planes Model Distributors, 2904 Research Rd., Champaign, IL 61826-9021 • phone (217) 398-6300; fax (217) 398-0008
Team Orion, 22601 LaPalma Ave., Suite 103, Yorba Linda, CA 92887 • (714) 694-2812; fax (714) 694-2815

Driving

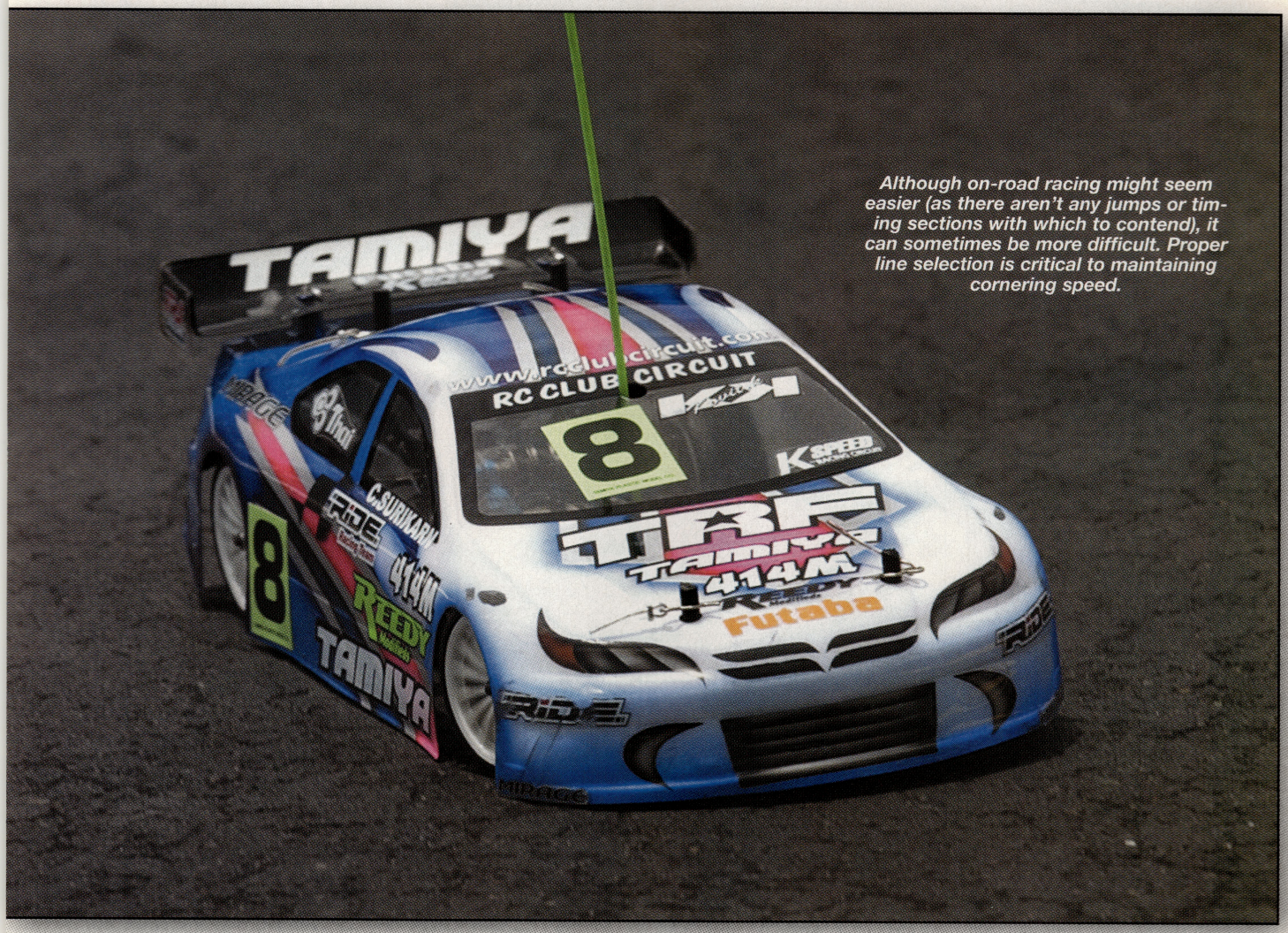
Have you mastered your neighborhood terrain and are now ready to take your R/C hobby to the next level? Perhaps you happened upon an R/C track, were hooked by the speed and excitement, and are ready enter organized competition? Or are currently racing but want to improve your skills? The following sets forth basic skills that will get you on the track and headed down the path toward becoming a skilled R/C racer.



101

What you should know about control

By Rick Hohwart



Although on-road racing might seem easier (as there aren't any jumps or timing sections with which to contend), it can sometimes be more difficult. Proper line selection is critical to maintaining cornering speed.

PREPARATION IS KEY

To be successful, a properly prepared car is a necessity. Highly qualified engineers use state-of-the-art software in the design and testing of today's cars. Be certain your car is set up and performing the way the designers intended it to.

Since the connection between your car and the racing surface is critical, be sure you are using the best tires for the track and conditions you are racing on. The hobby shop, club directors or other racers are more than willing to help steer you in the right direction.

In all cases, car manufacturers are eager to help you set up your car for local conditions. Most post setup sheets on their websites or have customer service representatives, many of them pro drivers themselves, on hand to help get the most out of your car. Local hotshoes are also a valuable source of information. Don't ever be afraid to ask for help or advice.

The idea is to make sure that your car is working the way it is intended to work. Poor handling due to incorrect settings or improper assembly will make the car hard to drive, which in turn makes driving it less enjoyable and nearly impossible to master.

FINDING THE LINE

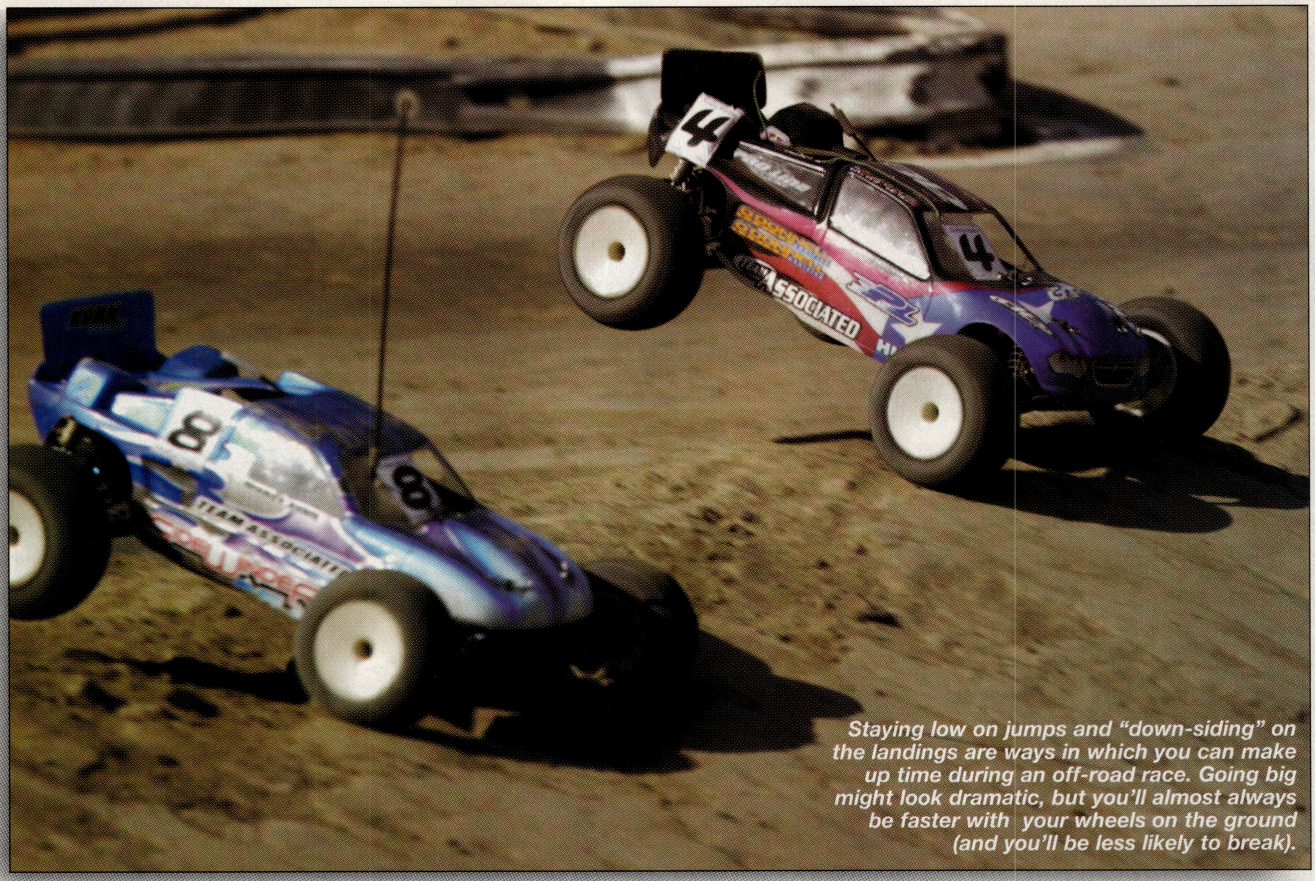
The best line around the track is not necessarily the fastest line. It is the line that allows you to complete laps quickly and consistently. The class you are racing *and* the track conditions determine how to find your best line.

• Electric off road racers will encounter different track conditions. However, because electric cars are relatively light with low power, the conditions will not change much over the course of an event. Your best line should be able to be determined in practice sessions and remain unchanged.

• Blue groove off-road tracks have a narrowly defined line. This line is always the quickest and should be followed. The unfortunate fact is that even if this is not the line you prefer, failure to follow it will result in extreme loss of traction and time. This line is usually the shortest line around the track and allows the smoothest transition from one corner to the next.

• Tracks with loose soil or harder tracks with no blue groove allow individuality in your race line. The shortest distance around the track is typically the line you should follow

Driving



Staying low on jumps and "down-siding" on the landings are ways in which you can make up time during an off-road race. Going big might look dramatic, but you'll almost always be faster with your wheels on the ground (and you'll be less likely to break).

and delivers the fastest lap times. Obstacles such as jumps and berms can alter this philosophy. For instance, a berm on the outside of the turn can allow faster cornering speeds even though you have to cover more distance. And big, hard to clear jumps may require wider lines in the turn preceding them in order to gain enough momentum to comfortably clear them.

• Gas tracks are relatively large, lightly maintained and built with loosely packed soil. They tend to deteriorate over the course of an event. Because of this, what might seem like the best line in practice no longer is once racing starts. This line can even change during each round of qualifying!

Avoiding the increasingly bumpy sections of track and rutty faces of jumps becomes the number one priority and requires the use of a line that seems unnatural. You may have to go wide in turns, use the opposite end of a jump, or even use less throttle on bumpy straightaway sections just to stay in control of your car. Because gas races are longer than electric, slower lines and careful avoidance of obstacles becomes the number one priority.

• On-road tracks are different, because the conditions change little, if at all. Carpet tracks develop a racing line made from traction additives that are worn into the track. Like an off-road blue groove, this line should be followed regardless of your comfort level. It is the favorable line that is the shortest way around the track with smooth transitions from turn to turn. Going outside this line will result in a severe loss of traction. Not only has this part of the carpet not been saturated with traction compounds, but it is covered with bits of rubber debris similar to the "marbles" seen on full-scale racetracks.

In most cases, asphalt or concrete tracks are coated with traction additives such as sugar water or VHT. This line of additive is usually pretty wide—often covering the entire width of the track. You should enter turns wide, cut to the apex, then roll the car back out to the outside edge of the turn. This wide arc keeps corner speed at a maximum. Watching full-scale road racing on television can really give you an idea of the lines to take. Be smooth when entering and exiting, leaving a comfort zone between your car and the track barriers.

Be careful not to drive "over your head." In a ten-lap race, you lose more time with one crash than you can gain by lowering your lap times two or three tenths-of-a-second per lap. Additionally, any crash can damage your car, resulting in slower lap times, or put you out of the race altogether. In many cases it is better to slow it down and play it safe. Lost time is nearly impossible to make up.

STARTS

Starting strategies depend upon the type of qualifying system used by the host track, plus many other variables. Most club races use "heads-up" starts. These consist of a starting grid spread out over a specified distance with an audible signal indicating the start of the race. All cars shoot off the grid at the same time with a very good

possibility of a first turn pile-up.

Avoiding this is the key. The general rule is if you are one of the first two or three cars on the grid you should go for it and will likely miss any pile-ups. If you are one of the last two cars, it is wise to take it easy on the start and drive around any first turn wrecks.

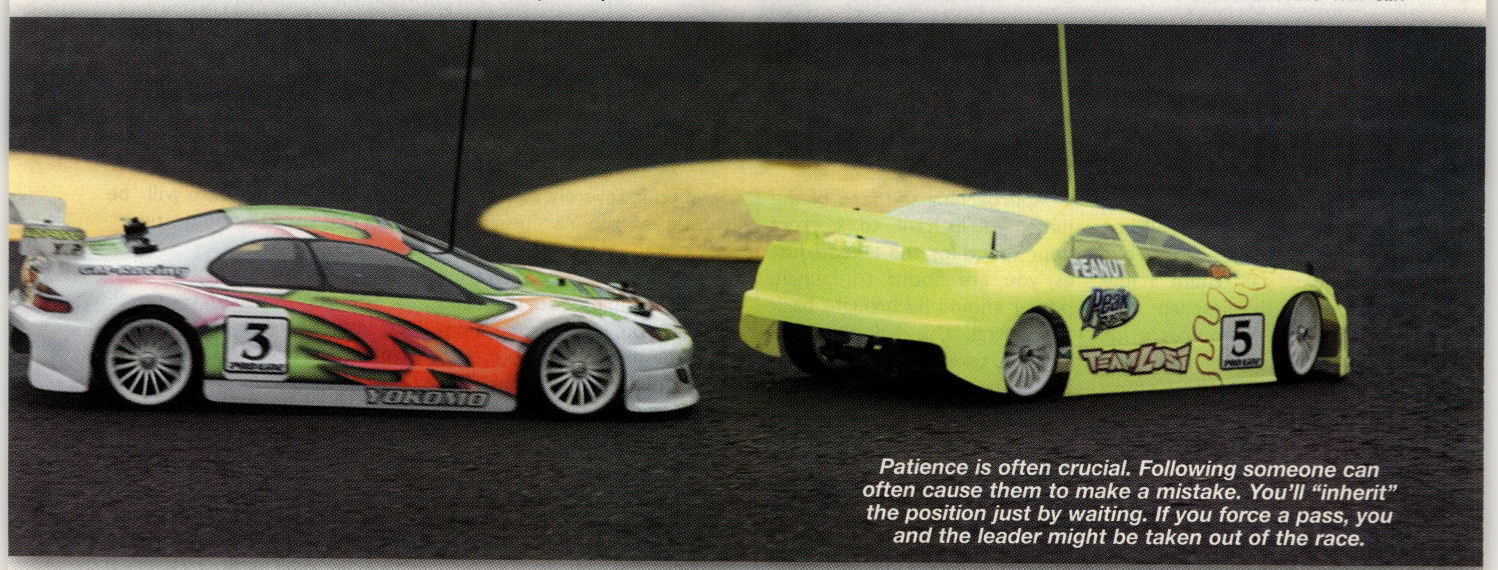
The middle portion of the grid is the toughest. The possibility of being hit from behind is high. And you have to avoid cars in front of you. The best solution is to give the car in front of you plenty of room to maneuver; if everyone follows this tactic, very few problems will occur with everyone making it through the first turn *en route* to good qualifying performances.

Among the variables that can change your strategy are deteriorating track conditions and your performance in previous qualifying heats. For instance, if a track tends to lose traction or become rough in later rounds, more importance is placed on a cleaner run during the fast round. Extra caution may be necessary to prevent an incident that will slow your overall qualifying time. Another example is if you have already posted a fast time, it may be worth the risk to improve your time further by trying to quickly move to the front, regardless of your starting position, before you hit the first turn.

IFMAR starts allow each car to start separately on their own clock, preventing the first turn pile-up. With this system, the best approach is to take it easy the first lap. Once you have built up a rhythm you can increase to a comfortable speed. Do your best not to crash on the first lap. You do not want to have to worry about the car starting behind you since the whole point of the system is to allow each driver to run his own race with minimal interference from other cars.

Main events are a completely different story. In most cases the top qualifier will negotiate the start with no incidents. The middle half of the pack must be patient. The only chance to keep the leader in sight is to stay as close to him as possible. Any wreck will send you to the back of the pack with little hope of catching up.

The back of the pack can take some more chances. For any hope to finish well they must get to the front quickly without incident. Racers who want to finish as high as possible and are not worried about the win can



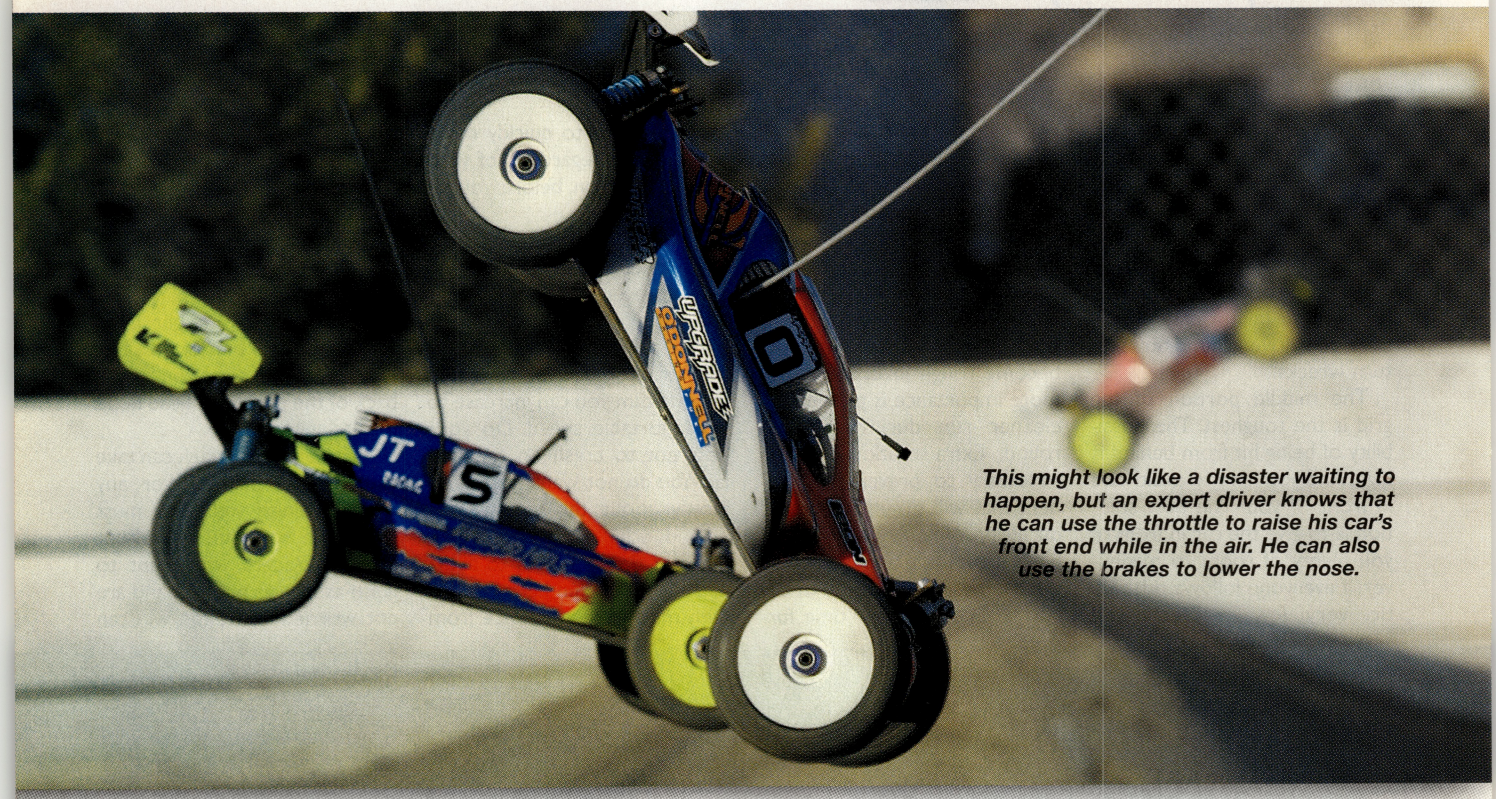
Patience is often crucial. Following someone can often cause them to make a mistake. You'll "inherit" the position just by waiting. If you force a pass, you and the leader might be taken out of the race.



PROFILE: RICK HOHWART

Age: 35
Years racing: 21
Hometown: Laguna Niguel, California
Marital status: Married, no kids, one dog
Major titles: Nine-time ROAR national champion, NORRCA off-road national champion, Reedy Race of Champions winner
Fondest racing memory: "Winning my first national title in '86. My partner and I had just started Peak Performance and we went to the Nats with new motors and batteries. Not only did we win the first time out, but I had just quit racing for Team Associated and did not have access to the then-prototype RC12L. So I was able to win with the 'obsolete' RC12i."

Driving 101



This might look like a disaster waiting to happen, but an expert driver knows that he can use the throttle to raise his car's front end while in the air. He can also use the brakes to lower the nose.

concentrate on avoiding the inevitable wreck. This will not send them to the front, but will at least gain them a few positions on the first lap.

Starting well requires a lot of experience. As you gain experience you will develop comfortable strategies that complement your driving style.

JUMPS

Although it seems easy, a good jumping technique will lower lap times significantly. All tracks are different and the techniques are endless. The simple thing to remember is that being in the air is slower than being on the ground.

In most cases, tabletops, double, triple, quad or any combo jumps can be taken best by landing on the downside of the jump. Because of the smooth landing, the next section of track can be tackled easily. Practice will determine the speed necessary for takeoff, and the orientation of the car can be manipulated in mid-air to set it up for a proper landing.

Approaching the face of the jump, you'll have to correct your speed for the takeoff. Just as you are about to launch, power should be brought back to neutral. This will ensure a smooth takeoff. Depending on the attitude of the car, throttle or brakes can be applied to adjust it. Tapping the brakes will bring the nose down while powering up will bring the nose up.

Generally, the brakes will need to be applied slightly because landing on the backside of a jump requires a nose down attitude. Powering up only applies when the car is in trouble because the nose is too low after leaving the face of the jump.

A smooth backside landing will keep the car pointed straight with no corrections needed to get it back on line.

Single jumps are difficult. R/C cars can land pretty well but after a certain height they will bottom out severely and land poorly. You should take a single jump at a speed that will allow the car to land without bottoming out severely. Adjust the attitude of the car using the previously described techniques. If you are overpowering the car, jumping too high and too far, you risk getting sideways, or bottoming out and flipping over upon landing. The risk of race-ending damage is also increased.

Jumping properly takes a lot of practice to master. But once you have mastered the techniques, you will be one step closer to victory.

COURTESY

Moving over for faster traffic in qualifying heats and practice sessions will prevent tangles that cost time and money. Be courteous to your fellow drivers. Courteous driving on your part will be remembered when it is time for other competitors to let you pass.

Always be nice to corner marshals and never yell at them. They are there because *you* made a mistake. You will no doubt find marshals tend to slow down when verbally abused. Be patient, keep your cool, and your car will be returned to action in no time.

PRACTICE

The only way to truly develop your skills is on the racetrack. Practice has no substitute. In fact, holding off on expensive hop-up parts and spending your money to pay for practice time is a worthwhile investment.

Have someone time your sessions using a stopwatch, or time yourself with a personal lap counter like the Team Orion Pro LCS (lap counting system). Try different lines, jumping techniques and setups and then compare your times. There is no better motivation than seeing your lap times drop while your confidence grows.

At times you may become frustrated, but don't let it get to you. It takes drivers several months to become accomplished racers. By taking the above guidelines into consideration, the time it takes to become an accomplished racer will be kept to a minimum. See ya in the A-main!

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KYOSHO TR-15

BEHOLD THE MONSTER-

XANAVI NISMO GT-R



We were this close [*fingers held apart about a quarter inch*] to naming this car... er, truck, the "Kyosho Thing." None of us could find a suitable classification. It's a car, it's a truck, it's a "trar..."

All of that nonsense aside, the Xanavi Nismo GT-R is part of Kyosho's new "monster touring" series (we concluded that by using the word "series" Kyosho plans on introducing more of these bizarre creations). Essentially, this vehicle is part Inferno 15, part F1 car, part Monster Beetle and part SuperTen touring car. That's a lot of things to fit in one box, but if anyone can do it, it's Kyosho.

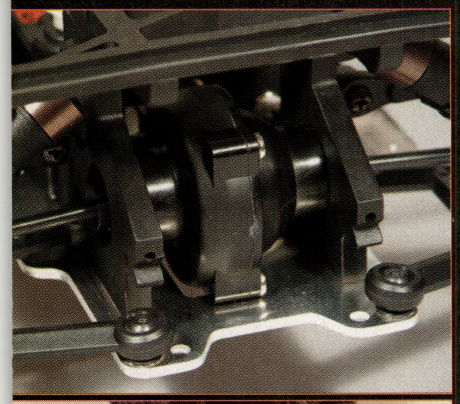
So if you're the type of person who marches to a different beat (such as classical New Orleans techno-pop), this could just be the kit for you!

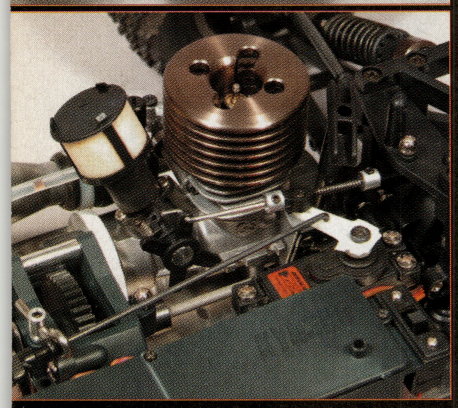
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COMPONENT PARTS

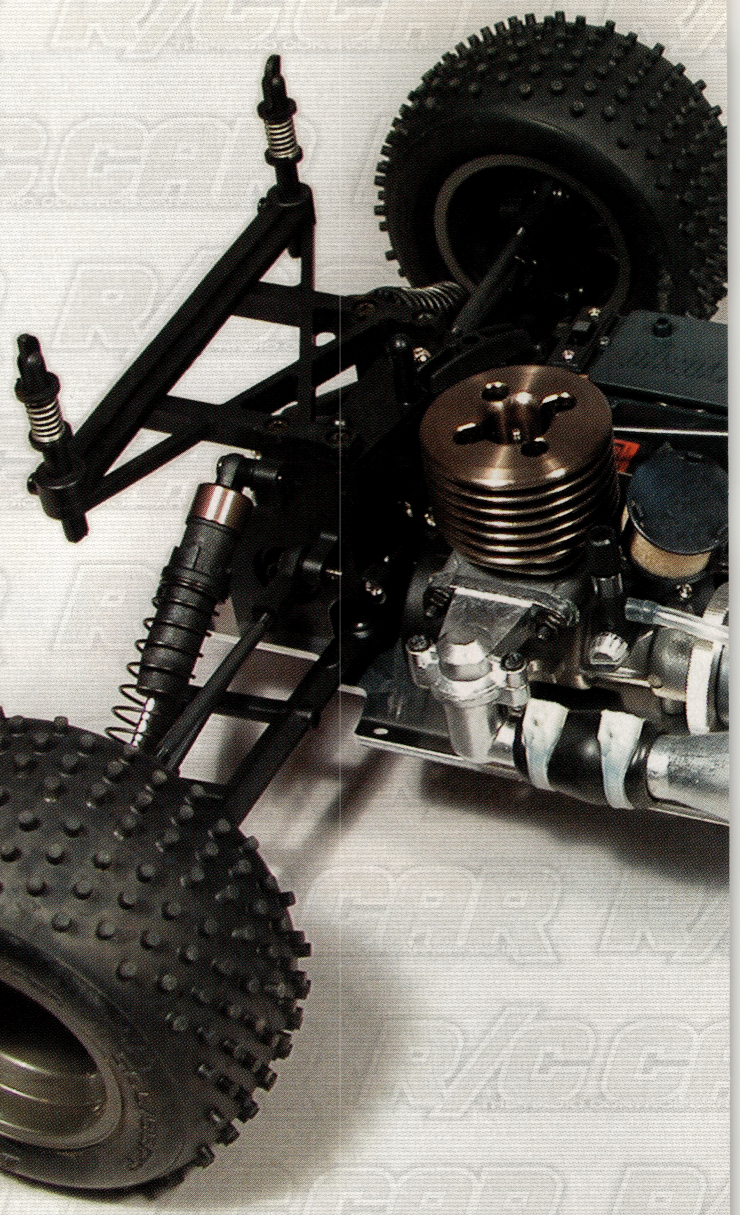
As the Nismo is actually comprised of three types of vehicle, let's start off with the heart of the beast—the chassis and drivetrain.

The basic platform of the Nismo is actually that of Kyosho's TR-15 "mini Inferno," which has also been used to create Kyosho's latest rally chassis (tested elsewhere in this issue). A 3mm-thick Duralumin chassis provides a semi-rigid backbone, gaining additional torsional stiffness thanks to its bent-up sides. As the Nismo has little other form of bracing, the chassis needs to be as strong as possible. Up front, the nose of the chassis has been bent upward to provide the kickup angle that's essential for rough-terrain handling. A spacious molded radio box is there to provide a relatively safe haven for your valuable electronics. It offers separate accommodations for the receiver and battery pack.





The Nismo's shaft-driven, full-time 4WD drivetrain traces its roots all the way back to the very first SuperTen (circa '94). Both in front and in back you'll find rugged gear diffs enclosed within sealed nylon gearboxes. The engine is mounted longitudinally in the chassis, and its power is sent to each diff through a centrally located spur gear and a pair of steel driveshafts. It's a very simple yet rugged design that has withstood the test of time.

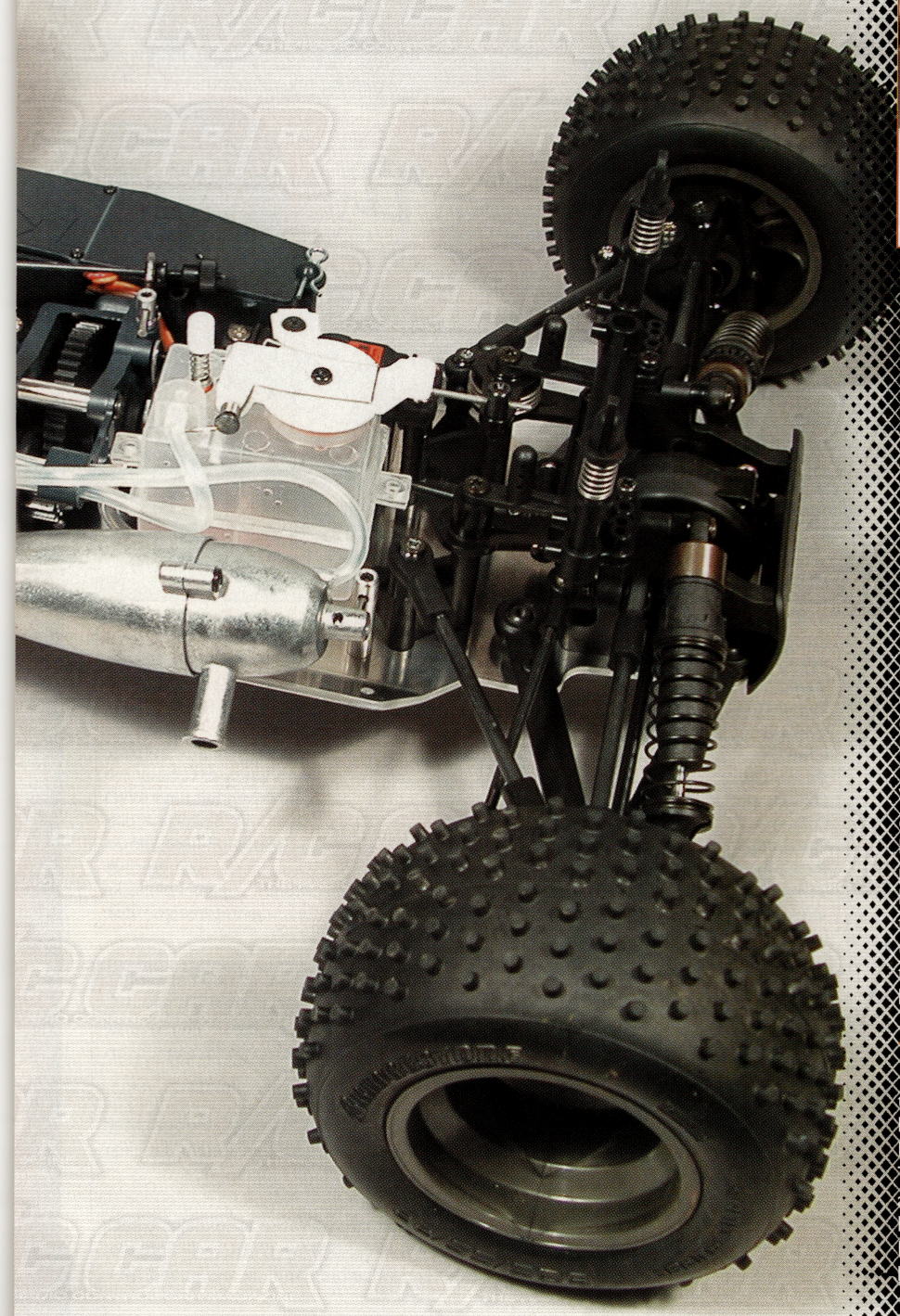


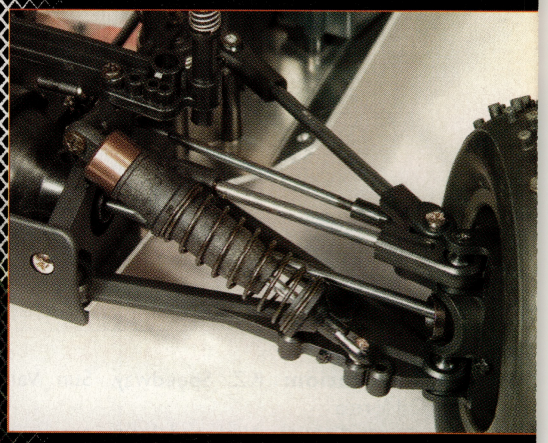
LINKING LOGS

In true monster-truck form, Kyosho needed to substantially widen the TR-15's suspension. What they did was come up with a really unique F1-style suspension system composed of lower wishbones with adjustable upper members to control front rake and wheel camber. The lower wishbones are attached to the chassis by steel pivot balls, which provide nice, smooth action. The front end actually has upper wishbones made from a V-shaped assemblage of steel tie-rods. This not only provides greater strength to the front hubs, but allows you to make slight adjustments to the front caster angle, as the front hubs are each held to the lower wishbone by a single pivot ball.

But it wasn't the suspension arms that drew the most attention from the crowd at KZ Speedway, the location for our test; it was the shocks. The dampers are your basic Kyosho molded oil-filled shocks, but they're leaned way over and have a unique "stepped" pre-load adjuster that looks like something you'd find on a real desert truck's

OUTSTANDING FEATURES





shocks. Rather than installing pre-load spacers or sliding a clamping collar up or down the shock's body, you just turn these adjusters to change pre-load. Pretty spiffy, although they've actually been around for quite a while (which goes to show that most people haven't been around too many vintage Kyosho products).

PULLING POWER

Kyosho's GS-15R is a good all-around workhorse engine. Since its introduction, it's been used in everything from on-road to off-road—that makes it perfectly qualified for an identity-challenged vehicle such as the Nismo. The good news is that this is an easy-to-start (thanks to its pull-starter and close tolerances), beginner-friendly powerplant. The not-so-good news is that this version comes with the single-needle carb—not the dual-needle carb that you'll find in other Kyosho kits such as the V-One S or the TR-15 Rally.

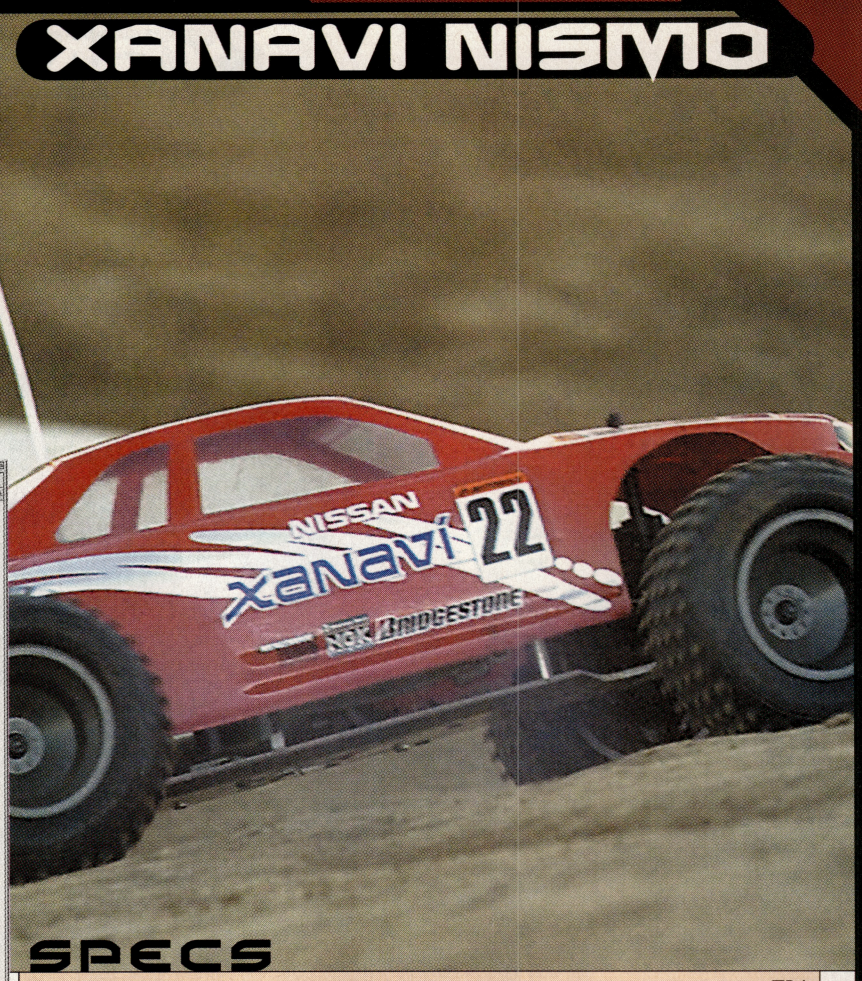
What effect does this have on performance? Well, it's true that this simplified carb makes it even easier to tune the engine (a boon for beginners), but without a low-speed needle, high and low rpm performance are dependent; you can't fine-tune the low-end throttle response. Usually what happens is that when you adjust the top-end needle to make the engine scream, the low end invariably becomes too lean and causes the engine to overheat. This has been our experience in almost all situations.

YOU'VE GOT THE LOOK

Many people came into our office as we wrote this review. Few paid any attention to the Nismo's bare chassis, but when we topped it with the Nissan Skyline body, people began to take notice. The same thing happened at the test track; few if any people have ever seen something quite as odd-looking as the monster-touring car/truck. Remember those guys who used to bolt El Camino bodies atop Bronco chassis? There ya go!

The look of the Nismo is finished off with a set of large spiked off-road tires mounted on attractive gray dish wheels. The tires are molded from fairly stiff rubber, so Kyosho didn't feel compelled to provide foam inserts. Before you glue your tires, install your own inserts; the tires will work much better. Any 1/10-scale stadium truck inserts will fit.

XANAVI NISMO



REPORT CARD

Test location: KZ Speedway, Sun Valley, California

Test conditions: Nice and loamy to dry and loose

Engine: B

The stock Kyosho engine was okay; it started right up and went through break-in and testing without a whimper. The only drawback to the engine was its lackluster spank. No Bark. Nada. Zip. The engine was a perfect gentlemen; smooth and reliable power—kind of like your Mom's old Dodge Dart. Other than that it was all good.

Steering: B+

The steering was good; what held the Nismo back was the stock oil in the shocks. Yes, the shocks' ride was poor and caused the car/truck to push and make corners wider than they should be. Stiffer oil and springs are a must if you want some steering.

Suspension: A+
mixed with an F = C+

When we first saw the truck, we fell in love with the look of the slammed shocks and the F-1 style A-arms. Once we pushed down on the suspension, however, the music came to a halt. So spongy! It would bottom if you just looked at it. Take our advice and put something such as 70wt oil in there; don't even bother with the stock oil. On a higher note, the spring adjusters on the shocks are way cool.

Handling: C

We really should have given a B, as the handling was actually good, but the shock setup is so poor out of the box, that it harmed the overall score. A little messing around and the handling would go to B+.

Durability: B

As always, Kyosho did a good job of creating a well-made kit. Things went together very nicely and the chassis was 10 percent assembled when we got it. We feel that this kit should hold together as well as most off-road kits out there. We did have one problem; the rear diff locked up during our test. The culprit was a chipped pinion gear (a cheap fix).

SPECS

Price:	TBA
Length:	16.7in/425mm
Width:	12.8in/325mm
Wheelbase:	11in/280mm
Track (f/r):	10.9in/278mm
Weight:	4lbs, 4oz
Chassis:	2.5mm aluminum plate
Suspension:	ind. lower A-arm w/upper camber link
Drivetrain:	shaft-driven full-time 4WD
Diff(s):	F/R bevel-gear diffs
Damping:	plastic oil-filled shocks
Bearings:	ball bearings
Tires:	mini-pin spike
Wheels:	one-piece gray dish

Final Score

HIGHS: Looking for different? The Xanavi Nismo GT-R is your ride. It's the R/C equivalent of something built in Jesse James' "Monster Garage." The overall quality is good (despite a bit of drivetrain trouble) and the engine is very user-friendly and reliable.

LOWS: You have to build this kit yourself (the sport R/C market is dominated by RTRs). The suspension is way too soft out of the box. We lunched a rear diff during testing.

THE VERDICT: : The Nismo GT-R is a fun kit that will make an excellent back lot basher. Don't expect racing-style performance; however, you will find that Kyosho's TR-15 chassis provides a good blend of stable handling and speed.

SOURCES

JR Racing, distributed by Horizon Hobby Distributors, Inc., 4105 Fieldstone Rd., Champaign, IL 61821 • (217) 355-9511

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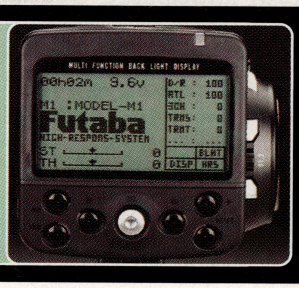
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SWAG REPORT:



Photos by Pat Carrigan

The latest Kyosho runts!

Kyosho's Mini-Z lineup is the largest in the world of micro-sized R/C cars. When introduced three years ago, these 6-inch long, fully operational R/C models set the standard for performance and appearance. Today, the Mini-Z continues to lead the way in terms of innovation and perfect scale looks that will appeal to anyone.

Here are three of the newest Mini-Z models, lead by the hotly anticipated Overland model—the first-ever off-road micro!

OVER THE RIVER AND THROUGH THE WOODS...

The Overland is completely different than any previous Mini-Z chassis. It shares virtually no parts with its on-road cousins.

By far the greatest off-road improvement made to the Overland is its articulated suspension. Both ends have rigid "axle" assembles similar to those of hard-core rock crawlers. Each axle assembly is tied to the main chassis section by a three-link system, which allow for excellent articulation when climbing and crawling.

Even though the Overland looks as if it has 4WD, it doesn't. The front axle assembly contains not a motor but the steering servo, which is not only more powerful than that of the regular Mini-Zs, but also comes with an integrated servo-saver to protect the gear-train from damage during off-road excursions.

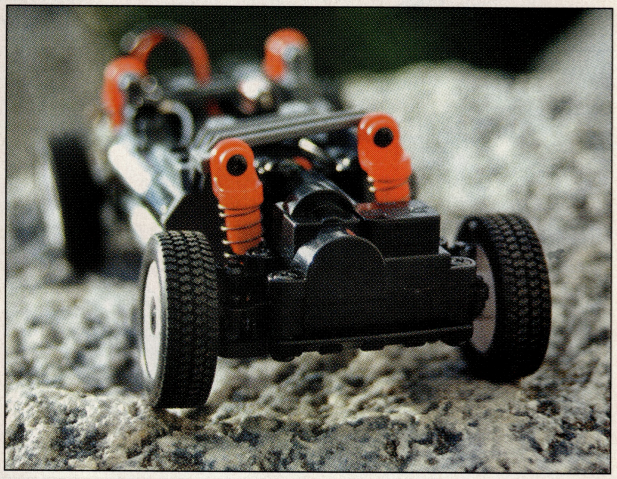
The rear axle assembly houses the motor and gear differential. Unlike the roadgoing Zs, the Overland isn't direct drive; it uses a two-gear sealed transmission to provide the correct ratio for off-road driving. And when you want to indulge in some serious climbing and crawling, you can install the included diff-lock plate to ensure that both wheels receive full drive force. Installing the plate is as easy as removing the left-rear wheel.

With all this axle articulation, the Overland needed some serious damping. Thankfully, Kyosho has devised a set of four oversized coil-spring shocks, which provide excellent chassis control and supple damping to handle both on- and off-road conditions. If you really want to explore the Overland's capabilities, Kyosho

mini-Z news







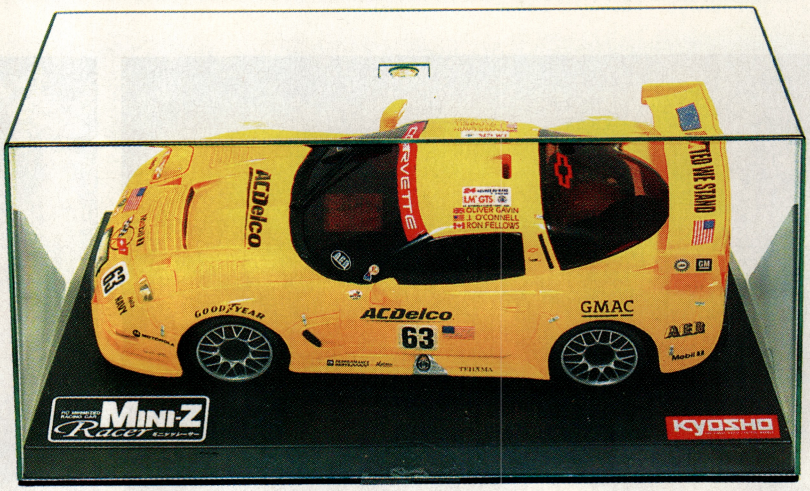


offers a set of oil-filled dampers to replace the coil-spring units.

Kyosho designed the Overland with six different wheelbase options—enough to accommodate a variety of future body shells. This first Overland comes with a stunning Mitsubishi Pajero body. Like other Zs, the Pajero molded from hard styrene, and is of static-model quality; no clear Lexan body could ever hope to match this level of detail. The body also duplicates the real Pajero's approach and departure angles (50 and 40 degrees, respectively), so you'll be able to get up and over seemingly impossible obstacles without becoming snagged.

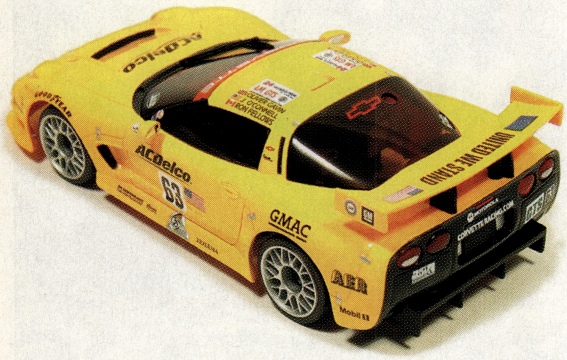
mini-z news

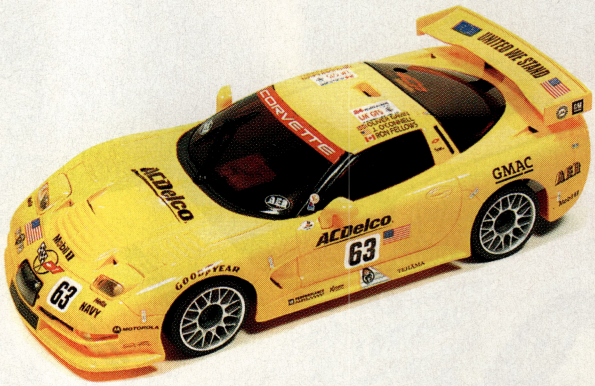




CORVETTE C5-R 2002

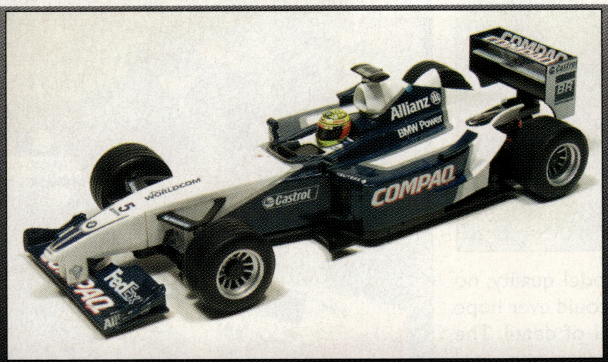
This new member of the Mini-Z Auto Scale series is a replica of Chevrolet's awesome C5-R 'Vette as campaigned in the 2002 24 Hours of Le Mans. The kit comes with a hard-styrene body that is of display quality. All of the decals are pre-applied, so there's nothing you need to do except marvel at its fantastic looks! The gray mesh-style wheels add the finishing touch to this beautiful bow tie.





WILLIAMS F1 BMW FW24

Kyosho already has the 2002-season Mini-Z F1s, and the latest are the number 5 and 6 Williams-BMW FW24s. The Mini-Z F1s are slightly larger than the standard Zs, and they offer even better handling (just like a real F1 car!). The body is injection-molded of hard plastic, so it has great detail, but isn't super-durable during hard crashes. Fortunately, Kyosho includes a clear under-bumper that provides protection while preserving the car's scale looks. As with all Zs, the Williams-BMW comes with a pre-installed Perfex pistol radio.





SOURCES

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

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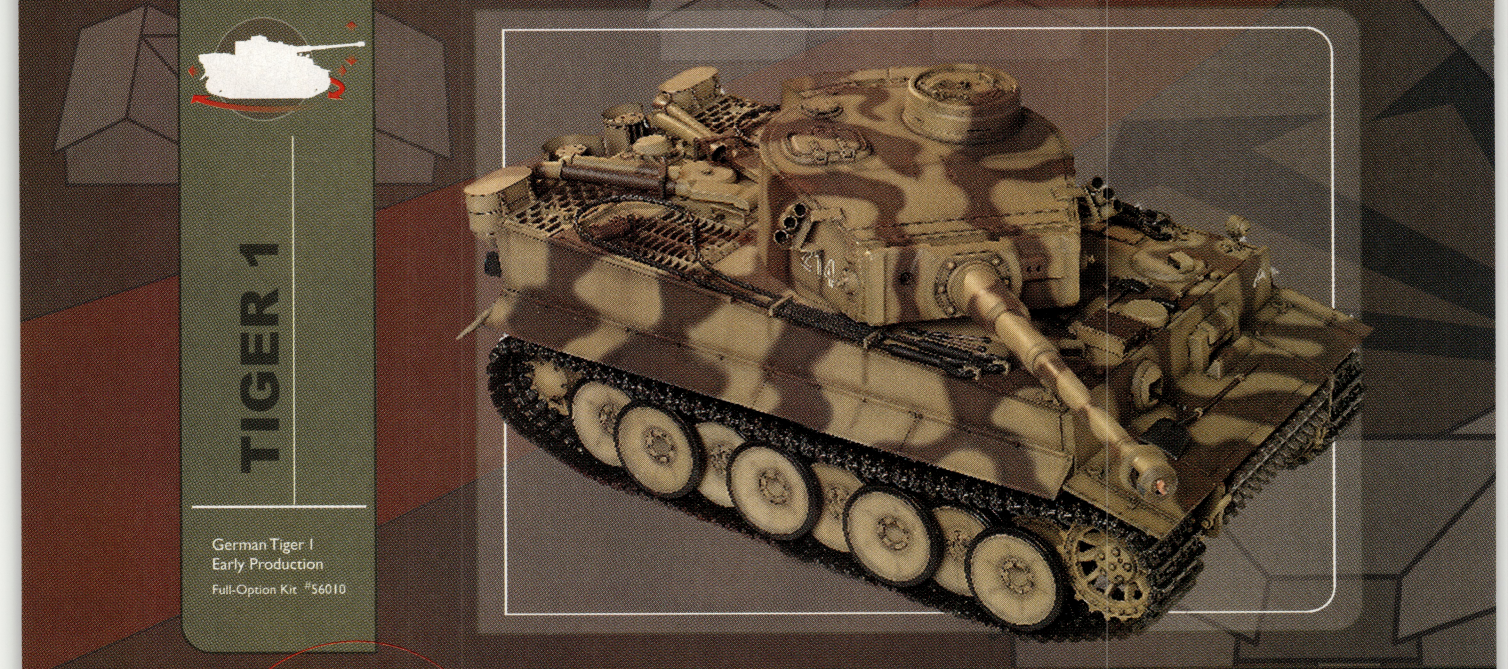
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BATTLE OF THE BULGE...NOTHING COMPA



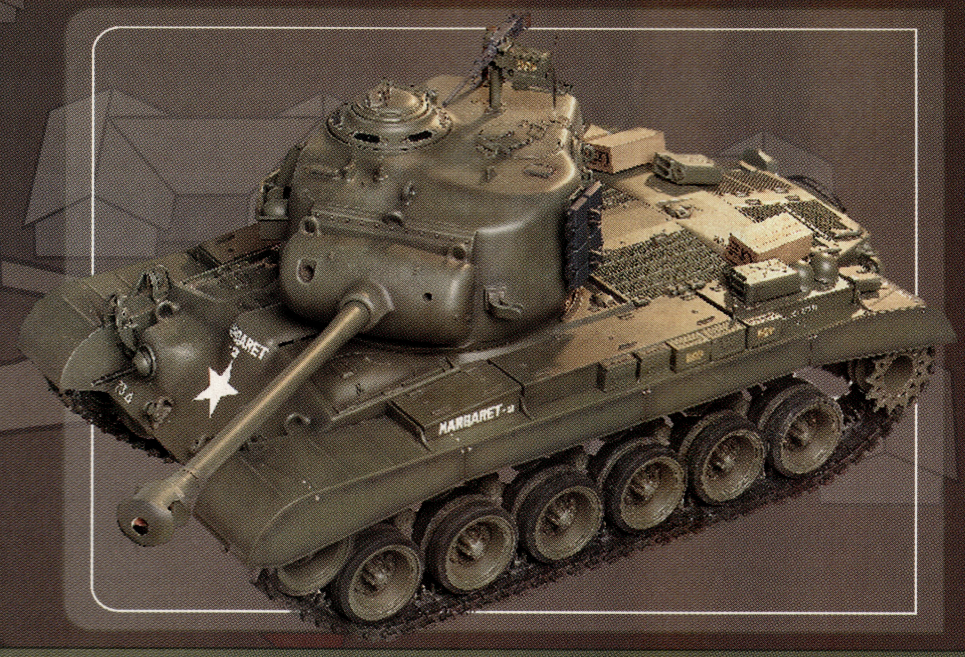


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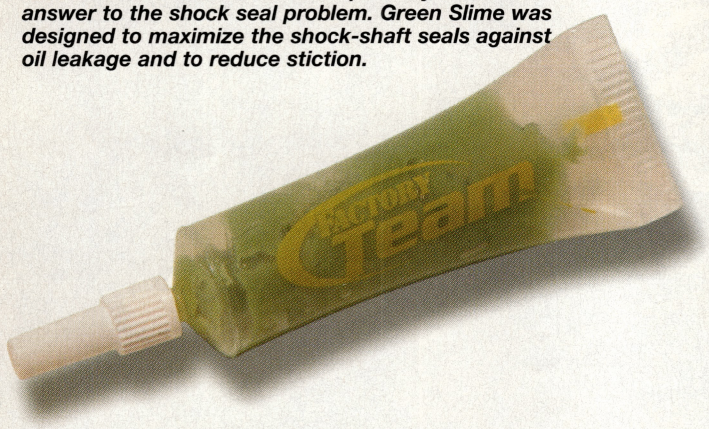
FUTURE SHOCK

By Brian Skinner

The shape of shocks to come!

In our last issue we talked a little about suspension basics ("Monster Mashing"). This led Frank and I to talk about the future possibilities of R/C damping. We began talking about the suspensions used in motocross and mountain biking, how well they work, and all the tuning possibilities these systems have. Of course this led back to R/C. And we were left with the question: can R/C suspension become as sophisticated as real-world suspension?

Let's face it; R/C suspension is in the dark ages in comparison to real-world suspension. So being the ever-diligent reporters we are, we decided to investigate the differences between various full-sized suspension systems and those of our R/C models, and what, if any, of this full-sized technology may find its way to our cars and trucks in the future.



Associated's Green Slime could possibly be the answer to the shock seal problem. Green Slime was designed to maximize the shock-shaft seals against oil leakage and to reduce stiction.



Shock oils come in a varitey of weights. 25wt oil produces a quicker compression and rebound. Thicker oils such as 80 wt would be for slower compression and rebound.

Let's start this off by squaring up the two worlds. In the real world, vehicles operate on two surfaces, manmade and Mother Nature made; in other words, pavement and dirt. The same is true for the R/C world. In both worlds, the whole idea is to keep the vehicle stuck to the ground, operating smoothly, and in control. But when we think about how each world goes about achieving this goal, we start to see a separation. In fact, the worlds begin to split dramatically!

Yes, both worlds use shocks to control the movement of the suspension, but real world cars, motorcycles, bicycles—heck, even the space shuttle—have far superior technology invested into the suspension than our R/C models. And rightly so; after all, people have to sit on these things. Large amounts of money are to be made by making it more comfortable for people to use their vehicles comfortably; not to mention the racing side of things. Companies spend huge amounts on R&D to get to the finish line first, and aside from the engine, the suspension is the key.

I decided to call some of my buddies who work for some suspension companies and find out what they knew; basically, I wanted some more insight about full-sized suspension. I also called some R/C people to find out what, if any, advances were going on for R/C shocks. Everyone agreed that R/C suspension could use some help—but most of the industry people I talked to said that not only would the adaptation of some full-sized technology be extremely complicated, but the cost of doing so would be prohibitive.

CALL NUMBER ONE

My first call was to Answer Products, makers of some of the world's best suspension products known to the mountain bike world. I spoke with Tommy Rogers, head patron for Answer's bicycle suspension R&D department. Tommy knows his stuff about suspension, and we have worked together on many bicycle projects over the years. I figured he would know what was what. Did I mention that he is a "closet case" R/C person, too? It was a wonderful day in the neighbor-

hood, so Mr. Rogers was willing to spill his pearls of wisdom to me. This is his spin on suspension.

Tommy agrees that R/Cs are lacking in the suspension area, and could definitely benefit by borrowing some technology from mountain bike suspensions. Overall, both worlds have the same basic system. The problem lies in the damping of the shock and in its seal system. First the damping issue: according to Mr. Rogers, R/C uses basic old school "orifice damping," which means you have a piston that travels through oil to control the shock movement; a metered flow rate.

The current R/C shock has no way to control flow rate other than by the number and sizes of the holes in the piston. To wit, you have the same flow rate when the shock is compressed as when it is extended. Why isn't this good? Because you want different flow rates in damping compression and rebound. Ideally, you would want a certain rate on compression and a certain rate for rebound. You would also want to be able to adjust those flow rates depending on the condition of the terrain on which you are running.

Enter the real world! Now we are in Mr. Rogers' neighborhood! Tommy suggested that since all suspension is based on the orifice piston (the base of all modern suspension damping), the current R/C shock has the potential to "cross over" to more modern style systems.

One of the popular full-size systems in use today is the "shim stack" system. The shim stack method is a speed sensitive system that reacts to the velocity of piston movement rather than a set flow rate like the orifice piston.

This is achieved by setting thin flexible shims over the piston's holes to control oil flow in one direction, and another set of shims on the opposite side to control movement in the other direction. Any combination of shims can be used to achieve the desired action needed. The shims stack system could add another dimension in fine-tuning of the standard R/C shock. Are you with us so far?

SHIM STACK CUTAWAY

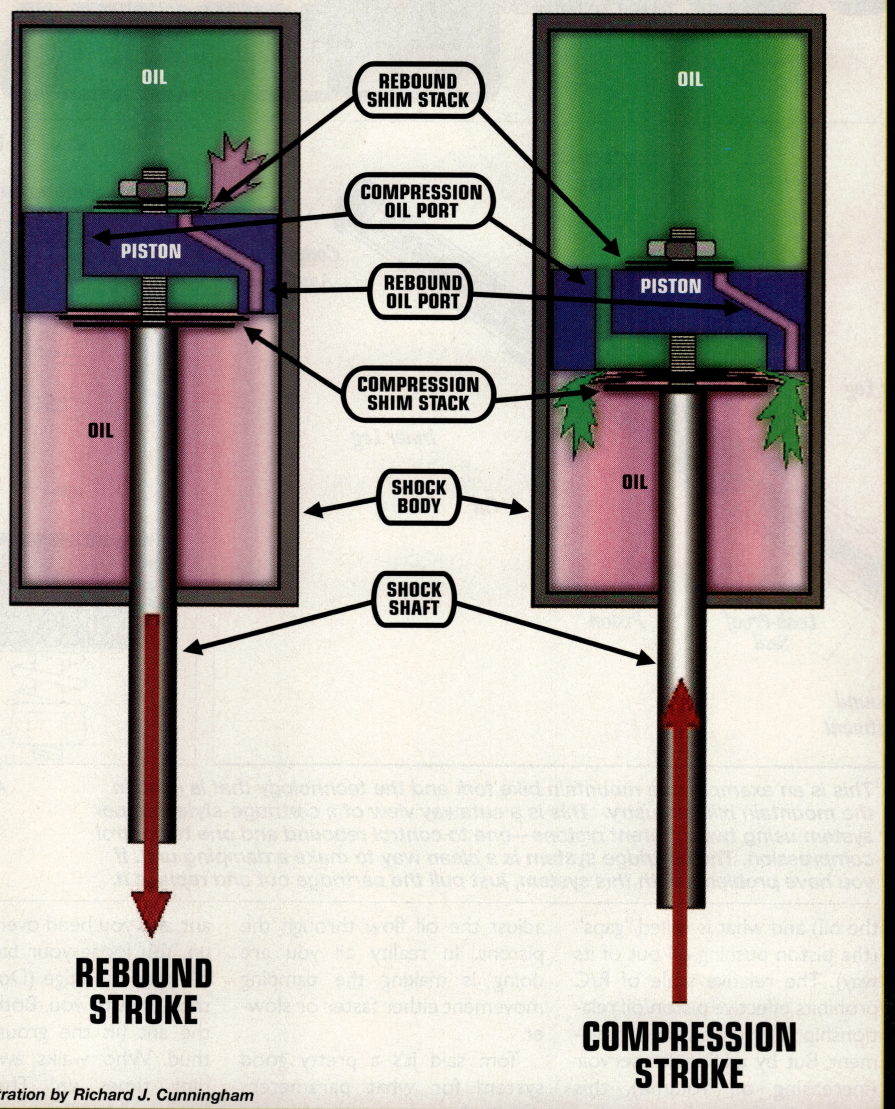


Illustration by Richard J. Cunningham

Rebound Stroke: The rebound stroke is transfering oil from the bottom chamber to the upper chamber via the rebound oil port,—the same as it would in an R/C Shock. The difference is the shim stack. As you can see, the rebound shim stack is flexing to allow oil to pass through into the upper chamber, while the compression shim stack remains closed.

Compression Stroke: The compression stroke is transfering oil from the top chamber to the bottom chamber via the compression oil port. The difference is the lower shim stack washers are flexing to allow oil to pass through into the lower chamber, while the rebound shim stack remains closed. By separating the two strokes via the shim stacks, you can control the compression and rebound rates by increasing or decreasing the shims' flex rate. Adding or subtracting the amount of shims and their thicknesses also fine tunes the compression and rebound flow-rate through their individual strokes.

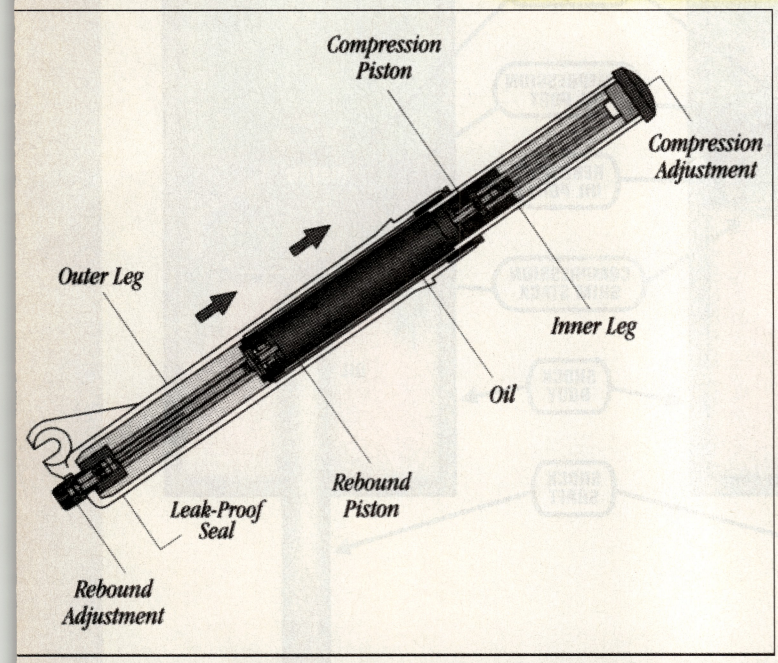
CALL NUMBER TWO

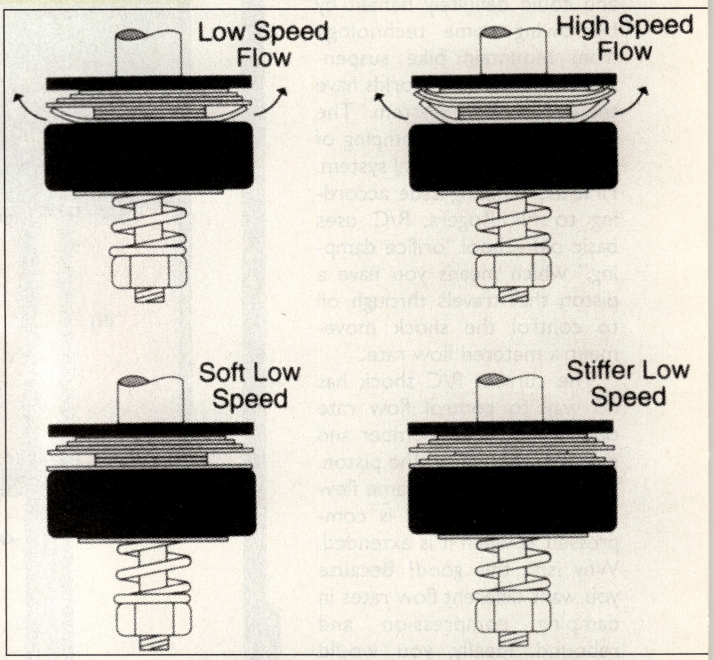
The next call on the list was to Progressive Suspension, a company that has its hands into many aspects of suspension. They do motorcycle, bicycle and R/C car suspension. In fact, in my opinion, they have the most advanced R/C shock in the market. Progressive's EDC shock has two features that no one else uses in the R/C world: external oil reservoirs (more oil equals good) and external adjustment for piston settings.

I talked a little with Tom Bulock, who works with both the R/C and bicycle suspension that Progressive makes; he was a good contact to help with this story.

Tom also agreed that R/Cs need better shocks, and this is why Progressive came out with the EDC shock. Although they really did not borrow too much from their other shocks, their EDC shock is, in my opinion, a giant leap forward for R/C cars. The first technical upgrade was to increase oil flow. Oil flow and oil volume help shocks tremendously. Unfortunately, R/Cs suffer from too little area for oil. That's why Progressive used a remote reservoir to increase volume. This is used quite a bit in other systems to eliminate emulsion (air bubbles trapped in

FUTURE SHOCK





This is an example of a mountain bike fork and the technology that is used in the mountain bike industry. This is a cutaway view of a cartridge-style damper system using two different pistons—one to control rebound and one to control compression. The cartridge system is a clean way to make a damping unit. If you have problems with this system, just pull the cartridge out and replace it.

Above is an example of shim-stack adjustment and the different configuration to control oil flow. As you can see, the thin washers cover the top of the piston and allow you to adjust the damping rates.

the oil) and what is called "gaps" (the piston pushing oil out of its way). The relative scale of R/C prohibits effective piston/oil relationship in suspension movement. But by adding a reservoir (increasing oil volume), this increases ideal piston travel through its stroke. Got that?

On to Progressive's other unique feature that borrows from other applications: their adjustable piston settings. This system is not only tuneable, but you can adjust it externally without having to disassemble the shock. The basic layout of this system works like this: you have an external "clicker" at the bottom of the shock shaft, and this is connected to an adjusting shaft that sits inside the shock shaft. The adjusting shaft is connected to the piston. Now this is where it is different from standard R/C shocks; you have two pistons on top of one another. One is connected to the adjustment shaft and one is connected to the shock shaft. Both pistons have different hole sizes in the them, and when you turn the external clicker, you can now adjust the oil flow through the pistons. In reality all you are doing is making the damping movement either faster or slower.

Tom said it's a pretty good system for what parameters they had to work with. He went on to say that Progressive could do a lot more in shock development, but the problem is twofold; for one, the shocks would cost a fortune. And two, there are limitations to what they could do. R/C shocks are small and when you scale down the dynamics of what damping does in the real world, the math just doesn't work out right. To make the physics of the shock work as well as the full-sized version, you would need to overscale the shock to the relative scale of the R/C vehicle. This would require the car manufacturers to redesign the suspension area of their vehicles to accommodate a different shock.

To give you a better understanding of what Tom is saying I'll give you the "Skinny" example: You're standing at the top of a two-story building. You see an ant, and you bend over to pick it up. You loose your balance and fall over the edge (Doh!), taking the ant with you. Both you and the ant hit the ground with a thud. Who walks away? Dingding, times up! The ant, of course! Why? Because of physics and scale. When you step outside of Mother Nature's scale, things change.

Think about that one for a minute.

CALL NUMBER THREE

This was to be my last call on the damping issue (but like most planning, things didn't quite go my way). It was to my buddy out in the "black hole" of the R/C car universe, Durango, Colorado. My good friend HB (Greg Herbold) is a super honcho for Rock Shox—another bicycle suspension company—in fact, the company that started it all.

HB is the most creative guy I know, and with his sidekick Kenny When, they amount to probably the most out-of-control R/C people I know. They spend more money on R/C than NASA spends on the space program. HB thinks, as did most of the people I talked to, that R/C shocks could use some help. Here are some of his ideas on what could be done.

HB agrees with Tom from Progressive that the scale of the shock is a hurdle for designers, but he thinks it could be done. Again, as with the other guys we spoke with, he feels that a speed sensitive shock is the way to go. HB then threw a curve ball at all this by suggesting the use of an air spring system. This actually would be cool! Just think of your current shock with no spring on it, and that's what an air shock would look like. An air shock is really simple; you just pressurize the shock body with air or nitrogen and you're off (this is of course the simplified version). HB went on to say that in going this route, you could also increase the shock-shaft diameter to create stronger shocks. Not only that, but you would have almost infinite adjustment of your spring rate, and you'd never have to use those stupid spring spacers (wah-hoo!).



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FUTURE SHOCK

Another item HB mentioned was having adjustable suspension. That is to say, suspension with adjustable shock travel. Most modern mountain bikes worth their salt run systems that allow you to change from 100mm of travel to 150mm of travel. HB thinks this would work for R/C because adjusting "ride height" is important, and having an "on the fly adjustment" would be a lot better than having to always change shock positions on the vehicle.

One last thought is "bottom-out-bumpers." Most suspensions have these, and what they do is to assist the last part of the stroke (where damping is its weakest), and also help lessen the impact of a harsh bottom-out to the chassis and suspension components. All in all, some good ides form the "real world" of HB. On to the shaft seals (well, sort of).

LAST CALL OF THE DAY

To get the perspective of an R/C insider, Frank suggested I call Cliff Lett at Associated. I'm glad I did. Turns out Cliff is an old throttle twister like myself, and a mountain biker, too. Needless to say, we hit it off well and both of us enjoyed a nice hour-long "techno weenie" conversation on suspension.

It was a sobering conversation, too. Seems that Mr. Lett has been around the block on all this techno babble, and has been there, done that on all the ideas we have been throwing around here.

It seems all the real world ideas we have suggested in this story fall prey to one main rule, and that includes the seals for the shock shaft. That one unavoidable rule is "stiction and friction." Darn! I forgot all about this element in my quest for a better shock. All the above ideas are great, but as you scale down to R/C size, you start to run into a situation where the weight of the vehicle plays a role in overcoming the stiction factor of all ideas we have presented. (Stiction is jargon that describes the amount of force needed to set an object in motion).

The problem is that if we were to tighten up the tolerances on the shaft seals and pistons to make the shock work better and seal better, it would require more energy to activate the suspension (to overcome the stiction). Since R/C cars are relatively lightweight compared to, let's say, a YZF450, we would actually go backwards in the performance of the shock. Hmm, could this rule of nature be overcome?

Cliff did leave me with some thoughts on this. We could simplify the technology we have discussed here: a leaf-valve system could re-place the shim stack idea. Or a funnel-valve piston could be used also. These will work in the low stiction and friction environment that is the current realm of the R/C shock.

And as for the seals, it seems we are stuck with what is in use now, but Cliff did provide an excellent idea to help improve the existing seal system. His suggestion is to use a petroleum-based grease that is designed to work with silicone oils and seals. This grease actually causes the seals to reduce friction and increases the O-ring seal's ability to wipe the shaft. And as a matter of fact, Associated has such a grease. It's called Green Slime (part no. 1105). Wait! Was this a product plug from Cliff?

CONCLUSION

So we are still stuck with a question: can we improve R/C shocks? After talking with Cliff, I had to rethink things a little. And so to get the ball rolling on this, I managed to get the boys at Answer Products to give it a whirl. They are working on a prototype "shim stack" R/C shock. And Garen at GS Racing is to supply them with some 1/8-scale shocks to play with. We will see if it is possible to use real world suspension systems in the R/C world. We will discuss this in the next installment of these suspension articles and let you in on more information Cliff Lett discussed with me, in "Future Shock II."

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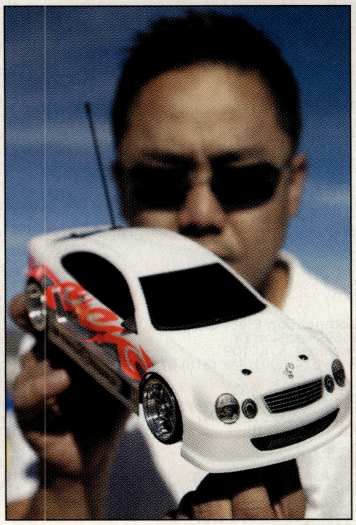
Dat Dao's insane Micro RS4

I first met Dat Dao out at KZ Speedway when he was spankin' me in the 1/8-scale class. I saw some interesting things on his buggy, so I went over to investigate. Turns out Dat works with Crazy Nut Racing as their West Coast rep. After we talked a while, I found out he has been doing R/C cars for 21 years. To show me what he is capable of, he brought out a totally custom HPI Micro RS4.

His Micro showcased what Dat is all about. I was so impressed, in fact, that I thought we should highlight his wicked Crazy Nut Mercedes-Benz Micro!

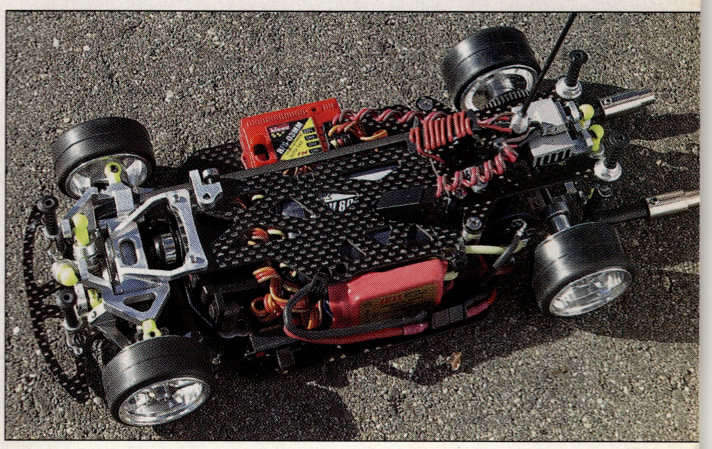






Right: Coffee cans. Dat used HPI's concourse kit. In particular, the large tailpipe extensions. Far right: The man himself with his creation.

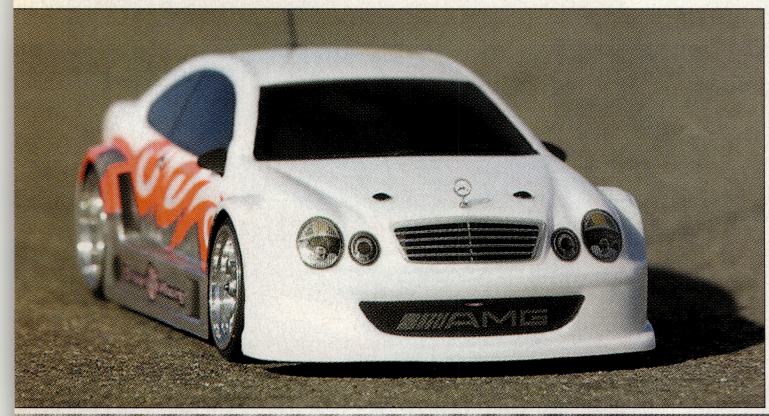
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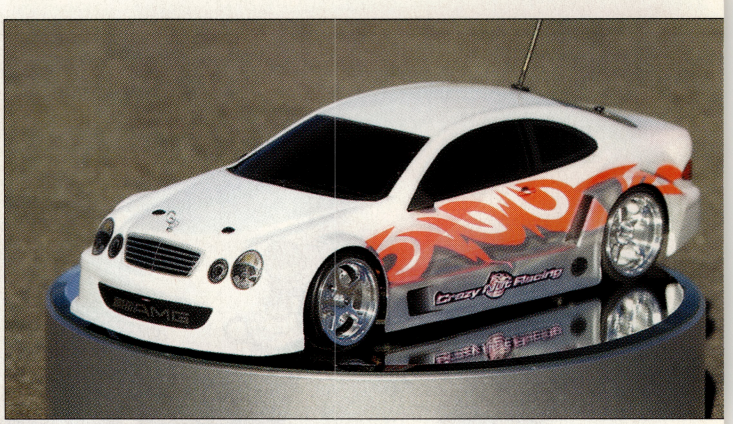




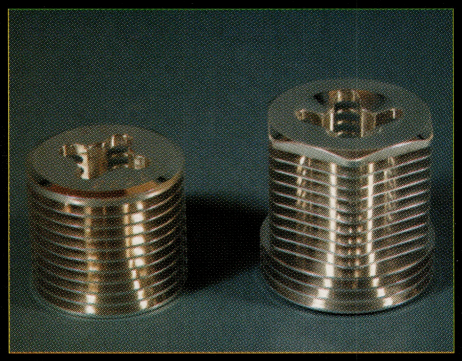
Dat's Micro can't really be called an HPI product, as it uses hardly any original Micro RS4 parts!

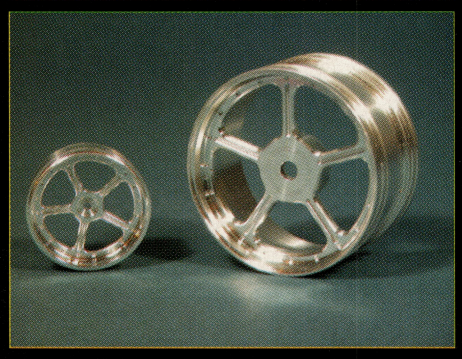
CRAZY NUT CONCOURS CAR

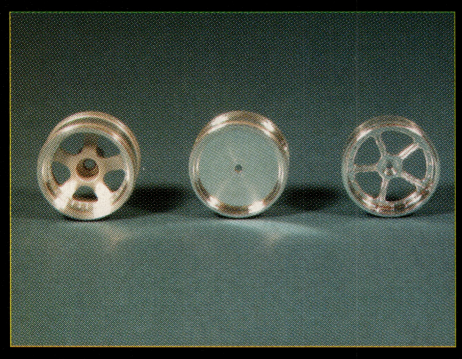




THE STORY OF THE CRAZY NUT







Based in Baltimore, Crazy Nut is made up of three people. They are Dave Zacharko (head genius and main person behind Crazy Nut), Dat Dao and Nelson (both of whom live in Southern California). Dat and Nelson are in charge of testing and racing the Crazy Nut products, and are in charge of marketing for the fledgling company.

During our conversation, Dat whipped out some of Crazy Nut's new products to give me an idea of the company's direction, plus how obsessive Dat is when it comes to attention to detail.

Crazy Nut makes heads for almost all nitro engines, and currently offers nearly 30 variations. Dat claims the Crazy Nut head will reduce your engine's temperature by as much as 70 degrees. A boastful claim, but several racers who have used these heads attest to the reduction in temperature. The heads come in two styles: the round head is for .12 to .15 engines, and a hexagonal head for .18 engines and larger. The heads are made from a 7075-T6 aluminum, but have special elements added in to help cooling and to add strength. The price for the heads is around $45 for small-block heads and for $69 for the bigger ones

Crazy Nut's rims are USADA choice cut! Crazy Nut makes three different styles of rim: solid dish, five-spoke pattern, and HMC style. All of them look great and again, they have the "secret sauce" aluminum that is also used for the heads. The rims are available in different sizes, ranging from 1/18-scale (Micro RS4), to 1/10-scale and 1/8-scale. Prices for the wheels range from $60 for a set of four 1/18-scale wheels, to $49 per pair for 1/10-scale and $69 per pair for the larger 1/8-scale wheels.

CRAZY CAR GUY

Check out this sweet Benz! This baby is based on the HPI Micro kit, but not one part is actually from HPI! Well, I fudged a little; he did use the HPI concours kit that comes with Ti-antenna, aluminum drag-link, side mirrors, body posts and tail pipes, which he modified to his liking.

For the most part, Dat's Micro is made up of aftermarket components, and a lot of these are from Crazy Nut. Lets start from the ground up!

- Chassis: the chassis is a carbon-based life-form from RA, and it's accompanied by a cool carbon fiber bumper, also from RA. Both are strong and look oh-so cool!
- Suspension: this suspension setup is from Crazy Nut, and it was duplicated from a GPM system that was made, but never came over from Hong Kong. So Crazy Nut decided to make them here for the U.S. market. If you look closely, the shocks are aluminum, oil-filled and have threaded bodies for fine-tuning the pre-load. Pretty cool.
- To the powerplant, Batman! The heart of Dat's Micro is a brushless motor made by a company called Modelmotors out of the Czech Republic. According to Dat, this motor hauls wood! To help out the motor, Dat made an eight-cell pack that just barely fits

within the confines of the chassis. And to control all this power, Dat used a brushless controller by Jeti. May the Force be with you.

• Rims and rotors: this is all Crazy Nut, man! These very clean-looking five-spoke wheels come complete with realistic brake rotors. And like all of the aluminum parts on Dat's car, the wheels are made from their special blend of 7075 aluminum.

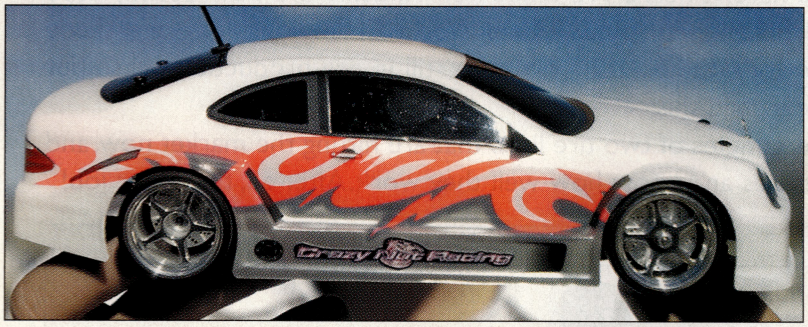
• Body and lights by HPI: the Mercedes-Benz body is from HPI, and has been sweetly painted by Marty Korn [Korn Designs (818) 340-8163. Give Marty a call if you like what you see]. Another outstanding feature are the lights Dat installed. These lights are also from HPI, but with the Crazy Nut twist; Dat re-wired HPI's light system to install a few more bulbs to make things look a little brighter.

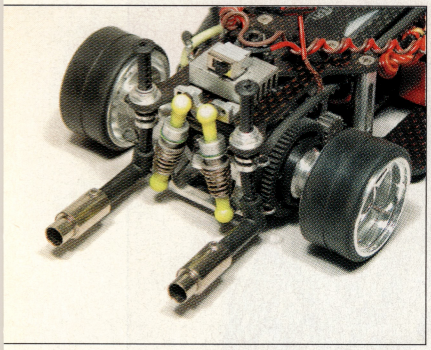
• Body mounts: I have never seen a cleaner body mount system! This is Dat's idea of how a mounting system should be, and I agree; this looks too cool! The basic idea is to use button-headed screws to hold the body in place. The screws pass through holes in the body and are threaded into posts. The only thing you see on the outside of the body are the tiny screw heads. This is a much more realistic look than you get with traditional body clips.

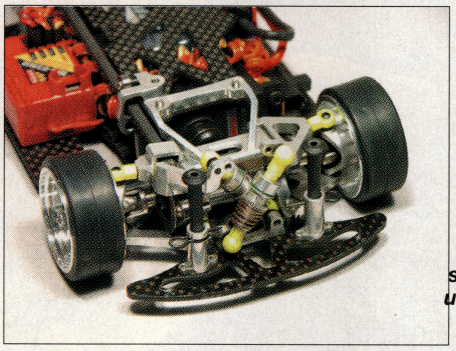
• Bearings and pulleys: of course, a car of this stature needs the best of everything, so Dat went for it. He installed sealed ball-bearings all over the place because the Micro is adept at sucking in carpet fibers when run indoors. These bearings won't get fouled as easily as the stock ones. Finishing off the project, Dat turned to Golden Horizon for their rear ball diff and front gear diff setups. He also added a GH ball-bearing-equipped belt tensioner to help keep the drive belt stable during chassis flex.

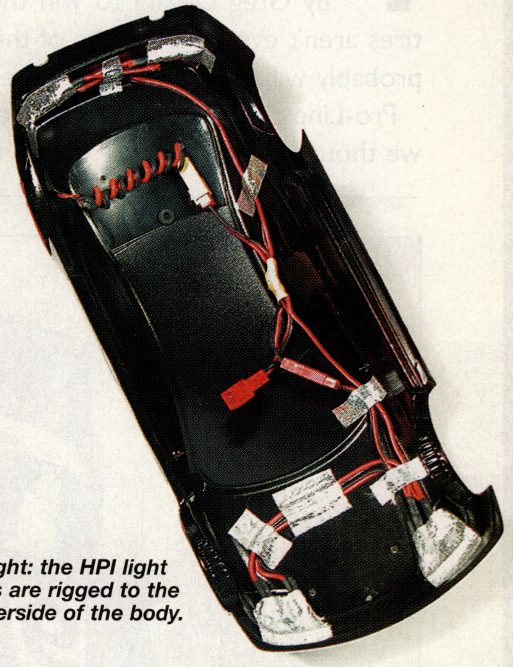
CONCLUSION

All in all, this is a very nice piece of work from Dat Dao. There are a lot of custom Micro RS4s out there, but Dat's is truly the work of an R/C fiend. The fact that his car has scarcely any stock parts as well as several custom-made features makes this truly a one-of-a-kind project.



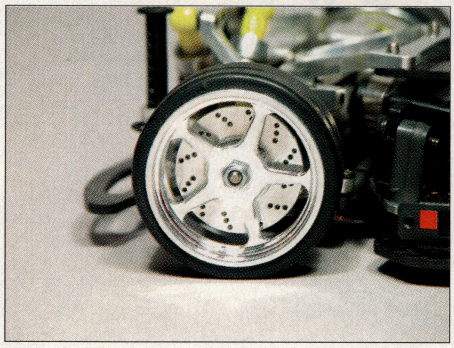


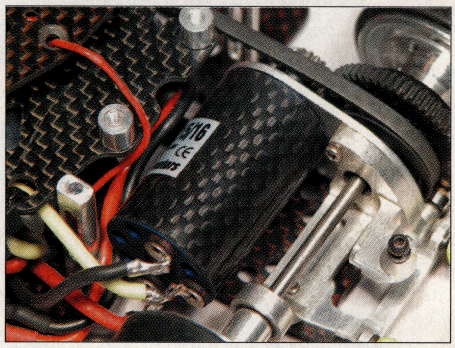




Right: the HPI light sets are rigged to the underside of the body.

Right: Crazy Nut's alloy wheels are unreal! Check out that huge ventilated brake disc. Far right: Modelmotors is responsible for this powerful carbon-canned mod.





SOURCES

Crazy Nut Racing, (410) 282-5085, web: *www.crazynutracing.com*
HPI Racing, 70 Icon Street, Foothill Ranch, CA 92610 • (949) 753-1099; fax (949) 753-1098
Jeti Model, ++420-556-802-092, email: jeti@jetimodel.cz, web: *www.jetimodel.cz*
Modelmotors, email: info@modelmotors.cz, web: *www.modelmotors.cz*
Ratzas, 321-433-0480, email: info@ratzas.cz, web: *www.ratzas.net*

PRO-LINE'S NEW RUBBER

By Brian Skinner

Bigger truck tires and one for the buggies

Pro-Line has been on fire in the tire market, and has been popping out some impressive tires from their molds. In fact, if you haven't heard, Pro-Line's new Knuckle tire was recently used by Greg Degani to win the 1/8 scale IFMAR Off-Road World Championships—and those tires aren't even out yet! As of this writing, the Knuckle tires are still in pre-production phase but probably will be in the stores when you read this.

Pro-Line did, however, send us some samples of two tire lines that are hitting the market now, and we thought you might like to see the tires and know how well they work. After all, that's our job!





A MUG SHOT THAT'S NOT EMBARRASSING

The new Mug Shot tire is, as Pro-Line puts it, a versatile tread pattern designed to work in a variety of conditions. To tell you the truth, when we first saw them, we were thinking they would only be good in total loamy conditions. Man, were we wrong! Since I have decided to become the next U.S. world champion in 1/8-scale off-road [*editor's note: don't laugh, you guys; he's serious*], I quickly grabbed the tires from Frank (*thank you!*), and headed off to KZ Speedway to see if these tires would be the "silver bullet" to aid in my quest to become world champ.

It had rained pretty well the night before, so needless to say there was prime traction when we got to the track in the morning.

Happy-happy, joy-joy is what we thought when we saw the track, as it was just slightly over-watered but great for testing. I quickly mounted the Mug Shots to my sweet Storm Pro and hit the track.

Wow! When I first punched it down the straight, the tires totally dug in and left a nice trench on take-off, much like a YZF450 does when you nail the throttle! Going through the corners, it was as if the Storm was on rails. And when I got on the brakes, it would just stop! No sliding, it just dug in and stopped. And with Pro-Line's motocross-style lug pattern, the big knobs would shed the wet, sticky dirt effortlessly.

As the day wore on, it was apparent that the Mug Shots are *the* tire for less than perfect weather conditions.

But wait! Is that rain? While my buggy was out on the track, it began to rain. And as the rain came down and the track got more "soupy," the tires actually began to feel even better. Huh? That's right! Those tires were tracking so well in the mud that I was actually able to go a little faster in the soupy conditions at KZ Speedway. Amazing!

When I pulled my Storm in from the stormy conditions, it looked like a big cow-pie, but the tires were clean as a whistle! Yep, the Mug Shots are the best tire we have used in bad weather. That's not saying too much, though; we can count the times we have run in bad weather on one hand. Remember, it never rains in Southern California!

The next weekend was sunny and warm. KZ Speedway was just like it is when prepped to race: hard packed with loose soil on top, and a little water to keep the dust down and to help traction. It was clear to me after practice that the Mug Shots are good for this type of terrain as well. True to Pro-Line's press release, the Mug Shot tires are suited to multiple conditions!

As a bonus, Greg Degani dropped by the track to say hello to the gang, saw the Mug Shots on my Storm and wanted to try them out. After four or five hot laps with the tires, he also agreed that the Mug Shots were a great tire, but added that on blue groove track conditions they might be a tad loose. He also added "Wait 'til you try the new Knuckles for blue groove." I'll go with that conclusion, too.



The New Mug Shot tires



The New Knuckle tires.



The new Big Joe tires make any monster truck gain more traction; and they look cool too!

MEET BIG JOE (AND HIS LITTLE FRIEND ROAD RAGE)

Pro-Line has taken a clue from the real truck world and has made a true set of low-profile hoops to fit all popular monster trucks such as the T-Maxx, Savage, Terra Crusher and the forthcoming Monster GT. Pro-Line teamed up with Weld Racing to make a total replica of the ever-popular Weld wheel. For monster trucks, this is a great idea; less sidewall means less flex—a stiffer tire. Boy, do monster trucks need that. Both the new Big Joe and the Road Rage work much better in the corners than a regular monster truck tire.



• **Big Joe**—This is an aggressive off-road tire that is a full inch wider, and 3/8 of an inch taller than most tires on the market. We even compared the Joes to the Terra Crusher tire, and although the Pro-Lines were a little wider, they are not as tall as the Tamiya meats. This probably will work in the TC's favor and give it a little more top-end speed. Weight-wise, the Joe is much lighter than the stock Terra Crusher tires, which is again a benefit for the beast.

Out on the track, the Joes proved to be a good tire for racing; they corner well and definitely have more traction. Since the Joe puts more contact patch on the ground, you would think it would cause more drag. But we had a hard time discerning if they did or not, as we really could not feel this. At first we thought these Joes were way too big for the general monster truck crowd, but after installing them, they blended right in and looked right at home. I put them on my Terra Crusher and it was a big improvement over the stock tire. Less weight and a wider stance—it was a good combination and definitely a performance enhancer. The Joe uses the Pro-Line's soft M2 compound.

For rock crawling, bashing and racing, Joe has you covered! They are also the best tire for playing around; they are so wide that your truck will stay planted on the ground without much sliding around. In climbing mode, they wrap around obstacles like an octopus!



• **Road Rage**—I installed a set of Road Rage tires on the Terra Crusher, and it did the "bling-bling!" The TC was looking "mack daddy" for sure!

On the road course, the TC was cooking! The smaller diameter of the tire changed the truck's drive ratio to make it way faster on the straights. With the low-profile sidewall and the wider tread, the truck stuck like glue! It was the most fun I've had on the street with a monster truck.

The sticky M2 compound really helps to give great traction in the corners, and with the smaller sidewall, the roll factor dropped dramatically.

If you want to play on the street...do yourself a favor and get the Road Rage tires, they are by far the best hop-up you can do to play on the street! He-he! I can see it now; soon we'll see a monster truck class racing at the local street courses. Now that would be fun!

Mug Shot, $21.00 per pair
Big Joe, $33.00 per pair
Road Rage, $33.00 per pair



SOURCES

Pro-Line, P.O. Box 456, Beaumont, CA 92223 • (909) 849-9781

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

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Tom Hibler III



Joven Madriaga


Peter Robinson



Dan Garber

Above: 2002 TCS North American Finals participants competed for the top prize. Sign up for your local race and a chance to race at the 2003 N.A. Finals.
Left: Winners of the 2002 TCS North American Finals won a trip to Japan to compete in the Tamiya World Championships.

Top-Notch Competition and a Shot at Winning a Trip to Japan

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First Look:

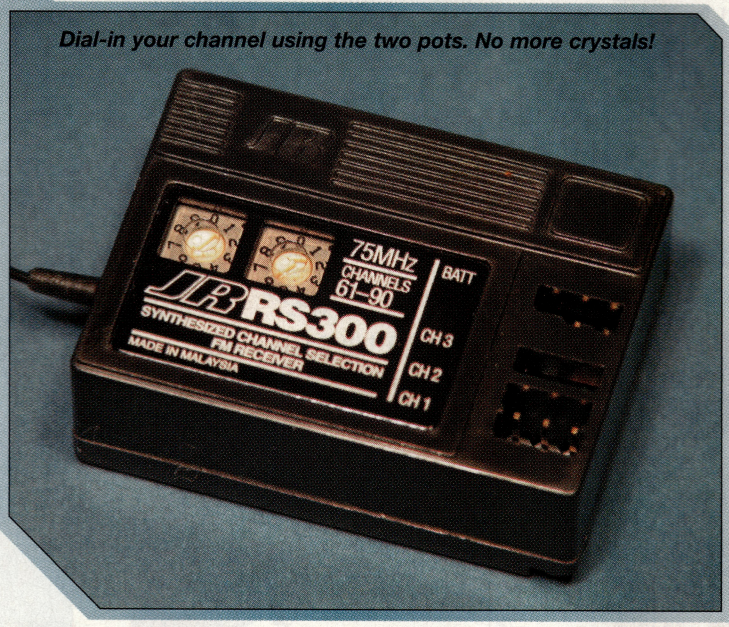
Go synthesized for less than $200!

The synthesized radio revolution is here. You can join or be forced to spend a hundred dollars or more on radio crystals (only if you actually want to drive your car at the track, of course). Hitec started it with its Lynx 3D, Novak added versatility with its Xxtra synthesized receiver, but now JR Racing has brought out the first truly affordable synthesized FM radio system, the XS3.

And by affordable, we mean it carries a "street" price tag of around $200. For comparison, Hitec's Lynx 3D synthesized combo (which includes a Novak Xxtra receiver) goes for about a hundred bucks more. If you purchased Novak's receiver and its synthesized M8 module, you'd be a little past the XS3's price, and you would still need to buy a radio. (We're not comparing overall quality or performance here, merely price.) So yes, we call the XS3 a really good deal.



JR Racing XS3



Dial-in your channel using the two pots. No more crystals!

OUTSTANDING FEATURES

The XS3 shares its sleek, ergonomic case with JR's all-new XR3i radio (reviewed in our February '03 issue), but most everything else is different—especially in the software department.

The basic specs of the XS3 are as follows: it's a three-channel FM radio with a six-model memory. Oh yes: it also doesn't require crystals to change operating frequencies! No longer will you have that dull ache in your stomach the next time you head to the track. You know the stressful feeling too well; when you wonder if you'll get to run your car, or will you have to wait all day for the T-Maxx guys to finish up their gallons of fuel!

With the XS3, you just grab any available frequency clip (27Mhz or 74Mhz, depending on which model you own), and dial-in the frequency. The XS3 is unique among synthesized radio systems in the way in which you select channels. The receiver is adjusted in the same way as with the Novak Xxtra - it has one or two potentiometers, or "pots," that you use to select a channel. With 75mHz models, there are two pots—one for the first digit of the channel and one for the second. On 27mHz, there is just one pot (as there are only six available channels on this band). However, unlike the Hitec and Novak systems, there aren't any pots on the radio; the desired channel is selected through the transmitter's LCD screen. Pretty cool stuff!

WHAT ELSE DOES IT DO?

Despite its low price (especially low for a synthesized system), JR didn't skimp when it came to the XS3's features. Here are some highlights.

• **Model memory**—The XS3 can store data for as many as six separate models. This feature is useful for when you own more than one vehicle but don't want to fork out for an additional radio or radios. And unlike some lower-priced multi-model radios, the XS3 allows you to name each model (albeit using only three characters).

• **Digital trim**—Unlike traditional mechanical trim levers and dials, the XS3's digital trims can't be accidentally altered when the radio is switched off. And what's even better is that the XS3 stores each set of trim settings for each of its six models.

• **Adjustable frame rate**—The XS3 can operate at two frame rates. Frame rate is how quickly the transmitter and receiver process the signals that eventually get passed on to the servos. When using standard servos, the normal frame rate is used. However, when you use the XS3 with digital servos, you can switch to the fast frame rate to take full advantage of the extra responsiveness these servos can provide.

• **Auxiliary channel**—The XS3's third, or auxiliary channel can be set to operate in one of three ways. The factory preset operation is called the "inhibit" function, as it replaces the auxiliary channel feature with the brake end-point function, which allows you to increase or decrease the brakes' strength while driving. You can also select the "LN," or linear function, which allows you to control the travel of an auxiliary third servo via the radio's grip dial "A." Finally, JR has given T-Maxx owners the ability to select the "2P," or two-position option for the third channel. This allows you to shift your truck just as you would with your stock Traxxas radio. This also works with any vehicle that uses a third servo to shift gears or to engage reverse.

• **Programmable mixing**—You can program the XS3 using one of two possible mixing options. The first allows you to mix the steering channel with the auxiliary channel (useful with four-wheel steering). The second option allows you to mix the throttle channel with the auxiliary channel (useful for vehicles that have independent front/rear wheel brakes, such as 1/5-scale cars).

• **Lap timer**—the XS3 has a built-in timer function that allows you to time as many as 50 laps from between 3 and 99 seconds. The timer is operated through the grip button "C."

CONCLUSION

We frankly can't believe that JR can offer such a package for less than $200, but here it is in our hands! We predicted that crystals would eventually go the way of the dinosaur; we just never imagined that the synthesized radio revolution would happen so quickly, or that it would be so inexpensive!

SOURCES

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

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Thunder Tiger

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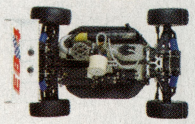
EB-4

1/8 Scale 4WD Nitro Off-Road Buggy

Thunder Tiger

EB-4 4WD Buggy is offered in Ready to Run (RTR) or kit form. The RTR version comes with Pro-.21 engine, Radio, Glow starter, Four way Wrench and a Fuel Primer. Add batteries and your favorite fuel and hit the dunes.





TTR6215-F4 EB-4 Sport RTR 571.99
TTR6221 EB-4 S2 Kit 428.99

EB-4

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S2 PRO 1/8 Scale 4WD Nitro Off-Road Buggy

EB-4 PRO 4WD Buggy is offered in kit form only. This is a professional level competition buggy right out of the box. Required for final assembly, 2 channel radio, EVO-.21 L7 or Pro-.21 engine and your off the next competition.



TTR6222 EB-4 Pro S2 .....642.99

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Thunder Tiger's 1/10th Scale Off Road Stadium Truck and Buggy are offered in Almost Ready to Run or RTR. The (ARTR) version comes 90% assembled including the Pro15BX pull start engine. The RTR is 100% assembled, all you need is fuel and batteries for the radio. The glow driver, fuel bottle and plug wrench are included as well.



Thunder Tiger



No. 6707 Buggy Model ...199.99



No. 6701 F-150 Model 199.99

No. 6702 F-150 Model 199.99

TTR6701-F4 DT-10 Sport RTR 272.99
TTR6702-F4 DT-10 Sport RTR 272.99
TTR6707-F4 DT-10 Sport RTR 272.99

SSB

Thunder Tiger

1/10 Scale 4WD Nitro Off-Road Buggy

Thunder Tiger's 1/10th Scale SSB Off-Road Buggy offered in Almost Ready to Run or RTR. The RTR is 100% assembled, all you need is fuel and batteries for the radio.







TTR6703-F SSB Buggy ARTR 228.99
TTR6703-F4 SSB Buggy RTR 285.99

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Thunder Tiger's 1/10th Scale SSR Rally Car offered in Almost Ready to Run or RTR. The (ARTR) version comes 90% assembled including the Pro15BX pull start engine. The RTR is 100% assembled, all you need is fuel and batteries for the radio. The glow driver, fuel bottle and plug wrench are included as well.



Thunder Tiger



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- Carbon fiber brake disc
- ERGAL 3mm competition chassis
- And many more extras

TTR6190 TS-4n Pro Kit 242.99

TS-4n 1/10 4WD Nitro On-Road Touring Cars

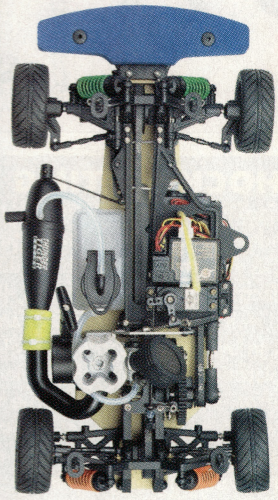




- 90% Assembled
- Requires a 2-channel radio
- Full ball bearings
- Aluminum top deck
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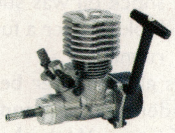


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TTR61XX TS-4n Series 311.99



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Pro-12BXSP



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5-Way Wrench



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2N ■ No.6178-TF11
4N ■ No.6188-TF11
PD1068 Painted Body

Volvo S-40
2N ■ No.6170-TF11
4N ■ No.6180-TF11
PD1097 Painted Body

Opel Astra V8
2N ■ No.6170-F47C
4N ■ No.6180-F47C
PD1411 Painted Body

Peugeot 206
2N ■ No.6177-TF11
4N ■ No.6187-TF11
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TAMIYA FLUORINE-COATED TRF DAMPERS

Super-smooth shocks for your sedan

Tamiya is renowned for its uncompromising quality, and its top-of-the-line TRF shocks for its touring cars are no exception. These shocks have threaded aluminum bodies, silky smooth steel shafts, fluorine pistons and unique rubber bladders that have urethane bushings to prevent the air chamber from causing a loss of damping during fast shock compression. But the most outstanding feature of these shocks is found inside the body, where the walls have been polished to a mirror-finish to provide nearly impossible smoothness with virtually frictionless performance.





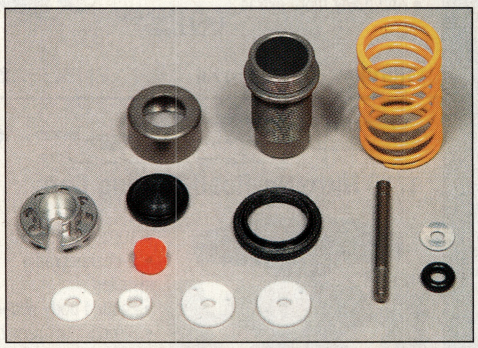
There have been several versions of these shocks over the years. There have been silver shocks and blue ones, ones with dual pre-load nuts and ones with single nuts. Now, Tamiya has introduced these shocks with, among other updates, a special fluorine coating. These new TRF dampers are designed to fit any of Tamiya's current touring car lineup, which includes the TRF 414M, the TA04, the TB01 and the TB Evolution series.

NO, IT DOESN'T FIGHT CAVITIES

What's the benefit to fluorine coating? It makes things smoother and as a result, reduces friction and wear. Tamiya has applied this fluorine coating to both the shock body and the shock shaft. As a result, the amount of aluminum oxidation within the shock oil is greatly reduced. With the old shocks, we would notice that the shock oil would turn dark gray after only a few runs (this is caused by the oxidation). With the new shocks, our shock oil was still clean-looking after a full day of running.

There is also another benefit to this wonder-coating, and that's reduced friction. With the piston already made from fluorine (from which the coating is derived), its interaction with the newly coated shock body creates much less drag, so the shock can operate more easily. And as the shock shaft is also coated, it moves with less friction and stiction (the amount of energy required to set an object in motion) against its O-ring seal.

In addition to the new color and coating, the TRF Fluorine shocks also come with very trick machined-aluminum spring retainers, and they come with both two- and three-hole fluorine pistons. You can also now order the shock parts individually by their five-digit part number. In the past, you usually had to buy a set of several parts just to get the one you needed (longtime Tamiya owners know what we're talking about).



BASIC SHOCK SETTING

We spoke to Tamiya America's Fred Medel to find out if he knew of a good "baseline" setup for these new shocks. Fred told us that he and most of the Tamiya factory drivers begin with 400wt shock fluid and will usually start with Tamiya's yellow springs. In warmer weather, they'll run the two-hole pistons, but when it's cooler, the three hole seem to work best. And if the track surface is very smooth, many Tamiya drivers will use a thicker shock fluid such as 600-700 wt to make the car more stable at high speeds.

REPLACEMENT PART NUMBERS

- Two hole pistons, 53572
- Three hole pistons, 53573
- Damper bladder, 53576
- Urethane bushing, 53577
- Damper rod guide and O-rings, 53574
- Shock shaft (pair), 53575

Tamiya TRF Fluorine Coated Dampers
Price: $74.00 retail ($50-55 street)

SOURCES

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

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RALLY PLANET

SUBARU

By Mason Solo

Kyosho's nitro Impreza rocks!

I would like to say to all of you rally freaks that the past year of rally was "off the hook." We should all tip our hats to the boys on the Peugeot team, as they finished on top with Marcus Gronholm driving that insane 206 and showing absolutely no mercy in the fight to first place in the manufacturers challenge. Also having a fantastic '02 season was Petter Solberg, finishing second overall in the points and winning the final stage in the U.K. This is a huge success not only for Petter but for the Subaru team, which also managed to lock up a third place finish in the manufacturers challenge.





CAR OF THE STARS

Since I already paid homage to the great men of rally with that Protech 1/6-scale rally monster (with the Peugeot 206 body) featured in the February issue, I decided to feature the new Kyosho Subaru WRC TR-15 rally car. This is a sort of tribute to Petter Solberg and the Subaru team, a group I had the great pleasure to meet recently during an exhibition tour with the SCCA pro rally series here in California.

Kyosho's TR-15 WRC Subaru Impreza rally car falls into the super-size scale category that's somewhere in between 1/10- and 1/8-scale (with its wheelbase coming in at 278mm and the track stance at 192mm). I know it's weird, but as I've been known to say, bigger can be better—especially when it comes to the detail and realism of the bodies. And Kyosho has done a great job with the TR-15 Subaru body that comes with the kit; it's a perfect reproduction of the real STI team Subaru used in the FIA WRC Circuit. It comes with window masks and film to prevent overspray from sticking to the outside of the body. Most of the sponsor stickers for 2002 are included, but if you want total realism, some "self-stickering" may be needed. The body also features a thicker Lexan that is more resistant to cracking, and this means more hours of bashing before your next body purchase!

At this time, Kyosho is only offering the Subaru and a Mitsubishi Lancer body with the new TR-15 rally chassis. As the popularity of this kit grows (and I have no doubts it will), I'm certain that more bodies will be on the way. For its size and price, this is one of the best kits I've come across; the Kyosho is a huge value at its $279.00 street price.

Check out what you get: a 75-percent pre-built chassis (with the drivetrain already in place atop the chassis), a Kyosho GS-15R pullstart engine and pipe, and a single speed clutch and pinion that's already assembled to the engine. You will have to build the shocks, A-arms and install the engine and the running gear (you'll have to supply your own radio and electronics).

I hade this car ripping in just under two hours, and wow! What a blast. The GS-15R was easy to break in, and came up to power in only three tanks of Sidewinder Backyard Basher 20-percent blend. This mill has a really good low-end and solid top-end punch. I was really surprised, and after 45 tanks of fuel during my "chaos" endeavors, I'm pleased to report that the engine is still running strong—but that's not even the best of it.

FROM BENEATH THE SHELL

The TR15 displays all the right elements for a really durable and agile car; a solid chassis with a center-mounted four-wheel drivetrain with an extremely low and compact profile. Steel dogbone driveshafts are linked to hardened diff gears housed in stiff composite diff cases. Stout bulkheads help keep the diff cases from twisting under torque.



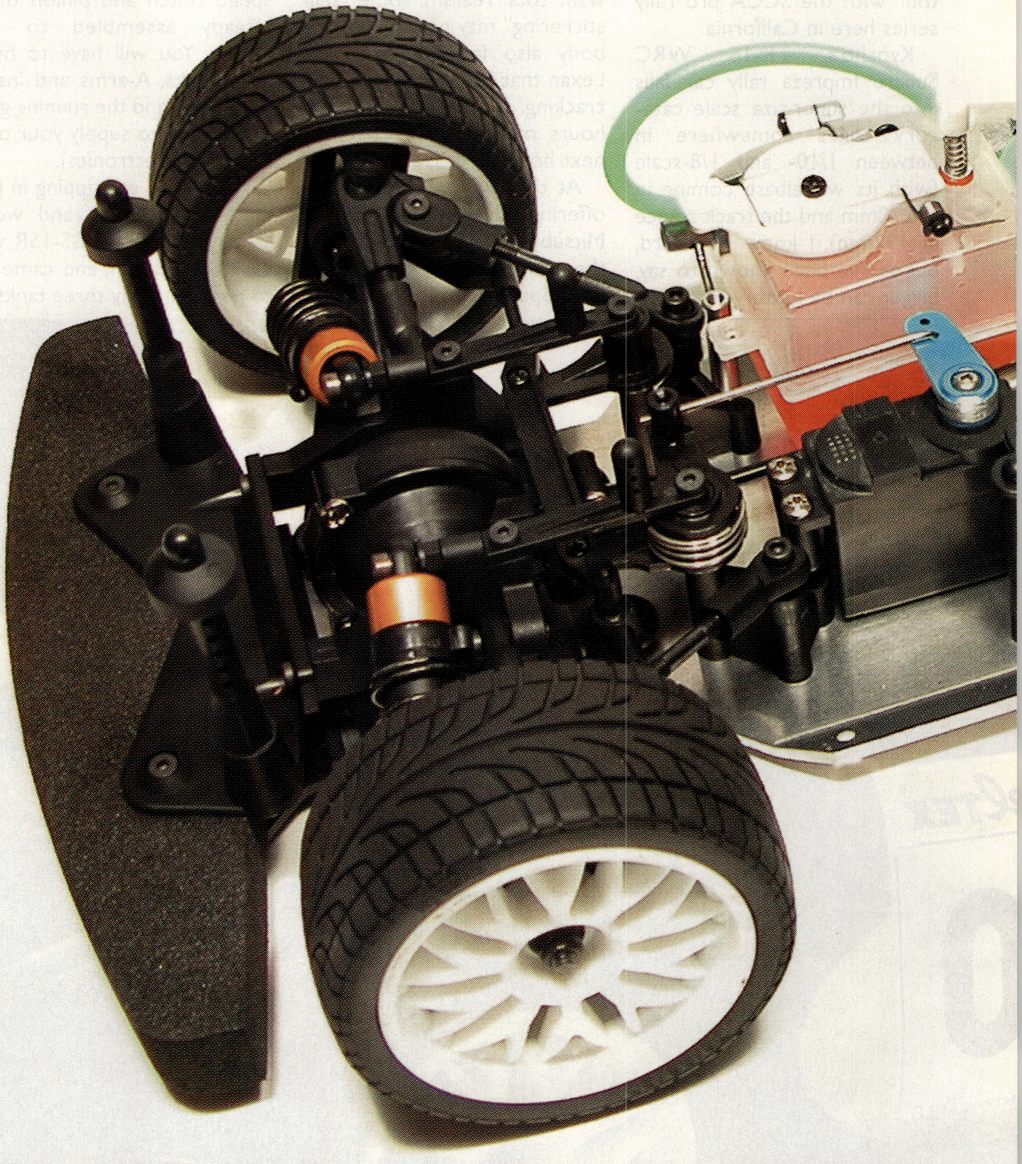


The only thing missing from the drivetrain is bearings; the kit is all bushings. But fear not, the Subaru's drivetrain was smooth and responsive with no bind or rattle, and if you're serious you can get the bearing kit from your LHS. Doing so will add more zip to the corner speed and increase overall handling of the car.

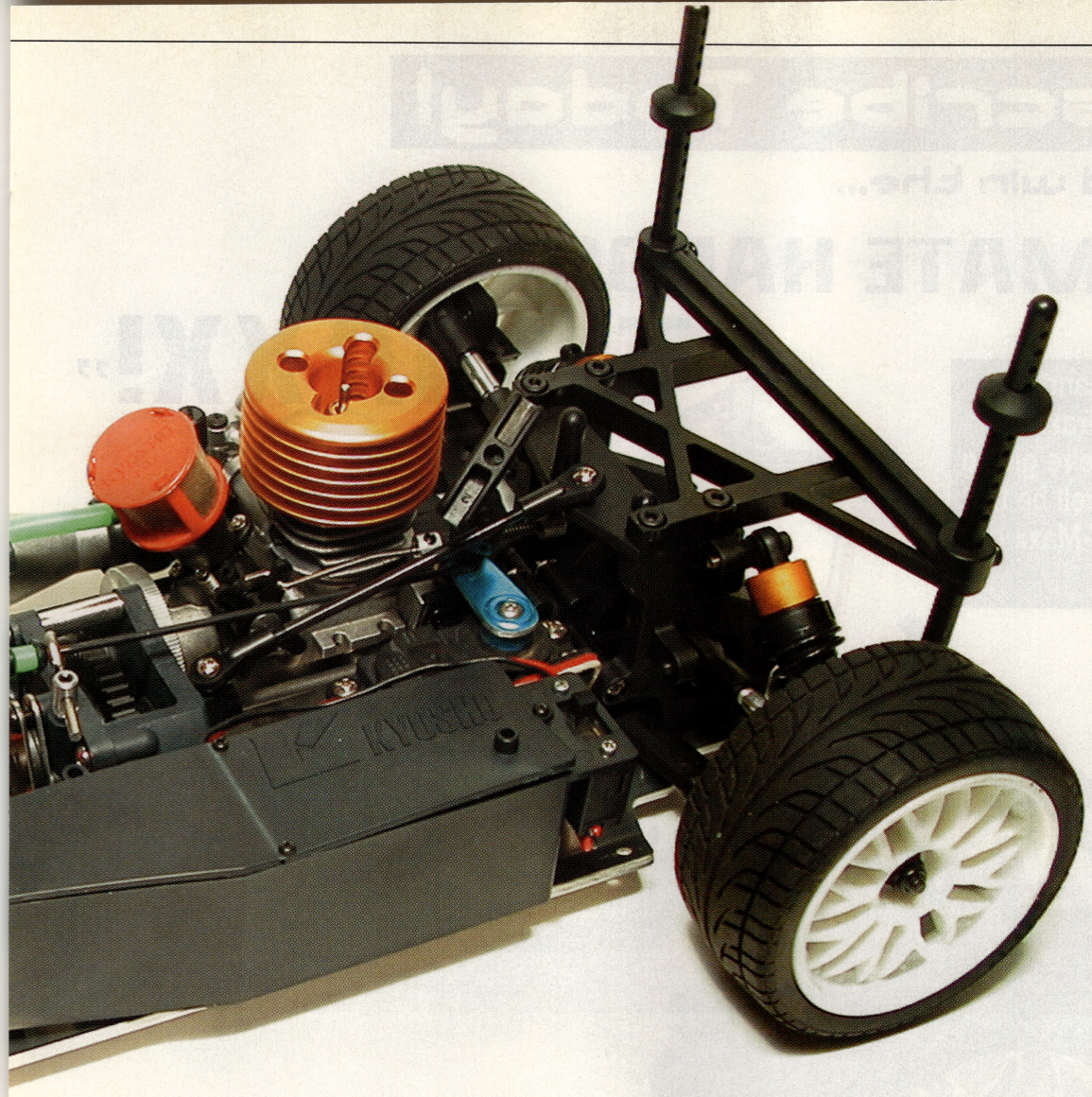
The steering knuckles and hub carriers are also made from the same strong composite material as the rest of the Subaru's molded pieces. They'll hold up to some mean curb hits at full speed. With any car, the A-arms are the most vulnerable to destruction, so Kyosho utilized a pivot ball system instead of the traditional hingepin setup. This new system allows the A-arm to detach if hit hard during a collision; just press the arm back on the pivot ball and you're back in the fight. This is a great feature for new drivers.

One tricky thing about the TR-15 is its suspension adjustments; the turnbuckles are without a hex or flat spot in their centers, so in order to adjust camber or toe in, you have to pop off the ball end and turn it. You might want to pick up some optional titanium turnbuckles if you like to fiddle with your setup. Once the toe in (two degrees in back, none up front) and the camber (two degrees negative all around) have been set, the Subaru is totally dialed for the majority of conditions—both on and off road.

Adding greatly to the performance of the Subaru are the totally "dope" 76x36mm oversized mesh wheels and treaded race tires. They're very suitable for multi-surface conditions and they look totally real. And you would think that with those big tires and wheels that turning this ride would be a task. Not so; for a bushing kit, the steering linkage is smooth and has very little play and backlash. I did make a slight modification to the steering posts and bell crank arm to increase the steering travel. This only took a couple of minutes, and yielded a great return in the form of crisper steering.



Another feature to the steering linkage is a built-in servo saver. It may seem a little cheesy at first, but it works great and has just enough tension not to flex while under heavy steering. I do recommend a decent steering servo; this makes all the difference with a larger, 4WD rally car and provides the control needed for aggressive driving. The location of the steering servo is as close to the center of the chassis as possible, and this really helps to balance the chassis. The throttle servo is also located on the same linear plane as the driveshafts, but further back next to the motor. The layout is very smart and accessible, with the electrics tucked away neatly in their own sealed case (that can be water proofed with



very little effort and materials; a must if driving in snow or water).

The overall layout of the component package is low profile and compact. Throughout my testing the TR-15 felt balanced, stiff, surprisingly responsive and had good cornering speed. Helping to accentuate the predictable feel of the car was the slightly laid-down design of the shocks, which have just enough travel for moderately bumpy conditions and are quite forgiving on tarmac course. The shocks come with 40wt oil and medium-stiff springs. This setup suits this rally Subaru very well, and even though the shock bodies are plastic, they feel smooth and airless and not one of them is leaking.

WRX POWER

One more thing that adds so much value to this already fine Kyosho kit is that it comes with a pullstart .15 engine. It makes good power, started right up out of the box with the factory settings, and after three tanks of fuel, it was ripping. The average temperature of the engine was 215 degrees with the stock pipe and air filter. And with the single 8.75:1 gearing, the TR-15 has great bottom-end torque and enough top-end to hang with your neighbor's T-Maxx. Trust me on this; I smoked the T-Maxx tweaker next door and he gave me ten bucks to stop embarrassing him in front of his wife and kid! But seriously, the prospect of a two-speed in this car makes me shiver. Along with bearings, a two-speed would be the most important mods to make to this car. And the stock engine will drive the two-speed with no problems.

And while you're at speed, keeping the body stable is an important factor not considered buy most manufacturers. Kyosho again stands out, as the TR-15's body mounts are top-notch with oversized posts and beveled adjustment sliders that go under the body for easy height adjustment. They also protect the body from cracking.

CONCLUSION

The features of this kit are fantastic and add up to lots of fun for the buck; even if you get the two-speed, the total dollar commitment is just a little over $300.00 for a rally car that is of this level of performance and quality. I highly recommend checking out the other members of Kyosho's rally-car family, as well as the many optional parts that they have for the TR-15. You can find a Kyosho dealer just about anywhere, and if you can't, go to *www.greatplanes.com*. They distribute Kyosho in the USA and have a vast dealer listing. In closing, '03 is going to be a great year for rally, with lots of new cars and components to fuel your rally madness. And don't forget to watch every episode of the FIA WRC championship on Speed Vision, or go to *www.wrc.com* for all the latest rally news.

SOURCES

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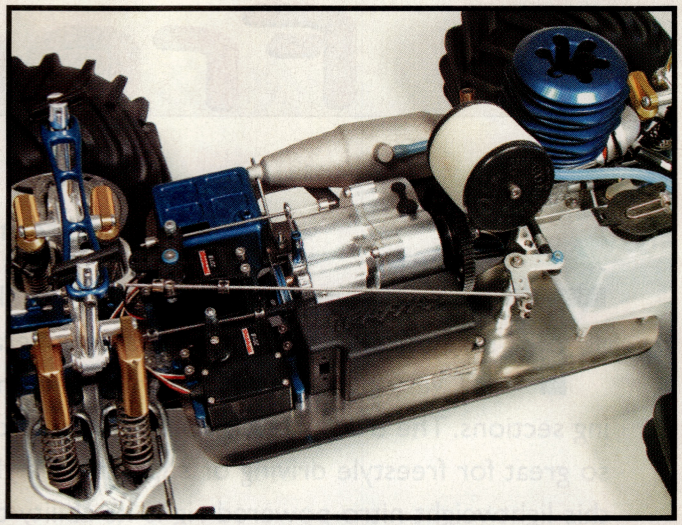
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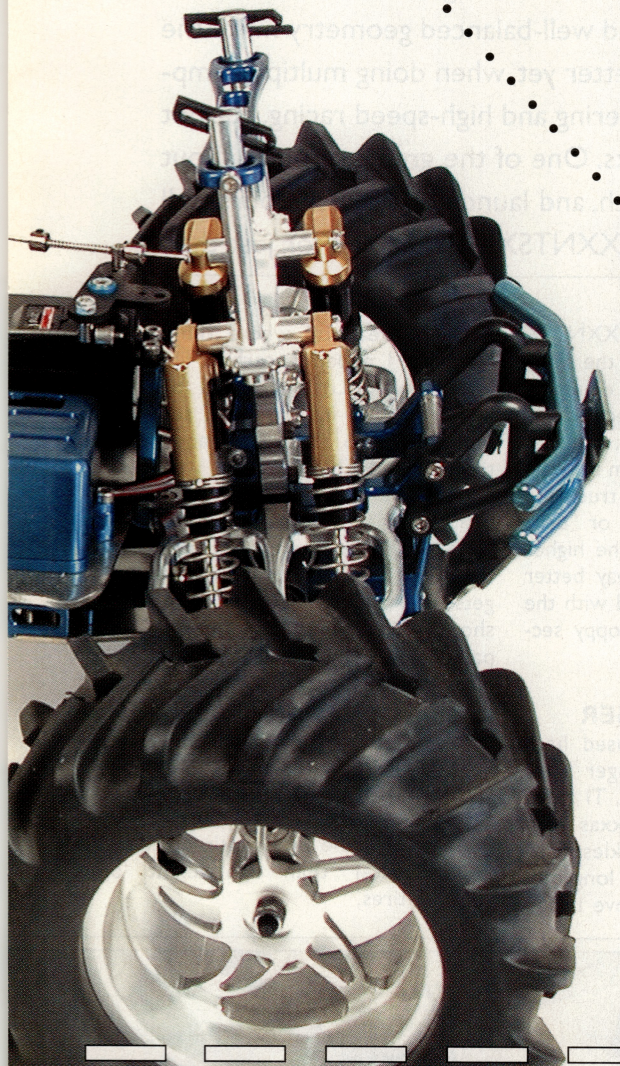
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STRKRC

Freestyle

By Greg Herbold

H-Ball's custom jump truck

Team Losi's Triple-X NT is a great-handling off-road truck right out of the box. The long suspension arms, low center of gravity and well-balanced geometry make the NT very stable, especially when jumping or, better yet, when doing multiple jumping sections. The truck sits low, which is good for cornering and high-speed racing, but not so great for freestyle driving or supercross-style tracks. One of the greatest things about this lightweight nitro-powered rig is its ability to launch, and launch big! But of course, all things must eventually return to earth, and the "HB-XXXNTSX" is designed for just that.

My goal of building a better jumping truck and, more importantly, a better landing truck, evolved into the beast you see here. Please note that building a 1/10-scale R/C supercross track is much easier than building a full size one. If you do not have the resources, ask your local track, for "the good of all mankind," to please add more jumps.

Here are the major modifications performed on the HB-XXXNTSX:

1) INCREASING WHEEL TRAVEL

The stock NT jumps pretty well up to a point, but when pushed, the suspension bottoms too easily, the chassis slams on the ground, and many of the key parts begin to break. The first thing I did was add more wheel travel. Compared to stock, the HB-XXXNTSX has about 12mm or 0.5 inch of additional wheel travel, which is a significant boost! I replaced the rear shocks with 1/8-scale buggy shocks, which not only add travel, but also are smoother, stronger and have more consistent damping because of greater oil volume.

I took the stock rear shocks and installed them on the front. To keep the fore/aft bias balance, standard Losi orange springs are used on the rear, with Losi red springs on the front. The rear springs are much more active with the longer-stroke shocks, and the spring rate is perfect when approaching bottom-out. With longer travel, I was able to run lighter oil weight, further improving plushness on the small bumps.

The longer travel lifts the HB-XXNTSX chassis off the ground by about the same amount—12mm. This is key for doing big high-speed jumps, big rhythm sections or jumps with very steep faces. This is because the chassis does not slam into the ground upon takeoff, slowing the truck and stalling its lift. Also, "lawn-dart" or "belly flop" landings are now plush. The higher ground clearance also works way better for stadium whoop sections, and with the long travel, it eats up rough choppy sections with ease.

2) MAKING IT STRONGER

A few obvious things are used here such as alloy pivot blocks, longer bolts where possible (with washers), Ti turnbuckles, etc. I like to use Traxxas rod-ends on the ends of my turnbuckles. They don't pop off, and if you use a long bolt through the ball, you can remove it and replace it much easier than a broken-off Losi ball-stud. Adding washers between the bolt and the suspension ball on the lower rear shock mount will prevent the shock from popping off.

The rear shock tower likes to break off where the shock is attached. I added a carbon fiber piece from an old Losi, threaded the shock bolts through it, and then added two more bolts to strengthen and stabilize the rear end. This also helps when crashing end over end.

Speaking of crashing: the HB-XXXNTSX also has a custom "flip post" that saves the truck's vital organs when it gets upside-down. This also saves the shock towers. Finally, mounting a beefy pair of Pro-Line Gladiator tires (plug, plug) to the rear end gives an extra level of protection to the short-lived rear rims; these handle huge jump landings sweetly. Because of their greater weight, the Gladiators also seem to make the truck react better to "braking" or "gassing it" in the air for attitude changes. Much better than lightweight 'blue groove" tires.



Losi NT



OTHER FREESTYLE/ SUPERCROSS TIPS

- Make sure all of your electronics are well-padded on all sides.
- Use bicycle hydraulic brake housing for the antenna tube.
- Remove the on/off switch and wrap the wires from the receiver pack to the receiver box with electrical tape.
- Glue all fuel lines to the connections.
- Cheap steering servos work fine and are cheap to replace.
- Keep all suspension pivots well-lubed. I use Bo-shield, which penetrates well and resists dirt. Ask for it at your friendly bike shop.
- Change your shock oil frequently
- Put helmets on small children who watch you go off on free-driving sessions.

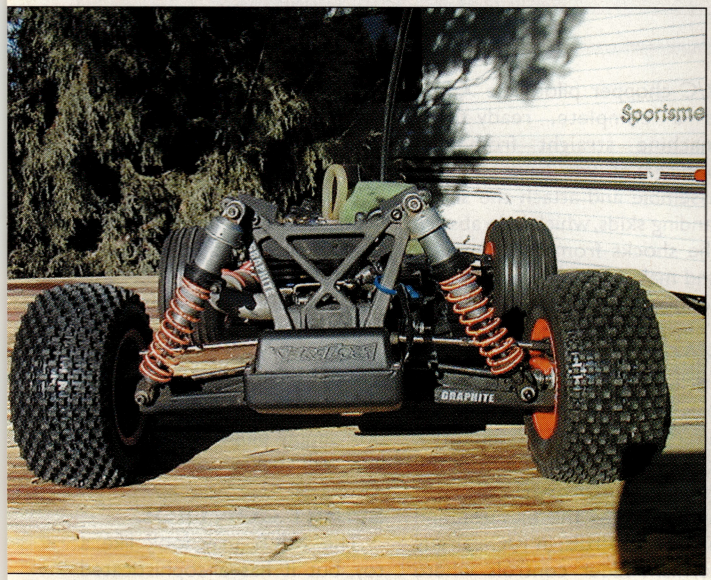
3) MAKING IT BARK

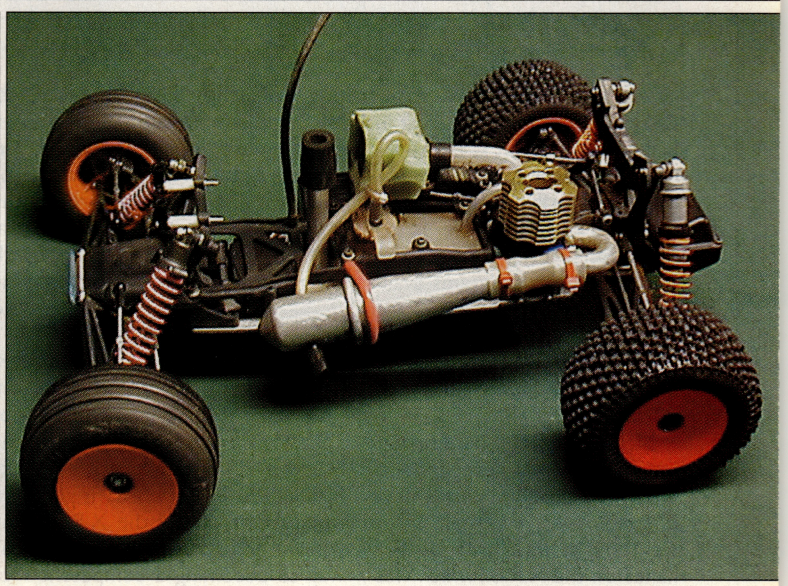
An expensive Italian 12-port gold- and silver-plated engine might be fast down the straight, but for supercross you need torque to pull off the hardest jump combos. I use a basic OS .15 CV Hyper engine, which mounts up easily inside the NT chassis. The larger engine can be tuned for more bottom end and torque without losing too much top-end for those end-of-tank "Seth" launches.

To gain even more bottom and mid-range power, I added a custom "intake snorkel" mated with a K&N air filter and a "works" Briggs and Stratton pre-filter. A small hose clamp mounts the snorkel to the carb and ensures that it won't fly off if you hit a tree. Moving the air intake away and in front of the engine provides cooler and cleaner air and better air circulation around the engine. Playing with the pipe length and exhaust stinger length enabled me to have killer throttle response and smooth pull throughout the powerband. Remember the two other screws on your carb that are NOT the main mixture screw? These control smooth power delivery. Play with them carefully, grasshopper.

4) MAKE IT LOOK LIKE A TRUCK

The stock body is nice looking, but a truck? Shaaa. I modified an Atomik T-Maxx body for the HB-XXXNTSX. I had to cut holes in the bed for the shocks to extend through (trick), trim the front, rear, and sides (heavily) and make custom front body-mounts. I used a second skin made from Oakley goggle lenses to strengthen the rear body mount. And the design allows for the slightest float of the body. "Heavy venting" would be the word for all of the openings. This body is new. Bodies do not last very long on jumping trucks, so the pre-painted body color was fine with me. And it looks like a truck!





Living Room

LIVING ROOM

Anyone can fly Hirobo's amazing X.R.B. indoor heli!



We are aware it's a stretch; Hirobo's X.R.B. isn't a car, truck or even a boat. And on top of that, it's really not even radio controlled. However, we have found that it's one of the season's coolest new toys, and as such, we submit it for your consideration.

We have found that many R/C car people have interest in helis. The problem is that helis can be expensive and extremely difficult to fly—a bad combination. The alternative is to learn to fly using one of the many flight sim programs available for computers. But if we wanted to play video games, "ATV Off-Road Fury II" on the PlayStation 2 better suits our tastes.

No, helis sound like fun, but we probably will never indulge in any "Airwolf" fantasies anytime soon. At least that's what we thought until we got our hands on the X.R.B., which was one of the hits in the MRC/Altech Marketing booth during last year's Chicago Hobby Show. Altech is the exclusive distributor of Hirobo here in the U.S., and in case you didn't know, Hirobo is one of the giants in the R/C heli world.

TAKE THE STICK

The X.R.B. is an indoor electric 'copter that, unlike most other indoor fliers, features the controls and responses virtually identical to those of a real R/C heli. In other words, if you can successfully fly the X.R.B., you will already be well on your way to becoming a competent R/C chopper pilot. The X.R.B. is a complete, ready-to-fly machine straight from the package; all you have to do is assemble and attach the safety landing skids, which help absorb the shocks from hard landings and make the bird less likely to topple over.

Instead of having a radio, the X.R.B. is piloted through a two-stick control box that has gimbals similar to those used on aircraft radios. The left stick controls the throttle and the rudder controls, while the right stick handles the elevator and aileron controls. In R/C-car-guy terms, rudder controls where the heli's fuselage (main body) points, elevator makes it travel forwards or backwards, and aileron makes it "strafe" left or right.

Another great feature is that the X.R.B. is tethered to the control box (radio). All control signals and even the power is supplied through this 4mm tether. And you won't have to worry about batteries to charge or dump, as the control box simply plugs into any 110-volt wall socket.

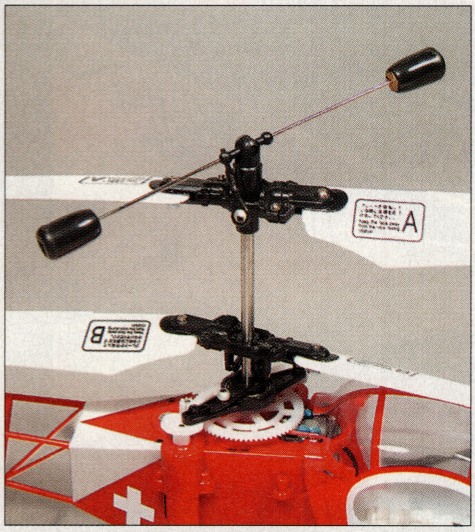
SMART CONTROL

The X.R.B. may look like a toy, but it has a sophisticated

Whirlybird

WHIRLYBIRD







array of electronics that make it easy to fly, even for the novice or beginner.

In rudder control (yawing axis, or the rotation of the helicopter body), movement is controlled by changing the difference in rotation between the upper and lower rotors. The X.R.B. has a piezoelectric gyro that provides yaw stability without requiring too much attention from the pilot. An LED is used as a "pre flight" check to ensure that the yaw control is set properly.

The X.R.B. uses two pairs of counter-rotating rotor heads. The upper rotor head always maintains horizontal stability, thanks in no small part to a set of stabilizing weights whose centrifugal force always keeps the upper blades relatively horizontal, even when the fuselage is inclined during flight.

The lower rotor head is used to control the elevator and aileron functions through a unique slide-type swash mechanism that was developed just for the X.R.B. The electronic control is also used to vary the relationship between the speeds of the upper and lower rotors, which is how the X.R.B.'s yaw is controlled without requiring an actual functioning tail stabilizer rotor.

FLYING EGG BEATER

Flying the X.R.B. is incredibly exciting, especially the first time those blades start to spin. The power and lift that they generate is simply astounding, and you'll find that the 'copter will begin to take off with only a third of the available throttle travel.

Although the trims for the rudder, elevator and aileron have been factory set, there's no way that the X.R.B. can be set to hover using the trims alone; you will need to learn how to maneuver the sticks with great precision if a stable hover is your goal. But don't be deterred; this ability comes with a bit of practice. And thankfully, Hirobo supplies three sets of replacement blades in case you have an accident. And as the blades are merely foam sheeting, they won't cause damage to either persons or property. Just the same, make sure that you read and understand the safety warnings included in the manual.

Once you've mastered a basic hover, which took us about an hour, you can begin to explore the other controls. As car guys, we really didn't pay too much attention to the manual and all its aircraft-techno-jargon; we just starting moving levers to see what they did! You can really whip the X.R.B around, as it's very responsive. Moving the rudder control by itself allows you to perform very fast 180-degree turns. Combining the rudder with the aileron control is like taking a banked turn on a superspeedway track! When you get really good (a point we have yet to reach), you can also toss in a bit of elevator to perform circular patterns.

CONCLUSION

Remember those little toy helicopters that they used to make when you were a kid? The ones that were attached to rigid "speedometer" cable and flew around in little circles? Those things were a blast. Well, think of the X.R.B. as the ultimate evolution of that idea; it's a fully operational heli that you can fly in the comfort of your own home. There's no fuel to buy, no batteries to charge, and the neighbors won't complain about the noise. As a standalone toy, the X.R.B. will provide endless hours of flying fun. And if you want to take your piloting to the next level, the skills you gain with the X.R.B. will give you a leg-up to the world of real R/C heli flying.

SOURCES

Hirobo, distributed by Altech Marketing, 80 Newfield Ave., Edison, NJ 08818 • (732) 225-2100; fax (732) 225-0091

ENDURANCE

LRP 24 Hours of Eppelheim!



During the weekend of November 30th to December first, the MSC Eppelheim club and LRP Electronic held a special event for the first time in Europe. Ten international teams attended the challenge of a 24-hour race. Drivers from England, Belgium, Switzerland, Austria, Poland, Italy, Denmark and Germany fought for the honor and glory of withstanding a full day's worth of concentration, skill and strategy.

The races in Eppelheim started back in 1985 with the legendary Christmas Challenge indoor off-road races. Shortly afterwards, the successful cooperation between the MSC Eppelheim and LRP began. In the late '90s it was time for the LRP Touring Car Masters, which, apart from the IFMAR worlds, is probably the biggest and most competitive touring car race in the world. They have more than 15 years' experience in holding world-class events, and we can look back on more than 20 races!

Drivers did eventually lose interest in the off-road Christmas Challenge, which is why it was decided to replace this legendary race with something completely different—a 24-hour endurance event for electric touring cars. This would prove to be the ultimate test for man and machine, and would be very fun and very exciting for both the participants and the crowd.

RULES OF THE ROAD

The LRP 24-hour endurance race was run with similar rules as used in the masters class at the LRP Touring Car Masters, with controlled tires and motors to make racing as even and challenging as possible.

The MSC Eppelheim did an excellent job in preparing the complete race track area in a top-quality way, and the track layout was designed by LRP R&D Manager Reto König. With his knowledge and many years of racing, Reto built a very beautiful but difficult track.

CHAMPIONS



Team LRP/Warp's winning HPI Sprint.

LRP attended this event with a full support team, and had several company representatives on hand to answer any technical questions. During the event, a lot of spectators watched the race in the "Rhein-Neckar-Hall." For all the other R/C enthusiasts who couldn't attend in person, LRP offered a 24-hour live Internet report directly from the track! All racers around the world were able to follow this exciting event while at home. Over 30 updates were posted on the website during the 24 hours.

A DAY ON THE DRIVERS' STAND

After 24 hours of racing, every team felt like a winner. All of the teams managed to finish the full 24 hours, with the teams crossing the finish line on Sunday at 4 p.m. During the race, batteries, tires and motors were changed at unbelievable speed. One set of controlled HPI B15-40 tires would last for about four hours. Most teams trusted in the new high-capacity Powers R3300 or GP3300 batteries. One battery pack lasted for about ten minutes of run time. The handout LRP 15-turn motors needed a rebuild after four to five hours out on the track.

At the end, the LRP/Warp 7 team took the win with a lead of over 250 laps! Members of this team were: Hupo Hönigl, Hans J. Tormann, Roger Wickie, Reto König, Andy Krämer, Dirk Stammler and Gerd Strenge. The "dream machine" of the LRP/Warp 7 team was an HPI Sprint RS in special "LM-Edition" trim. The car was based on the well-known HPI Sprint (well known overseas, at least) with a special quick-release system for the batteries. The winning team also had 18 packs of "race grade" LRP HiVolt-Plus Powers R3300 batteries, and their LRP Quantum Competition ESC handled the entire 24 hour period without any problems.

CONCLUSION

The was not only a lot of fun for the participants, but it also provided a good show for the spectators. Those in attendance were also able to test-drive HPI's Dash entry-level cars (and take part in a charity drawing) on an extra track that had been laid out in the Rhein-Neckar-Hall. The main prize for the lottery was an HPI Dash Porsche 911 Turbo, which was donated by LRP and was presented to the winner by LRP CEO and owner Jürgen Lautenbach.

Congratulations to all teams for their great performance and especially to the LRP/Warp 7 team for their unchallenged victory!

Pos.	Team	Nat.	Laps	Car	ECS	Receiver	Batteries	Charger
1	LRP / Warp 7	GER, CH, A	5428	HPI Sprint RS "LM"	LRP Quantum Competition (#8082)	LRP Phaser (#8401 27Mhz)	LRP HiVolt + Powers R3300	LRP Pulsar Comp. (#41550)
2	Triox	CH, GER	5176	Losi XXX-S	Nosram Dominator Power	KO Propo	Triox GP 3300 Sanyo 3000HV	Robitronic,
3	Belgium	B	5120	Asso TC-3	LRP Quantum Competition (#8082)	LRP Phaser (#8406 40Mhz)	LRP HiVolt+ Powers 3300	LRP Pulsar Comp. (#41550)
4	Nosram	DK,CH GER,A	5118	HPI Sprint RS "LM"	Nosram Dominator Power	Nosram Gemini	Nosram P-Max Powers R3300	LRP Pulsar Comp. (#41550)
5	North-Germany	GER	5097	HPI Pro 2 "24Edition"	LRP Quantum Competition (#8082)	KO Propo	LRP HiVolt+ Sanyo 3000HV	Robitronic
6	LRP B-Team	GER, CH	5043	HPI Sprint RS "LM"	LRP Quantum Competition (#8082)	LRP Phaser (#8406 40Mhz)	LRP HiVolt + Powers R3300	LRP Pulsar Comp. (#41550)
7	TQ-Models	Italy	4987	Asso TC-3	LRP Quantum Competition (#8082)	LRP Phaser (#8406 40Mhz)	Sanyo 3000HV	Schulze Eagle
8	GM Racing	GER	4601	GM TC4 Street Hero	GM V12	Graupner	GM GP 3300	GM Vis Comander
9	Rojna Modelsport	Poland	3622	GM TC4 Street Hero	GM V12	LRP Phaser (#8406 40Mhz)	Sanyo 3000HV Sanyo 2400	LRP Pulsar Comp. (#41550)
10	1. Marzahn	GER	977	HPI Pro 3	LRP Quantum Super Sport (#84500)	Acoms	Sanyo RC2000 Sanyo RC3000	



R/C CAR "PREFERRED" HOBBY SHOP

THE RADIO CONTROL CAR MAGAZINE

ALABAMA

BRYANS HOBBY SHOP	2837 ROSS CLARK CIR	Dothan	36302	334-793-2439
HOBBYTOWN USA RACEWAY	450 SCHILLINGER RD S.	Mobile	36608	334-633-8446
OAK MOUNTAIN HOBBIES	2238 PELHAM PARKWAY	Pelham	35124	205-989-4882
RC HI TECH RACEWAY	3303 MERIDIAN ST	Huntsville	35811	256-539-1347

ARKANSAS

HOBBYTOWN USA	400 N. BOWMAN/STE B-5	Little Rock	72211	501-223-5155
HOBBYTOWN USA	9220 HWY 71 SOUTH	Fort Smith	72916	501-649-9220
K & S HOBBY SHOP	809 N. 62-65 HWY	Harrison	72601	870-365-0597

ARIZONA

COMPETITION HOBBIES	3930 W. COSTCO DR.	Tucson	85741	520-297-8162
HOBBY DEPOT	216 WEST SOUTHERN AVE	Tempe	85282	602-968-1880
HOBBYTOWN USA	915 E. BASELINE RD	Gilbert	85233	480-892-0405
HOBBYTOWN USA	5030 E. RAY RD #11	Phoenix	85044	480-598-5282
HOBBYTOWN USA	102 E. 22ND ST	Tucson	85713	520-882-8888
HOBBYTOWN USA	4500 N. ORACLE RD, #202	Tucson	85705	520-888-9777
SCOTTSDALE R/C RACEWAY	3023 N. SCOTTSDALE RD	Scottsdale	85051	480-945-2186

CALIFORNIA

ARC RACING	41083 SANDLEWOOD CIR/ D	Murrieta	92562	909-304-0580
B.C.T. HOBBY & CRAFT	620 B SAN BENITO ST	Hollister	95023	831-636-7550
BEE GEE HOBBIES	234 GOLF CLUB RD	Pleasant Hill	94523	925-798-5133
CASTLE HOBBIES	14918 CAMDEN AVE	San Jose	95124	408-377-3771
COVINA HOBBY SHOP	140 N. CITRUS	Covina	91724	626-331-1910
CYCLE ART RACING	2211 N. PLEASANT WAY	Fresno	93705	559-233-3665
D & J HOBBIES	96 SAN THOMAS AQUINO RD	Campbell	95008	408-379-1696
DISCOUNT HOBBY WHSE	4444 CONVOY ST	San Diego	92111	619-560-9633
DOLLHOUSE TRAINS & MORE	300 ENTRADA DR	Novato	94949	414-883-0388
EXTREME MOTOSPORTS	1230 JUAREZ ST	Napa	94559	707-251-9876
FRANCISCIAN HOBBIES	1920-A OCEAN AVE	San Francisco	94127	415-584-3919
GIZMO'S HOBBY	2010 WEST BURBANK BL	Burbank	91506	818-842-8200
HOBBIES TOYS & MORE	17600 COLLIER AVE/ H172	Lake Elsinore	92530	909-245-1147
HOBBY CENTRAL	13461 COMMUNITY RD	Poway	92064	858-513-0373
HOBBY SHACK	18480 BANDILIER CIR	Fountain Valley	92728	714-964-0827
HOBBY WORLD	6148 BOLLINGER RD	San Jose	95129	408-873-2109
HOBBYTOWN	727 CENTER DR #106	San Marcos	92069	760-739-0672
HOBBYTOWN USA	2500 E.IMPERIAL HWY #130	Brea	92821	714-990-9652
HOBBYTOWN USA	4420-A TREAT BLVD	Concord	94521	925-685-3802
HOBBYTOWN USA	3069 WEST BULLARD AVE	Fresno	93711	559-435-3342
HOT ROD HOBBIES	25845 SAN FERNANDO RD	Santa Clarita	91350	805-255-2404
JAKES PERFORMANCE HOBBY	6650 COMMERCE BLVD #21	Cotati	94928	707-586-3375
JAX HOBBIES	17421 BROOKHURST/107	Fountain Valley	92708	714-378-8924
KIT & CABOODLE	550 EL CERRITO PLAZA	El Cerrito	94530	510-524-9942
KRAZY KEVIN'S	1223 3RD ST #D	Chula Vista	91911	619-422-2724
LPRP	24771 NORTHERN DANCER	Moreno Valley	92551	909-488-9021
MARTY'S HOBBIES	1728 N. MOORPARK RD	Thousand Oaks	91360	805-497-3664
MODESTO HOBBIES	1300 SYLVAN AVE #C7	Modesto	95355	209-529-7310
PALMDALE HOBBIES	2127 E. PALMDALE BLVD	Palmdale	93550	661-273-6229
PEAK PERFORMANCE	22601 LaPALMA AVE. #104.	Yorba Linda	92887	714-692-8533
PIT STOP R/C HOBBIES	3554 STATE ST.	Santa Barbara	93105	805-898-3902
R/C COUNTRY HOBBIES	6011 FOLSOM BLVD	Sacramento	95819	916-731-5868
R/C TECH	1618 SULLIVAN ST/STE 105	Daly City	94015	650-992-7600
RACERS HAVEN	7401 WHITE LANE #12	Bakersfield	93309	805-835-0441
RIPON RC SPEEDWAY	701 N. ACACIA	Ripon	95366	209-599-5160
ROBIN'S HOBBY SERVICE	1844 WEST GLEN OAKS	Glendale	91201	818-240-2093
SAVAGE MOTORSPORTS	948 MAIN STREET	Ramona	92065	760-788-7733
SHELDON'S HOBBIES	2135 OLD OAKLAND RD	San Jose	95131	408-943-0872
SHOWTIME R/C SPEEDWAY	3805 CHESTER AVE.	Bakersfield	93301	661-328-1481
SMITH BROTHERS HOBBY	8941 RESEDA BLVD	Northridge	91324	818-885-8636
SO CAL R/C RACEWAY	19118 BROOKHURST ST	Huntington Beach	92646	714-963-7484
SPEED WORLD RWY & HOBBY	1704 CHILTON DR	Roseville	95747	916-783-8864
THE HOBBY PLACE	10600 W. PICO BLVD	Los Angeles	90064	310-836-2000
VISALIA HOBBIES	2137 W. WHITENDALE AVE	Visalia	93277	559-734-8072

COLORADO

COLPAR HOBBIES	804 S. HAVANA ST	Aurora	80012	303-341-0414
CUSTOM HOBBIES	2813 E. PLATTE AVE	Colorado Springs	80909	719-634-7400
HOBBYTOWN USA	4348 S. COLLEGE	Fort Collins	80525	970-226-3900
HOBBYTOWN USA	6815 WEST 88TH AVE	Westminster	80021	303-431-0482
HOBBYTOWN USA	800 SOUTH HOVER RD	Longmont	80501	970-226-3900
MHOR R/C RACEWAY	15540 E. BATAVIA DR.	Aurora	80011	303-343-0151

CONNECTICUT

DANBURY HOBBY CENTER	366 MAIN ST	Danbury	06810	203-743-9052
NEW ENGLAND HOBBY SPY	71 HILLIARD ST	Manchester	06040	860-646-0610
PIT STOP HOBBIES	43 GRASSEY PLAIN ST	Bethel	06801	203-778-9249
RC MADNESS TRACK & HOBBY	640 ENFIELD	Enfield	06082	860-741-6501

DELAWARE

HOBBY STOP SPEEDWAY	RD 4 BOX 100 RT 13	Seaford	19973	302-629-3944

FLORIDA

ACE HOBBIES	2127 S. RIDGEWOOD AVE	Daytona Beach	32119	904-761-9780
ATOMIC HOBBIES	13205 S.W. 137 AVESTE 103	Miami	33186	305-235-3232
BOB'S HOBBY CENTER	7333 LAKE UNDERHILL RD	Orlando	32822	407-277-1248
CENTRAL FLORIDA HOBBIES	5600 W. COLONIAL DR #310	Orlando	32808	407-295-9256
COLONIAL PHOTO & HOBBY	634 N. MILLS AVE	Orlando	32803	407-841-1485
CROWN HOBBIES	7439 S.W. 24TH ST	South Miami	33155	305-264-3964
G & C HOBBIES	1228 HYPOLUXO RD	Lantana	33462	561-547-3812
HOBBIE WAREHOUSE INC.	1237 AIRPORT RD S.	Naples	34104	941-262-2701
HOBBY CENTRAL	UNIVERSITY MALL	Pensacola	32504	850-471-9800
HOBBY NUT INC.	12679 DIXIE HWY	South Miami	33156	305-235-9584
HOBBYTOWN USA	12608 S.W. 88TH ST	Miami	33186	305-273-7803
JACKS HOBBIES	131 N.E. 17TH PLACE	Ocala	34470	352-351-2224
MORRIS KOHL'S RACEWAY & HOBBY	1202 W. WATERS	Tampa	33604	813-931-1626
PHIL'S HOBBY SHOP	6050 PARK BLVD	Pinellas Park	33781	727-545-1251
R.C. HOBBIES	6800 N. UNIVERSITY DR	Tamarac	33321	954-721-5720
ROB'S HOBBY WORLD	8602 S.W. ST RD 200	Ocala	34481	352-854-2799
SCOTT'S HOBBIES	26690 61ST RD	Branford	32008	904-935-0758
SPACE COAST HOBBIES	2135 PALM BAY RD NE	Palm Bay	32905	321-722-3696
SUPERIOR HOBBIES	1478 E. SEMORAN BLVD	Casselberry	32707	407-834-9299
TAVERNIER BIKE & HOBBIES	91910 OVERSEAS HWY	Tavernier	33070	305-852-2859
TEAM AUTO HAUS	424 BLANDING BLVD.	Orange Park	32073	904-276-5432
WARWICK CUSTOM HOBBIES	7676 PETERS RD	Plantation	33324	954-370-0708

GEORGIA

ALLISON PERFORMANCE HOB.	12 GREENVILLE ST	Newnan	30263	770-254-9557
BIG DADDY HOBBIES	420 HOSEA RD.	Lawrenceville	30045	770-963-0254
HOBBY MART	6889 PEACHTREE INDUST. /STE H	Peachtree Corners	30092	770-840-8495
HOBBYTOWN USA	6770 VETERANS PKWY/STE I	Columbus	31909	706-660-1793
HOBBYTOWN USA	800 E. BARRETT PKWY	Kennesaw	30144	770-426-8800
NATIONAL HOBBY	1975 SOUTH COBB DR	Marietta	30060	770-333-0190
SUGAR BOWL SPEEDWAY	5272 NELSON BROGDON WY	Sugar Hill	30518	770-945-6709
R/C TOYS FOR BOYS	2220 COBB PARKWAY N.	Kennesaw	30152	678-797-0406

HAWAII

ACE RADIO CONTROL	1005 LEHUA AVE	Pearl City	96782	808-456-1279
THE HOBBY COMPANY	98-1005 MOANALUA RD	Aiea	96701	808-487-2473

IOWA

BOX KAR HOBBIES	3649 FIRST AVE S.E.	Cedar Rapids	52402	319-362-1291
FAGAN'S	2327 CENTRAL AVE	Dubuque	52001	319-588-0846
HOBBY CHEST	209 E. MAIN	Ottumwa	52501	641-683-4436
HOBBY HAVEN	7672 HICKMAN RD	Urbandale	50322	515-276-8785
HOBBY SHOP	1700 S. FIRST AVESTE 17	Iowa City	52240	319-338-1788
HOBBYTOWN USA	2406 E. 53RD ST	Davenport	52807	319-355-2071
HOBBYTOWN USA	2737 16TH AVE S.W.	Cedar Rapids	52404	319-364-3289
HOBBYTOWN USA	620 LINCOLN WAY #6	Ames	50010	515-232-9060
WILD BILLS R/C HOBBIES	901 W. JONES	Knoxville	50138	515-842-5973

IDAHO

BOISE HOBBIES	4516 OVERLAND RD	Boise	83705	208-363-9555
DAPCO HOBBIES	2211 GARRETT WAY	Pocatello	83201	208-233-8163
HOBBYTOWN USA	1870 W. PULLMAN RD	Moscow	83843	208-882-9369
HOBBYTOWN USA	3317 N. COLE RD	Boise	83704	208-376-1942
MONSTER HOBBIES	9551 N. HWY 95 SUITE E	Hayden	83835	208-772-0422
THE TOY SHOP	837 POLELINE RD	Twin Falls	83301	208-734-2725

ILLINOIS

ALLEN'S R/C CARS	3115 LEACH RD.	Rochester	62563	217-498-7345
AL'S HOBBY SHOP INC.	121 ADDISON, BOX 449	Elmhurst	60126	630-832-4908
CORNER HOBBY	308 NORTH VIRGINIA AVE	Swansea	62220	618-277-6030
DEPOT HOBBY SHOP	180 SOUTH SEMINARY ST	Galesburg	61401	309-342-9323
HIS N HERS HOBBIES	1206 TOWANDA PLAZA #2	Bloomington	61707	309-827-0204
HOBBY LAND	616 N. MAIN	Bloomington	61701	309-828-1442
HOBBYTOWN USA	1000 LAKE ST	Oak Park	60301	708-445-8056
HOBBYTOWN USA	1772 S. RANDALL ST/STE 200	Geneva	60134	630-208-9062
HOBBYTOWN USA	4338 E. NEW YORK	Naperville	60540	630-778-8707
HOBBYTOWN USA	MACHESNEY PARK MALL	Machesney Park	61115	815-282-0727
HOBBYTOWN USA,Oak Mill Mall	7900 N. MILWAUKEE AVE	Niles	60714	847-470-9577
LA GRANGE HOBBIES	25 S. LA GRANGE RD	Mc Cook	60525	708-354-1220
LEISURE HOURS HOBBIES	2712 N. PLAINFIELD RD	Joliet	60436	815-439-1477
PAT'S HOBBIES & CRAFTS INC.	5730 W. 95TH ST	Oak Lawn	60453	708-424-6131
RADIO ACTIVE RACEWAY	751 N. BOLINGBROOK DR #15	Bolingbrook	60440	630-759-7557
STANTON HOBBY SHOP	4718 N. MILWAUKEE AVE	Chicago	60630	773-283-6446
THE GREAT ESCAPE	4507 RAY ST.	Crystal Lake	60012	815-459-8111
VENTURE HOBBIES	23 HUNTINGTON LANE	Wheeling	60090	847-537-8669

INDIANA

B & R HOBBIES	9014 CRAWFORDSVILLE RD	Indianapolis	46234	317-297-4257
BREMEN HOBBIES	308 N. BOWEN AVE	Bremen	46506	219-546-3807
CUSTOM MADE HOBBIES	1600 MORNINGSTAR LN.	Decatur	46733	260-724-3040
DUNELAND HOBBIES	2556 PORTAGE MALL	Portage	46368	219-763-1610
G & G HOBBIES	105 E. MAIN ST	Griffith	46319	219-924-6686
GRANGER HOBBY STOP	12131 STATE RD 23 UNIT L	Granger	46530	219-243-2390
HAPPY HOBBIES	1398 EASTERN BLVD	Jeffersonville	47129	812-282-0060
HOBBY TOWN USA	139 N. BURKHARDT RD	Evansville	47715	812-477-7200
HOBBYLAND INC.	2564 MIRACLE LANE	Mishawaka	46545	219-255-1722
HOBBYTOWN USA	6336 E. 82ND ST	Indianapolis	46250	317-845-4106
HOBBYTOWN USA	1858 E. 80TH PLAZA	Merrillville	46410	219-736-0255
JOE'S HOBBY BARN	1950 E. SPRINGHILL DR	Terre Haute	47802	812-299-5773
P & T HOBBIES AND RWY	2412 N. POORFARM RD	Bedford	47421	812-849-6666
PHILS HOBBY SHOP	3112 N. CLINTON	Ft. Wayne	46805	219-471-1340
PHILS HOBBY SHOP	1722 LAKE AVE.	Ft. Wayne	46805	260-426-5056
R & D HOBBIES	4217 FRANKLIN ST	Michigan City	46360	219-879-7563
RIDER'S FORT WAYNE	4724 COLDWATER RD.	Ft. Wayne	46825	260-496-8811

KANSAS

HOBBY HAVEN	10560 METCALF	Overland Park	66212	816-942-2205
HOBBYTOWN USA	2108 W. 27TH ST	Lawrence	66047	785-865-0883
HOBBYTOWN USA	8229 EAST KELLOGG	Wichita	67207	316-683-7222
HOBBYTOWN USA	9270 METCALF	Shawnee Mission	66212	913-649-7979
MIKES R/C	121 S.E. 29TH ST	Topeka	66605	785-266-5767
R/C SUPERDOME & T.Q. SHOP	14 E. AVE A	Hutchinson	67501	316-665-6633

KENTUCKY

BLUEGRASS HOBBIES	274 LAMPTON LN.	Columbia	42728	270-384-9131
HOBBYTOWN USA	12615 SHELBYVILLE RD	Middletown	40243	502-245-5755
PIT STOP HOBBIES	1927 IRVIN COBB DR	Paducah	42003	502-527-8216
SCALE REPRODUCTION	3073 BRECKINRIDGE LANE	Louisville	40220	502-459-5849
STRICK 9 & HOBBIES	615 S. 12th STREET #H	Murray	42071	270-753-5444

LOUISIANA

HARES ART-N-HOBBY	4529 LEE ST	Alexandria	71302	318-443-2755

MASSACHUSETTS

BARN SPEED HOBBIES	109 CENTER ST	Lee	01238	413-243-2651
BIG BOYS TOYS	33 FATHER DE VALLES BLVD	Fall River	02723	508-677-9400
DAVE'S HOBBIES	281 CABOT ST	Beverly	01915	978-921-1559
HENRY'S HOBBY HOUSE INC.	67 W. BOYLSTON ST	West Boylston	01583	508-835-6165
HOBBY WORLD	171 GROVE ST	Adams	01220	413-743-7223
HOG HEAVEN HOBBIES	3 ARNOLD RD"P.O. BOX 416	Fiskdale	01518	508-347-9350

MARYLAND

DOUG'S HOBBY	24404 THREE NOTCH RD.	Hollywood	20636	301-373-6674
GPA HOBBIES	2431 CROFTON LANE STE 6	Crofton	21114	301-858-0004
HOBBY CITY	15751 COLUMBIA PIKE	Burtonsville	20866	301-421-5977
HOBBYTOWN USA	1305 W. 7TH AVE #28	Frederick	21702	301-694-7395
HOBBYTOWN USA	CHESAPEAKE SQR SHP CTR	Glen Burnie	21061	410-590-4950
HUNT VALLEY HOBBIES	10824 YORK RD	Hunt Valley	21030	410-666-1098
STONELEIGH HOBBY INC.	6717 YORK RD	Baltimore	21212	410-377-4447
S&J HOBBIES	10476 CAMPUS WAYS	Largo	20774	301-324-6680
THE TRACK	16806 OAKMONT AVE	Gaithersburg	20877	301-417-9630

MAINE

R/C SPEEDWAY & HOBBIES	87 MAIN ST	Fairfield	04937	207-453-4588
VICTORY LANE HOBBIES	306 ROUTE 236	Eliot	03903	207-439-3278

MICHIGAN

ACTION HOBBIES	211 EAST MAIN	Niles	49120	616-687-8550
ANYTHING GOES	5108 ROCHESTER RD	Troy	48085	248-740-2277
CAPITOL CITIES HOBBIES INC.	15357 HALL RD	Macomb	48044	810-532-0050
DIRT BURNER RACING	3295 HAGGERTY RD	Commerce	48390	248-926-1140
EAST BAY HOBBIES	364 W. HOUGHTON LAKE DR.	Prudenville	48651	989-366-5306
HOBBIES & TOYS	106 WEST MAIN ST	Gaylord	49735	989-732-3963
HOBBYTOWN USA	2252 S. MAIN ST	Ann Arbor	48103	734-996-2444
HOBBYTOWN USA	12821 S. SAGINAW	Grand Blanc	48439	810-695-9088
HOUSE OF HOBBIES	2763 N. 120TH AVE	Holland	49424	616-355-2064
HYPER R/C	12005 N. SAGINAW ST.	Mt. Morris	48458	810-686-3991
JOE'S HOBBY CENTER	35151 GRAND RIVER RD	Farmington	48335	248-477-6266
KECK HARDWARE & HOBBY	2132 WEST RD	Trenton	48183	734-676-2282
LARRY'S PERFORMANCE R/C'S	43665 UTICA RD	Sterling Heights	48314	810-997-4840
NANKIN HDWRE & HOBBY	35101 FORD RD	Westland	48185	734-722-5700
P & D HOBBY SHOP	31280 GROESBECK HWY	Fraser	48026	810-296-6116
PASTIME HOBBIES	2700 PINE GROVE RD #16	Port Huron	48060	810-982-2874
PROP SHOP HOBBIES, INC.	23326 VAN DYKE	Warren	48089	810-757-7160
R & L HOBBIES & RACING	9782 PORTAGE RD	Portage	49002	616-323-3686
R/C NITRO ZONE	213 WEST MAIN ST/STE #9	Brighton	48116	810-225-9586
RIDER'S HOBBY	32115 JOHN "R" RD	Madison Heights	48071	248-589-8111
RIDER'S HOBBY	42011 FORD RD	Canton	48187	734-981-8700
RIDER'S HOBBY SHOP	22789 NORTHLINE RD	Taylor	48180	734-287-7405
RIDER'S HOBBIES	2061 S. LINDEN RD	Flint	48532	810-720-2500
RIDER'S HOBBY	4417 S. WESTNEDGE AVE	Kalamazoo	49008	616-349-2666
RIDER'S HOBBY SHOP	2055 28TH ST S.E."UNIT 12	Grand Rapids	49508	616-247-9933
RIDER'S HOBBY SHOP	4035 CARPENTER RD	Ypsilanti	48197	313-971-6116
RIDER'S HOBBY SHOP	1609 E. MICHIGAN AVE	Lansing	48912	517-485-0700
RIDER'S HOBBY SHOP	30991 FIVE MILE RD	Livonia	48154	734-425-9720
ROBBY'S HOBBY	1106 COLUMBUS AVE	Bay City	48708	517-893-2712
THE HOBBY HUB	526 FRANDOR AVE	Lansing	48912	517-351-5843
TUCKEY MOTORSPORTS	706 E. CHICAGO RD.	Coldwater	49036	517-278-9689
YESTERDAY'S COLLECTION	5899 JACKSON RD	Ann Arbor	48103	734-668-6304

MINNESOTA

CHRISTOPHER'S HOBBIES	116 WEST BRDWAY ST	Owatonna	55060	507-451-2825
HOBBY TOWN USA	7916 BROOKLYN BLVD.	Minneapolis	55445	612-424-6052

LOCATOR

TO HAVE YOUR SHOP LISTED HERE CALL 1 (800) 767-0345 Ext. 126

ATTENTION: YOU MUST SELL R/C CAR MAGAZINE TO BE IN THE SHOP LISTING.

HOBBY WAREHOUSE	7120 CHICAGO AVE S.	Richfield	55423	612-861-5587
HUB HOBBY CENTER	82 MINNESOTA AVE	Saint Paul	55117	612-490-1675
NORTHWOODS HOBBY	614 FRONT ST	Brainerd	56401	218-829-9257
R.C. CAR KINGS	1913 W. BURNSVILLE PKWY	Burnsville	55337	952-895-9643
TWIN CITIES HOBBY & RWY	7577 BROOKLYN BLVD.	Brooklyn Park	55443	763-569-5069
MISSOURI				
C&C HOBBIES	5740 HWY 54 SUITE 1003	Osage Beach	65065	573-348-2298
CHECKERED FLAG HOBBIES	4491 LeMAY FERRY ROAD	St. Louis	63129	314-892-5353
HOBBY HAVEN	14100 A EAST 42ND ST	Independence	64055	816-478-3233
HOBBYTOWN USA	524 N.W. ENGLEWOOD RD	Kansas City	64118	816-459-9590
HOBBYTOWN USA	533 S.E. MELODY LANE	Lees Summit	64063	816-525-6885
JOPLIN R/C HOBBIES	1900 S. RANGELINESTE 9	Joplin	64804	417-623-0011
MARK TWAIN HOBBY CTR	2793 WEST CLAY ST	Saint Charles	63301	636-946-2816
REAL R/C	12019 EAST 47TH	Raytown	64133	816-358-0238
SCHAEFER'S R/C SHOP	4206 VIRGINIA AVE	Saint Louis	63111	314-352-3750
MISSISSIPPI				
HOBBYTOWN USA	4378 MALL DR	Tupelo	38804	662-690-6030
HOBBYTOWN USA	6380-D RIDGEWOOD COURT	Jackson	39211	601-957-9900
MONTANA				
NORTHLAND HOBBIES INC.	1325 HWY 2 WEST	Kalispell	59901	406-257-1808
PRAIRIE UNIQUE	114 S. LOGAN ST	Terry	59349	406-635-5598
THE TREASURE CHEST	1612 BENTON AVE	Missoula	59801	406-549-7992
NORTH CAROLINA				
ACTION HOBBIES	8500 PINEVILLE MATHEWS RD	Charlotte	28226	704-540-0311
HOBBY TOWN USA	8332 PINEVILLE MATHEWS RD	Charlotte	28226	704-544-2303
HOBBYTOWN USA	SHERWOOD PLAZA SHP CTR.	Winston Salem	27106	336-774-2324
K/C HOBBY INC	10948-G NORTH MAIN ST.	Archdale	27263	336-434-3482
KING R/C	614 S. MAIN ST	King	27021	336-983-3969
Z N Z HOBBIES	972 TALBERT BLVD	Lexington	27292	336-249-6127
NORTH DAKOTA				
HOBBYTOWN USA	2500 S. COLUMBIA RDSTE D	Grand Forks	58201	701-746-0708
NEBRASKA				
FUN TIME HOBBY	2020 CENTRAL AVE	Kearney	68847	308-234-1806
HOBBYTOWN UNLIMITED	EAST PARK PLAZA	Lincoln	68505	402-434-5056
HOBBYTOWN USA	13110 BIRCH DR	Omaha	68164	402-498-8888
HOBBYTOWN USA	3537 WEST 13TH ST	Grand Island	68803	308-382-3451
NEW HAMPSHIRE				
HOBBY ETC. INC.	90 WEST PEARL ST	Nashua	03060	603-883-4919
LEISURE TIME HOBBIES	56-B MARLBORO ST.	Keene	03431	603-357-9975
NEW JERSEY				
ALLIED HOBBIES	CHERRY HILL MALL	Cherry Hill	08002	856-665-7888
ALLIED HOBBIES	207 ECHELON MALL	Voorhees	08043	856-772-1268
ALLIED HOBBIES	264 BURLINGTON CENTER	Burlington	08016	609-386-5044
CRUIZIN WITH RC'S INC.	53 EAST MAIN ST	Ramsey	07446	201-825-4884
DNL HOBBIES	1604 A UNION VALLEY RD.	West Milford	07480	973-728-8003
FISHKIN BROS.	285 MADISON AVE	Perth Amboy	08861	732-826-0048
G&S HOBBIES	44 ANCHOR BLVD.	Old Bridge	08857	732-727-7871
HOBBIES ETC.	240 S. BRD ST	Woodbury	08096	856-384-7740
HOBBY WORKSHOPS	510 WEST KINGS HWY	Mount Ephraim	08059	856-931-2400
JERRY'S HOBBY CENTER	336 RT 22 W	Greenbrook	08812	908-752-6030
THE HOBBY SHOP	ABERDEEN TOWNSQUARE	Aberdeen	07747	732-583-4189
WACKY RC'S HOBBY SHOP	409 EAST 2ND ST	Roselle	07203	908-241-6700
WIDE WORLD OF HOBBIES	974 TEANECK RD.	Teaneck	07766	201-862-9393
ZEPPELIN HOBBIES & RACEWAY	92 ROUTE 23 RIVERDALE SQUARE MALL	Riverdale	07457	973-831-7717
NEW MEXICO				
ALBUQUERQUE HOBBY CO	1431 EUBANK BLVD N.E.	Albuquerque	87112	505-275-1882
BIG BOYS TOYS	1735 JUAN TABO N.E.	Albuquerque	87112	505-298-1023
CHARLIES HOBBY SHOP	1230 N. SOLANO DR	Las Cruces	88001	505-541-1097
HOBBIE'S & STUFF	9577-L OSUNA RD N.E.	Albuquerque	87111	505-293-1217
HOBBYTOWN USA	636 W. BRDWAY	Farmington	87401	505-325-5156
NEVADA				
DANSEY'S INDOOR R/C HOBBIES	741 N. NELLIS BLVD.	Las Vegas	89110	702-453-7223
HOBBYTOWN USA	5085 W. SAHARA AVE #134	Las Vegas	89146	702-889-9554
HOBBYTOWN USA	3789 S. CARSON ST	Washoe Valley	89701	775-883-5475
NEW YORK				
ACTION HOBBIES	1070 MIDDLE COUNTRY RD	Selden	11784	516-736-1574
BROOKLYN HOBBIES	3842 FLATLANDS AVE	Brooklyn	11234	718-951-2500
BRUCKNER HOBBIES	3587 E. TREMONT AVE	Bronx	10465	800-288-8185
COMPETITION HOBBY SUP	1006 LOUDON RD	Cohoes	12047	518-786-3622
EAST COAST HOBBIES	2515 65TH ST	Brooklyn	11204	718-627-3814
FANTASIA HOBBIES	17169 46TH AVE	Flushing	11358	718-460-5671
FORDHAM HOBBIES	2446 CRESTON AVE.	Bronx	10468	718-562-1906
HOBBIES UNLIMITED	158-38 CROSS BAY BLVD	Queens	11414	718-845-4545
HOBBY HOUSE	2366 LYELL AVE	Rochester	14606	716-429-6280
HOBBY WORLD	311 BROADWAY	Monticello	12701	914-794-8770
HOMETOWN HOBBIES	14 FEDERAL PLAZA	Monroe	10950	914-782-2401
LARRY'S HOBBY SUPPLIES	3006 JERICHO TPKE	East Northport	11731	631-499-7166
MACH 1 HOBBIES	249 W. 29TH ST #1	New York	10001	212-947-0157
NAGENGAST HDWR & HOBBY	68-02 FRESH POND RD	Flushing	11385	718-821-0958
PERFORMANCE HOBBIES	15 WEST MAIN ST	Webster	14580	716-872-4990
RACING CITY HOBBIES	MIDTOWN SHOPPING CTR	South Glens Falls	12803	518-792-7272
RAMPAGE R/C AND HOBBIES	782 RT 9G ROCKLEDGE PLAZA	Hyde Park	12538	914-229-1379
THE HOBBY STORE	119 MT. VERNON AVE	Mt. Vernon	10550	914-668-3022
TONY'S HOBBY SHOP	229 HARRISON AVE	Harrison	10528	914-835-4765
TRANS BORDER CUSTOMS	C/O MODELER DISTRIBUTION	Champlain	12919	514-687-6214
UNIVERSAL ENTERTAINMENT	1611 PINE AVE	Niagara Falls	14301	716-282-4840
WALT'S HOBBY	2 DWIGHT PARK DR	Syracuse	13209	315-453-2291
WILLIS HOBBIES	300 WILLIS AVE	Mineola	11501	516-746-3944
OHIO				
CAPSTONE HOBBIES	562 W. SCHROCK RD	Westerville	43081	614-899-6313
DIVE IN SCUBA CENTER	3182 WARREN SHARON RD	Vienna	44473	330-856-6275
GRANDVIEW HOBBIES	1460 W. FIFTH AVE	Columbus	43212	614-486-3532
HOBBY STOP WEST	4550 MONROE ST	Toledo	43613	419-471-1108
HOBBYTOWN USA	8000 PLAZA BLVDSTE 9	Mentor	44060	440-946-5588
PHILS HOBBY SHOP	422 CLINTON STREET	Defiance	43512	419-782-8020
RIDER'S HOBBY SHOP	5333 MONROE ST	Toledo	43623	419-843-2931
PIT ROW	7796 MONTGOMERY RD	Cincinnati	45236	513-891-7487
THE HOBBY SHOP	153 N SPRINGBORO PIKE	Miamisburg	45449	937-436-6161
VICTORY CIRCLE R/C PRO.	4340 HEGNER AVE.	Cincinnati	45236	513-794-1963
WINGS WHEELS & WAVES	14 LINCOLN WAY E.	Massillon	44646	330-830-7755
OKLAHOMA				
ACTION HOBBIES	4955 S. MEMORIAL DR	Tulsa	74145	918-663-8998
BAJA R/C	1111 1st N.W.	Ardmore	73401	580-223-0400
WINGS N' THINGS INC.	5241 S. PEORIA AVE	Tulsa	74105	918-745-0007
OREGON				
AERO SPORT & HOBBY	17941 N.E. GLISAN	Portland	97230	503-669-7665
EUGENE TOY & HOBBY	32 E. 11TH AVE	Eugene	97401	541-344-2117
HOBBY CENTER	1125 DALE ST S.E.	Albany	97321	541-928-5255
LEISURE HOBBIES	982 LANCASTER DR N.E.	Salem	97301	503-588-9884
R C ADDICTION	2810 N. PACIFIC HWY	Medford	97501	541-779-8298
R/C PLUS HOBBIES	1685 25TH ST	Salem	97302	503-364-9188
TAMMIES HOBBIES	12024 S.W. CANYON RD	Beaverton	97005	503-644-4535
ULTIMATE HOBBIES	1210 JANTZEN BEACH CTR	Portland	97217	503-247-8194
WAYNES WORLD OF HOBBY	10910 N.E. HALSEY ST	Portland	97220	503-261-8598
PENNSYLVANIA				
ADAM & EVES PET & HOBBY	313 LATROBE 30 PLAZA	Latrobe	15650	412-539-7130
ALLIED HOBBIES	204 OXFORD VALLEY MALL	Langhorne	19047	215-757-8086
CRANBERRY HOBBY DEPOT	GARDENS PLAZA	Cranberry Twnshp	16066	724-776-3640
GLENNS ALLIED HOBBIES	6607 RISING SUN AVE	Philadelphia	19111	215-745-5777
HOBBY EXPRESS INC.	309 MARS-VALENCIA RD	Mars	16046	724-625-1550
J.C. R/C HOBBIES	13 YORK RD	Warminster	18974	215-672-5200
J&K HOBBIES	1240 ALLEGHENY ST.	Jersey Shore	17740	570-398-8171
LOCO LOUIES MODEL TRAINS	2365 MAC DADE BLVD.	Holmes	19043	610-583-7711
LORESKI'S INC.	MIRACLE MILE SHOPPING CTR	Monroeville	15146	412-372-5155
MARSHALL'S HILLTOP HOBBIES	RR 4 BOX 4265 PA ROUTE 652	Honesdale	18431	570-729-7458
R C OUTFITTERS	519 BROADWAY	Hanover	17331	717-633-9490
RHODE ISLAND				
NSANE TOYS	267 POCASSET AVE	Providence	02909	401-943-2629
NANCY'S CO-OP	350 MAIN ST	Warren	02885	401-247-0288
SOUTH CAROLINA				
GOLDEN STRIP HOBBIES	315 FAIRVIEW RDSTE G	Simpsonville	29681	864-963-7149
HOBBY STOP	939 S. ANDERSON RD	Rock Hill	29730	803-327-4121
HOBBYTOWN USA	BELVEDERE PLAZA	Anderson	29621	864-627-9633
HOBBYTOWN USA	VERDAE MARKET FAIR/ 340	Greenville	29607	864-627-9633
SOUTH DAKOTA				
HOBBYTOWN USA	DAKOTA PLAZA	Sioux Falls	57105	605-339-6613
TENNESSEE				
AAA MODEL SUPPLY	5237 HWY 126	Blountville	37617	423-323-1513
HOBBYLAND TENN INC.	5985 STAGE RDSTE 1	Bartlett	38134	901-937-0636
HOBBYTOWN USA	2000 MALLORY LANESTE 610	Franklin	37067	615-771-7441
HOBBYTOWN USA	2884 WOLFCREEK PARKWAY	Memphis	38133	901-213-2682
HOBBYTOWN USA	634 NORTHGATE MALL	Red Bank	37415	423-877-9885
HOBBYTOWN USA	COMMONS II	Knoxville	37923	865-690-6423
HOBBYTOWN USA	KINSINGTON PLACE SHOP CTR	Murfreesboro	37130	615-890-6777
TENNESSEE MODEL HOBBIES	8903 OAK RIDGE HWY	Knoxville	37931	423-927-2900
THE GREAT ESCAPE	1426 LAURENS RD	Greenville	29607	864-235-8320
TEXAS				
ACTION HOBBIES	2005 9TH ST	Wichita Falls	76301	940-766-2667
BIG MIKE'S HOBBIES & TOYS	2157 GILMER RD	Longview	75604	903-297-7814
DRYCREEK HOBBIES	2518 130 WEST	Greenville	75402	903-527-5381
GUADALUPE HOBBY CENTER	200 SIDNEY BAKER S.STE 5	Kerrville	78028	830-895-5654
HOBBY CENTER	18177 GULF FREEWAY	Webster	77598	281-488-8697
HOBBYTOWN USA	3033 W. PARKER RD #120	Plano	75023	972-758-7875
HOBBYTOWN USA	4638 S. COOPERSTE 190	Arlington	76017	817-557-2225
HOBBYTOWN USA	5276 S. HULEN ST	Fort Worth	76132	817-263-1196
HOBBYTOWN USA	999 E. BASSE RD 135	San Antonio	78209	210-829-8697
INDY RC WORLD	2020 SATURN RD	Garland	75041	972-2714844
JUST HOBBIES	202 SAWDUST RDSTE 115	The Woodlands	77380	281-292-5878
M & M HOBBY CENTER	6703 CHIMNEY ROCK	Bellaire	77401	713-668-8866
MIKE'S HOBBY SHOP	1605 CRESCENT CIRSTE 300	Carrollton	75006	972-242-4930
ONEALL SPECIALTY HOBBIES	3321 W. EXPRESSWAY 83	McAllen	78503	956-686-6521
ROY'S HOBBY SHOP	1309 N. NORWOOD DR	Hurst	76053	817-268-0210
T & T R/C CARS	3420 AVE K	Plano	75074	972-633-2470
THE HOBBY CENTER RCEWY	4104 STAN SCHLUETER/STE 1	Killeen	76543	254-690-7311
THE RC HOBBY SHOP	13835 S.W. FREEWAY	Sugar Land	77478	281-265-4844
UTAH				
HOBBIE STOP	1150 W. RIVERDALE RD/STE D	Riverdale	84405	801-773-7849
HOBBYTOWN USA	FAMILY CTR. MIDVALLEY/STE A	Salt Lake City	84123	801-964-8242
HT'S RC'S	166 S. FORT LANE	Layton	84041	801-546-6959
VERMONT				
MIKE'S HOBBIES&RACEWAY	162 N. MAIN ST, RTE 7	Rutland	05701	802-775-0059
VIRGINIA				
BROWN BROTHERS HOBBIES	924 N. MAIN ST	Montclair	22026	703-221-5746
CROSSWORD HOBBIES	1104 W. MAIN ST	Salem	24153	540-387-3414
DRCW RACEWAY	2200 COMMERCE PARKWAY	Virginia Beach	23454	757-340-6681
GRAYMIA LLC	9105 CENTER ST	Manassas	20110	703-369-1197
HOBBY HANGERS SPEEDWAY	14014 D SULLYFIELD CIR	Chantilly	22022	703-631-8820
HOBBYTOWN USA	1067 INDEPENDENCE BLVD.	Virginia Beach	23455	757-464-4140
LINVILLE HOBBIES	7065 WENGERS MILL RD	Linville	22834	540-833-2222
STREAM HOBBY SHOP	10015 JEFFERSON AVE	Newport News	23605	757-591-0720
TSG HOBBIES	251 W. LEE HWY #691	Warrenton	20186	540-347-9212
WASHINGTON				
B & B	6422 EAST 2ND	Spokane	99212	509-534-7223
BURIEN TOYOTA	15025 1ST AVE SOUTH	Seattle	98148	206-243-0700
FANTASY WORLD HOBBIES	7901 S. HOSMEN A-6	Tacoma	98408	253-473-6223
FAST LANE RACING	1309 8th ST.	Marysville	98270	425-346-0737
FOUR SEASONS R/C RACING	2941 SLEATER KINNEY RD N.E	Olympia	98506	360-491-2430
HOBBYTOWN USA	18500 33rd AVE WEST	Lynnwood	98037	425-774-0819
HOBBYTOWN USA	16421 A CLEVELAND ST	Redmond	98052	425-558-0312
MITCHELL RC HOBBIES	N. 4715 CRESTLINESTE B	Spokane	99207	509-482-6188
PERFORMANCE R/C	320 E. SUIRHAVEN AVE #100	Burlington	98233	360-691-4922
RAIN CITY RACEWAY	200619 6TH ST. S.W. SUITE 119	Lynnwood	98036	425-776-8241
REDMOND HOBBIES	1629 REDMOND	Redmond	98052	425-885-3639
TACOMA R/C RACEWAY	6305 6TH AVE	Tacoma	98406	206-565-1935
THE CLOVERLEAF	4110 MAIN ST	Union Gap	98903	509-453-8959
TIM'S HOBBY	2405 BROADWAY	Everett	98201	425-259-5929
ULTIMATE HOBBIES	131 E. MAIN ST	Auburn	98002	253-939-2515
WEST COAST HOBBY & RWY	2239 STEVENS DR	West Richland	99352	509-375-4995
WISCONSIN				
ABC RC INC.	244 W. MAIN ST	Waukesha	53186	262-542-1245
BRISTOL R/C HOBBIES	8671 198th AVE.	Bristol	53104	262-857-3400
DIRT HEAVEN HOBBY & RACEWAY	6028 COUNTY RD K	New Franken	54229	920-866-9096
DOCKTER'S HOBBY WORLD	402 WESTGATE MALL	Madison	53711	608-274-0024
FOCUS INC.	75 S. MAIN ST	Fond Du Lac	54935	920-922-5999
GREENFIELD NEWS & HOBBY	6815 W. LAYTON AVE	Greenfield	53220	414-281-1800
HOBBY DEPOT	1524 E. SUMMER ST.	Hartford	53027	262-670-6242
HOBBY JUNCTION	1729 STEPHENSON ST	Marinette	54143	715-732-6333
HOBBYTOWN USA	2075 S. KOELLER	Oshkosh	54901	920-426-1840
HOBBYTOWN USA	2767 S. ONEIDA ST	Green Bay	54304	920-490-9996
HOBBYTOWN USA	3347 KOHLER MEMORIAL DR/D2	Sheboygan	53081	920-452-0801
JOHN'S HOBBIES	54 N. MAIN ST	Hartford	53027	262-673-7454
KDM HOBBY	711 E. SPRUCE ST	Abbotsford	54405	715-223-4414
PHIL'S HOBBY & CRAFTS	409 W. MAIN ST	Wautoma	54982	920-787-7232
R/C PERFORMANCE & HOBBIES	4702 E. BROADWAY	Madison	53716	608-846-1803
S&N'S TRACKSIDE HOBBIES	3635 N 124th ST	Brookfield	53005	262-783-4699
WEST VIRGINIA				
DW REED HOBBY STOP	142 W. MAIN ST	Bridgeport	26330	304-842-2742
FULTON'S HOBBY SHOP INC.	3301 CHAPLINE ST	Wheeling	26003	304-233-5355
HOBBYTOWN USA	220 NITRO MARKET PLACE	Charleston	25313	304-776-7259
WEST VIRGINIA HOBBY&CRFT	PUTNAM VILLAGE SHOP CTR	Teays	25569	304-755-6474
WYOMING				
LARAMIE HOBBY CENTER	158 N. 2ND ST	Laramie	82072	307-755-5376
XTREME HOBBIES	2810 DOGWOOD AVESTE B	Gillette	82718	307-682-6077
PUERTO RICO				
D'S HOBBY SHOP	VILLA TURABO	Caguas	00726	787-460-2677
HI SPEED C. RACEWAY	422 SAN CALUDIO AVE	San Juan	00923	787-283-0198
ISLAND HOBBIES	DELFIN-OLMO 166	Arecibo	00612	787-871-1129
LA SORPRESA	1759 AVE. MILITAR/SUITE 1	Isabela	00662	787-872-2396
RACER'S HOBBY	873 SAN PATRICIO AVE	San Juan	00921	787-783-9150
SPEED ZONE SUZUKI	AVE. PONCE DE LEON 520-C	San Juan	00918	787-767-3475
CANADA				
HOBBY GUYS	#1, 222-16 AVE N.E.	CALGARY	ALB	T2E 1J8 CANADA 403-230-8821
PM HOBBY CRAFT	2020 B 32ND AVE N.E.	CALGARY	ALB	T2E 6T4 CANADA 403-291-2733
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Beacon Point RC Raceway, 15717 Beacon Point Dr. Tuscaloosa, AL 35406 (205) 333-8679

Dirt Road Rage, 208 3rd Ave. S.E. Cullman, AL 35055 877-435-9866 www.pyramidhobbies.com

Hobbytown USA Raceway, 4500 Schillinger Rd. N., Mobile, AL 36608, (334) 633-8446

Lagoon Park R/C Raceway, 2730 Lagoon Park Dr., Montgomery, AL 36109 (334) 272-6438

ALASKA

Fairbanks R/C Club, 510 Juneau Ave., Fairbanks, AK 99701, (907) 456-5494

ARIZONA

Hobbytown Raceway, 1102 E. 22nd St., Tucson, AZ 85704, (520) 882-8888

Kingman off-road track, 5737 Hwy. 66 Mpost 63 Kingman, AZ 86401

Scottdale R/C Speedway, 3023 N. Scottsdale Rd., Scottsdale, AZ 85251 (480) 945-2186

Kiwanis Park R/C Track, 855 S. Magnolia Ave., Yuma AZ 85364, (520) 539-7148

ARKANSAS

Alison Offroad RC Raceway, 6320 Thibault Rd., Little Rock AR 72206 (501) 490-1227

Arkansas R/C Car Association, 101 W. 52nd St., N. Litle Rock AR 72218 (501) 753-1286

Grand Slam Superspeedway, 5300 S. Zero St., Ft. Smith, AR 72703, (501) 648-1994

Hobbytown USA, 356 E. Joyce Fayetteville, AR 72703, (501) 571-3730

Sparks R/C Raceway, 7194 Greene 721 Rd., Paragould, AR 72450, (501) 239-3606

Grand Slam Hobby, 5300 South Zero, Ft. Smith, AR 72901, (501) 648-1994

CALIFORNIA

Castle Hobbies, 14918 Camden Ave., San Jose, CA 95124, (408) 377-3771

Crystal Park Raceway, 123 Artesia, Compton, CA 90202, James Reese, 310 631-0307

The Dirt Race Park, 164 S. Santa Fe Ave. Hemet, CA 92543 (909) 925-7592

Hobby Central, 13461 Community Rd., Poway, CA 92064 (858) 513-0373 www.hobby101.com

Hobbytown Raceway, 3069 W. Bullard Ave., Fresno, CA 93711 (559) 435-3342

Hot Rod Hobbies, 25845 San Fernando Rd., Saugus, CA 91350, (661) 255-2404

Jake's Performance Hobbies, 6650 Commerce Blvd.,#21 Rohnert Park, CA 94928, (707) 586-3375

Lucerme Valley Raceway, 32800 Old Woman Springs Rd., #4, Lucerne Valley, CA 92356 (760) 248-7305

Nor-Cal Speedway, 519 Bush St., Woodland, CA 95695 (530) 668-5678

Pegasus Hobbies, 5515 Moreano Blvd. Mont Claire, CA 91763 www.pegasushobbies.com (909) 982-6507

Race Corner of Marin, 300 Entrada Dr., Novato, CA 94949, (415) 883-0388

Race Prep Raceway, 20115 Nordhoff Chatsworth, CA 91311, (818) 709-6800

Ripon R/C Speedway, 701 N. Acacia Ave., Ripon, CA 95366 (209) 599-5160

Sacramento R/C Racing, 6201 27th St., Sacramento, CA 95824, (916) 454-4044

Showtime R/C Speedway, 3805 Chester Ave. Bakersfield, CA 93301 (661) 328-1481

Simi Valley Ground Pounders, 392-C - East Easy St., Simi Valley, CA 93065, (805) 584-8211

So. Cal Raceway, 19118 Brookhurst St., Huntington Beach, CA 92646, (714) 963-7484

Speedworld Raceway & Hobby, Billy Bowerdman 90 Corporation Yard Rd., Roseville, CA 95678, (916) 783-8864

Sun Valley Micro Raceway, 8295 Tujunga Ave., Sun Valley CA 94352, www.svmracing.com, (866) 793-6513 Toll Free,

Ultimate Hobbies, 2378 North Orange, CA 92865, (714) 921-0424

Ventura Road Runners, Freedom Park Camarillo, CA 93010 (805) 564-4144, www.venturaroadrunners.com

COLORADO

S&T Raceway, 323 Auburn Dr., Colorado Springs, CO 80909, (719) 574-2910

CONNECTICUT

Central CT Auto Racers
Davis Hobbies II, 45A Welles St., Glastonbury, CT 06033, (860) 633-3056

JP's Hobby Center & Raceway, 78 Pershing Dr., Derby, CT 06418, (203) 735-5512

K&N Speedway, West St., Stafford Springs, CT 06076 (860) 684-9896

R/C Madness, 640 Enfield St., P.O. Box 64, Enfield, CT 06082, (860) 741-6501

Xtreme Radio Control, 469 Danbury Rd., New Miford, CT 06469, (860) 354-4703

DELAWARE

Hobbystop Speedway, Rd. #4, Box 100, Rte. 13, Seaford, DE 19973, (302) 629-3944

FLORIDA

Broward County R/C Race Club, Mills Pond Park, Ft. Lauderdale, FL (954) 525-3304

Burton's R/C Raceway, 4215 Mustand Rd., Lakeland, FL 33803, (941) 665-1322

Coral Springs Roadrunners, PO Box 9632 Coral Springs, FL 33075, (954) 925-8284

Farmer's Hobby & Raceway, 5006-3 E. Broadway, Tampa, FL 33619, (813) 248-3314

Cars, Trains and Planes, 1029-4 Phillips Hwy. Jacksonville, FL 32256 (904) 880-9500

First Coast Speedway, 6410 Waltho Dr., Jacksonville, FL 32211, (904) 743-2161

Ft. Myers R/C Club, Lee Civic Center, Ft. Myers, FL (941) 936-1528

Kissimmee R/C Racing, Osceola Square Mall, 3831 West Vine St., Ste/ 60, Kissimmee, FL 34741, (407) 944-4913

Means R/C Raceway, 1550 Pondell Rd., North Ft. Myers, FL 33903, (941) 772-2251

PBG Motor Park, 6351 Barbara St., Palm Beach Gardens, FL 33418, (561) 627-2608

Pro Hobbies Speedway, 715 N. Lake Pleasant Rd., Apopka, FL 33712, (407) 886-4615

Sarasota RC Speedway, 8475 Cooper Creek Blvd., University Park, FL 34201, (941) 350-7047

Triple Nickle R/C Raceway
1/3 Mile South of HWY 60, on CO rd 555
Bartow, Fl 33820; (863) 533-0539 (no info on amenities)

GEORGIA

Anthony's Victory Lane, 129 East Hwy. 80, Pooler, GA 31322, (912) 748-0847

Big Daddy Hobbies, 420 Hosea Rd. Lawrenceville, GA 30045; (770) 963-0254

Dalton Raceway, 3036 Parquet Rd., Dalton, GA 30720, (706) 226-6699

Hobbytown Raceway, 2301 Airport Thruway, Columbus, GA 31904, (706) 660-1768

Prime Time Hobby & Craft, 432 S. Wall St., Calhoun, GA 30701 706-625-9037

Stinger Speedway, 3769 Maysville Rd., Commerce, GA 30529, (706) 335-9044

Sugar Bowl Speedway, 5272 Nelson Brogdon Blvd., Sugar Hill, GA 30518, (770) 945-6709

TFB Raceway, 2220 Cobb Parkway N. Kennesaw GA 30152, (678) 797-0406 www.tfbraceway.com

HAWAII

Maui Racing Association, 230 Hana Hwy., #11, Kahului, HI 96731, (808) 873-0376

Team PRC Racing Club, 176 Mamo St., Hilo, HI 96720, (808) 935-3561

IDAHO

Almosta Ranch R.C.'s, Idaho's largest outdoor track 1732 Eldridge Ave. Twin Falls, ID 83301 208-733-8219, or (208) 733-1572

Dirt Stuff Plus, 5344 N. Yellowstone Hwy., Idaho Falls, ID 83401, (208) 522-7576









ILLINOIS

AJ's, 10211 Keslinger Rd., DeKalb, IL 60115, (815) 756-2772 www.ajsraceway.com

CIRCR/Precisoin RC Hobbies, 1917 2nd St. Pekin, IL 61554 (309) 347-0975

Depot Hobby Raceway, 180 S. Seminary St., Galesburg, IL 61401, (309) 342-9323

H&H Raceway, 35-12 Berkshire SDr. Crystal Lake, IL 60014 815-444-1777 http://drive.to/h_hhobbies

Hobbytown Niles Drag & Raceway, Oak Mill Mall, 7900 N. Milwaukee Ave. Niles, Il 60714; 847-470-577 WWW.HTUNILES@AOL.COM

Hobbytown Raceway, 2103 N. Veterans Pkwy., Bloomington, IL 61701, (309) 664-4451

Leisure Hours R/C Raceway, 24121 W. Theodore, Bldg. 1, Plainfield, IL 60544, (815) 439-1477

Mid America R/C Club, S. Maple-Schnieder Park Brighton, Il 62012

Monee R/C Raceway, 26049 Ridgeland Ave., Monee, IL 60449 (708) 799-5597

Outlaw R/C Speedway, 1614 Broadway, Mattoon, IL 61938, (217) 234-6229

Quad Cities Raceway, 541 1st Ave., North Silvis, IL 61282, (309) 751-9663

Radio Active Raceways, 751 N. Bolingbrook Dr., #15 Bolingbrook, Il 60440 (630) 759-7557

Rector's R/C Raceway, RR3, Box 104, Albion, IL 62806, (618) 842-9379, (618) 446-3282

RMR Raceway, 19091 W. Casey Rd., Libertyville, IL 60048, Ray Rawald, (847) 549-6963

SIRCAR Raceway, 1200 N. Marion, Carbondale, IL 62901, (618) 549-5885

Stanton Hobby Shop, 4718 N. Milwaukee, Chicago, IL 60630, (773) 283-6446

Wep Raceway, RR #2, Box 44, Lawrenceville, IL 62439

INDIANA

Bremen Racing, 308 N. Bowen, Bremen, IN 46506, (219) 546-3807

Finish Line Pets & Hobbies, 1209 East St., Rd 2 LaPorte, IN 46350 (219) 326-0921

GM Raceway, 1651 W. Franklin St., Elkhart, IN 46516, (219) 293-1827

Hardesty Raceway, 11 East Plymouth St., Hamlet, IN 46530, (219) 867-8600

Hobby Barn Raceway, 1950 Springhill, Terre Haute, IN 47802 (812) 299-5773

Hobbytown USA, 5385 E. 82nd St., Indianapolis, IN 46250, (317) 845-4106

P&T Hobbies & Raceway, RR2 (Hwy. 60), Mitchell, IN 47446, (812) 849 6666 www.pnthobby@bigfoot.com, www.pnthobby@safeshopper.com

R/C World of Indiana, 2246 West U.S. Hwy. 36, Lynn, IN 47355, (765) 874-2464

Summit Area Radio Cars, 7000 Red Haw Dr., Ft. Wayne, IN 46805, (219) 492-2271

IOWA

Hobby Haven, 7672 Hickman Rd., Des Moines, IA 50322, (515) 276-8785

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

HobbyTown USA, 2737 16th Ave. SW, Cedar Rapids, IA 52404, (319) 364-3289

Radio Control Raceway Park, 2100 First Ave. N., Ft. Dodge, IA 50501, (515) 576-3780

Riverfront Speedway, adjacent to Sunkist Meadows Golf Course, FT. Dodge, IA (515) 576-3780

Wild Bill's Raceway, 901 W. Jones, Knoxville, IA 50138, (515) 842-5973

KANSAS

R/C Superdome and T.Q. PRO Shop, 14 E. Avenue A., Hutchinson, KS 67501 (316) 665-6633

RC Hobbies, Franum Creek, Milford Lake, KS (785) 238-1877

Route 66 R/C Raceway, Galena, KS 66739; (620) 783-5751

KENTUCKY

Somerset Raceway, 188 Sycamore Dr., Bronston, KY 42518, (606) 561-4522 Halcomb@hyperaction.net

Coyete Hobbies, 218 N. Martin Luther King Blvd. Lexington, KY 40507,Danny Puchalsk: (859) 253-9330 www.coyetehobbies.com

Trio Hobbies & RC, 216 Redmar Plaza, Radcliff, KY 40160, (502) 351-7547

LOUISIANA

Baton Rouge Velodrome, 7122 Perkins Rd., Baton Rouge, LA 70815, (504) 665-5616

MAINE

Clay Bowl R/C Hobbies, P.O. Box 61, Greene, ME 04236, (207) 946-5003

R/C Speedway & Hobbies, 87 Main St., Fairfield, ME 04963, (207) 453-4588

MARYLAND

Countryside Raceway, 406 Pamela Rd., APt. C, Glen Burnie, MD 21061, (410) 761-6196

Doug's Raceway, 2935 Clain Hwy., Waldorf, MD 20601, (301) 843-6220

The Track, 16806 Oakmont Ave., Gaithersburg, MD 20877, (301) 417-9630

MASSACHUSETTS

Big Boys Toys, 33 Father DeValles Blvd., Fall River, MA 02723

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

MICHIGAN

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

Dirt Burner Racing, 3295 Haggerty Rd. Commerce, MI 48390 (248) 926-1140

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

Motor City Speedway, 16025 23 Mile Rd. Macomb Twp., MI 48042 (810) 677-2311

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

R&L Hobbies & Racing, 9782 Portage Rd., Portage, MI 49002, (616) 323-3686

Sandhill off Road R/C, Wood St at Vincent St. Saginaw, MI 48602;

Village Hobbies, 195 N. Elm St. Hesperia, MI 49421 231-854-1374

MINNESOTA

Duey's Hobbies & R/C Raceway, 6600 Cahil Ave., Inver Grove Heights, MN 55076, (651) 450-1721

Northwoods Hobby Raceway, 2638 Hwy. 25 North Brainerd, MN 56401, (218) 829-9257

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

Twin Cities Hobby & Raceway, 7577 Brooklyn Blvd. Brooklyn Park 55443, (763) 569-5069

MISSISSIPPI

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

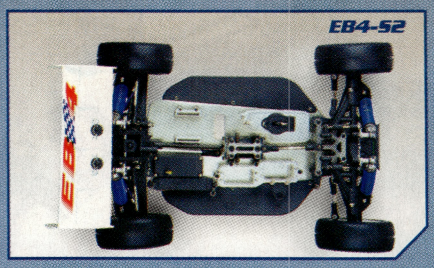
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B&L Hobbies & Raceway, 2800 Anchor Dr., Park Hills, MO 63061, (573) 431-9444

Novelty R/C Raceways, 6th & Main Novelty, MO 63460 (660) 739-4530

St. Louis Dirt Burners, Marshal Road, Kirkwood, MO (314) 831-2194

Ozark's R/C Raceway, PO Box 460, Willard, MO 65781, (417) 742-4376, (417) 742-7223

Real Blue Vue Speedway, 12019 E. 47th St., Kansas City, MO 64133, (816) 358-0238

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

NEBRASKA

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

Hobbytown USA Raceway, 220 N 66th Lincoln, NE 68505 (402) 434-5056 www.eastparkracing.com

Hobbytown USA Raceway, 1st & Cornhusker Lincoln, NE 68505 (402) 434-5057 www.eastparkracing.com

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

NEVADA

Danwsey's Indoor R/C Hobbies, 741 N. Nellis Las Vegas, NV 89110, (702) 453-RACE

NEW MEXICO

Big Boys toys, 1735 Juantabo N.E. Albq., NM 87112 (505) 298-1023

Charlie's Hobby Shop, 1230 Solano Las Cruces, NM 88005, (505) 541-1097

NEW YORK

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

The Hobby Shop, 119 Mt. Vernon Ave Mt. Vernon 10550 (914) 668-3022

NEW JERSEY

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

Alpine Lounge, Blackhorse Pike Turnersville, NJ

NEW HAMPSHIRE

106 Race Park, 743 Clough Mill Rd. Pembroke 03275, (603) 224-7223 www.106racepark.com

NORTH CAROLINA

Carolina Outlaw R/C Racing, 411 Ruritain Park Rd. Stony Point, NC 28678 (704) 585-2996

OKLAHOMA

Action RC Speedway, 3616 SE 59 Oklahoma City, OK 73135 (405) 670-7770 www.actionrc.com

Enid R/C Speedway, 1831 S. Van Buren, Enid, OK 73703; (580) 554-9400

OHIO

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

OREGON

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

PENNSLYVANIA

R/C Outfitters Raceway, 519 Broadway, Hanover PA 17331 (717) 633-9490 www.rcohobbies.com

Marshall's Hilltop Hobbies RR4 Box 4265 PA Route 652 Honesdale 18431 (570) 729-7458

RHODE ISLAND

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

SOUTH CAROLINA

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

R/C Racing Connection Speedway 4375 Juniper Bay Rd. Conway, SC 29527 (843) 397-0124

SOUTH DAKOTA

Boomerans Raceway, 105 N. Main, Hartford, SD 57033; Ed Smithback (605) 528-7345

TENNESSEE

Hobby Town USA, 2000 Mallory Ln., Franklin, TN 37067; Bobby Mills, (615) 771-7441

MSA R/C Racing, Rt. 12 Box 489 F, Crossville, TN 38555; D.R. Findley (931) 456-0027

W.O.W. Raceway, 59 Luray Rd., Beech Bluff, TN 38313; Kelly Bean, (901) 427-7874; *windix60@pipeline.com*

XS Speed, 5237 Hwy. 126, Blountville, TN 37617 (423) 323-1513

Speedzone Raceway & R/C Hobbies 121 Co. Rd. 308 Sweetwater,TN 37874 423-351-0055, 423-351-0056 speedzone@usit.net; www.speedzoneraceway.com

Hobby Town USA, Commons II 8859 Town & Country Circle Knoxville, TN 37923 (865) 690-6423

TEXAS

215 Speedway, 1814 County Rd. 215, Abilene, TX 79602; Clyde Gardner (915) 673-2351

Big Mike's R/C Raceway, 1405 W. Cotton St. Longview, TX 75604; (903) 297-7814

Discount Hobbies, 1722A West Anderson Loop, Austin, TX 78757; Tony Bermudex, (512) 458-2324

Drycreek Raceway, 2518 I 30-W Greenville, TX 75402 Micky Alphin, 903-527-5381, web.pulse.net/drycreek email: dycreek@pulse.net

Hal's Hobby Raceway, 1440 Bessember, El Paso, TX 79936; Carlos (915) 591-2213

Hobbycraft Speedway, 819 N. Main St., Corsicana, TX 75110; Keith Hoffman (903) 872-6761

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

Indy R/C World, 2020 Saturn Rd., Garland, TX 75041, (972) 271-4844

Issac's Race Track, 18177 Gulf Frwy., Webster, TX 77598; Issac Ben-Ezra, (281) 488-8697

MBRC Off-Road Raceway, 204 D & E Valley Ln., Kennedale, TX 76133 (817) 292-5055

Reflex R/C, 1106C Witte Rd., Houston, TX 77055; Jorge Tabush or Terry Schmid, (713) 464-4458

Texas Speedway, 6703 Chimney Rock Bellaire, TX 77401 (713) 661-7137 www.mmhobby.com

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

Al's Hobbies, 7121 HWY. 90 W. Suite San Antonio, TX 78222 (210) 645-1050

VIRGINIA

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

Hobby Hangers Speedway, 14014D Sullyfield Cir., Chantilly, VA 20151; Kwang or Billy, (703) 631-8820

Linville Hobbies Raceway, www.linvillehobbies.com

Olde Towne Hobby Shoppe, 9105 Center St. Manassas, VA 22110; Arnie Levine, (703) 369-1197

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

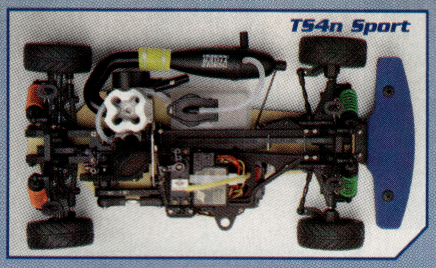
Shamroc Raceway, 106 Cheviot Pl., Stephens City, VA 22655; Scott Janow, (540) 869-3551

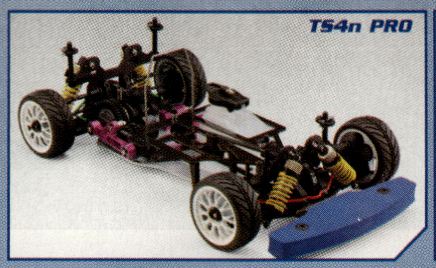
Star/Car Raceway, Debbie's R/C World, 200 Commerce Parkway, Virginia Beach, VA 23454, (757) 340-6681

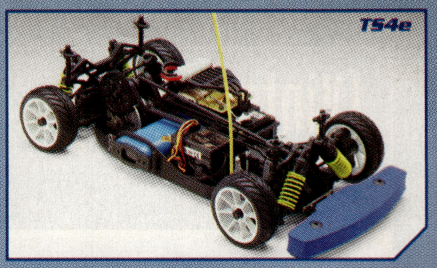
The Toteyard, 6494 Toteyard Dr., Dayton, VA 22821 (540) 828-3476 *toteyard.com.home*

Dirtona, 515 Front Ave. Salem, VA 24153 Steve Cooper (540) 387-3044









WASHINGTON

Alfie's, 108 South K St., Aberdeen, WA 98520; (360) 533-6638

A-Main Raceway, 14011 NE 3rd Ct., Vancouver, WA 98685; Monty Coleman, (360) 571-8404

Burien Toyota R/C, 15025 1st Ave. South, Seattle, WA 98148 Ray Meek, (800) 654-6456

Cedardale Raceway, 16733 Cedardale Rd., Mount Vernon, WA 98273; Joe Madonia, (360) 659-0072; *getchell@halcyon.com*

Four Season R/C Racing, 2941 Sleater Kinney Rd. NE Olympia, WA 98506; Gary Brown (360) 491-2430

HobbyTown USA Lynnwood, 18500 33rd Ave W Lynnwood, WA 98037 (425) 774-0819, Fax (425) 774-7391

Rain City Raceway, 3616 South Rd., Suite A3, Mukelteo, WA 98275, Debbie Cartwright (425) 438-2454 raincityraceway.com

Redmond Hobbies, 16260 Redmond Way Redmond, WA 98052 (425) 885-3639 www.redmondhobbies.com

B & B Indoor Raceway, 6422 E. 2nd Ave., Spokane, WA 99212; Brain Batch (509) 534-RACE

Tacoma R/C Raceway, 6305 6th Ave., Tacoma, WA 98406; Scott Brown (253) 565-1935

Ultimate R/C Raceway, 907 Cole St. #3, Enumclaw, WA 98022; Dan Dougherty, (509) 375-4995

West Coast Hobby & Raceway, 2239 Stevens Dr., Richland, WA 99352; Rick, (509) 375-4995

WEST VIRGINIA

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

Left Turn Hobbies, 100 Saco Ln. Glen White, WV 25849; Stretch (304) 255-3930

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

WVRCA R/C Club, 142 West Main, Bridgeport, WV 26330; D.W. Weed

WISCONSIN

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

Hobbytown USA-Revolution, Memorial Mall, 3347 Kohler Memorial Dr., #D2, Sheboygan, WI 53081; Kenny, (920) 452-0801

Johns Hobbies, 54 N. Main St., Hartford, WI 53027 (262) 673-7454 www.explorewisconsin.com

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

CANADA

Mid-Canada R/C Auto Racing, Hwy. 1 East Winnipeg, Manitoba Canada R2J 4E6 (204) 231-3324 www.geocities.com/midcanadarcautoracing

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Nitro Extreme R/C Park, Blackfoot MX PK Calgary, Alberta, www.nitroextreme.com, e-mail: information@nitroextreme.com

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Thunder Tiger



BY RICHARD TRUJILLO

Tamiya Falcon

Once again, Losi team driver Bill Bridges has come through. This time he found me a very nice Tamiya Falcon. In June of 1986, Tamiya released "kit number 56," The Falcon, as an "entry-level" type kit. The big difference with this entry-level kit was the addition of independent suspension and coil-over oil-filled shocks. In the past, entry-level cars like the Grasshopper had a solid rear axle and spring loaded shocks without oil damping. These setups made the cars very tough to drive in the dirt and over bumps. The Falcon's adjustable coil-over shocks actually soaked up the bumps and made it much easier for the novice or entry-level driver get around in the bumps.



In learning from previous entry-level cars, Tamiya reduced the number of parts in this kit, along with making some parts bigger and easier to handle. They also increased the size of the front bumper while adding a protective skid plate and motor guard.

A couple of the downsides to the Falcon were the dogbones and tub chassis. For the dogbones, you had to make sure the outdrives and axle cups were well lubricated. Being made of plastic, the steel drive pins in the dogbone tended to chew up the drivetrain pretty quickly. The bones also popped out quite a bit, especially at full travel. The cool part was that the arms were so flexible, you could just pop them back in without taking the car apart. As for the chassis, it tended to break right up front at the main mounting point. It took a pretty good crash to break it, but you'd figure with the market this car was aimed at, they would have beefed it up a little more.

This kit was not as "revolutionary" as the Sand Scorcher or other Tamiya kits. This makes them one of the cheaper "vintage" kits to collect. I've seen some very nice versions selling for as little as $75. I doubt the price will ever go up much more, but it is a nice filler kit to add to your collection. Special thanks to Bill and Hobby Stop West in Canfield, Ohio, for sending me this car.

1/10 & 1/8 SCALE www.NewEraModels.com

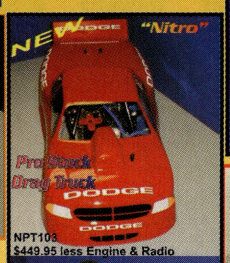
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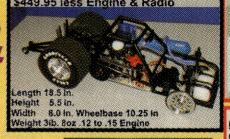














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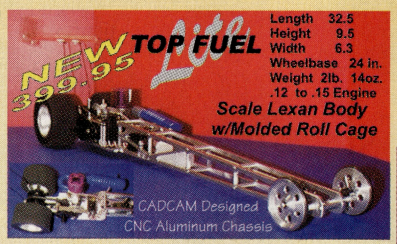
HOT HOT HOT

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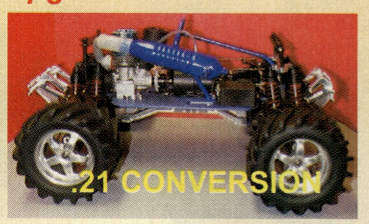
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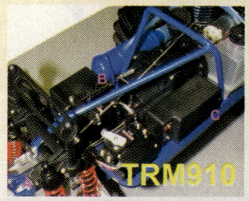
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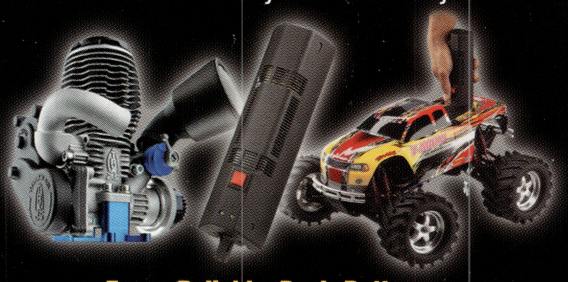
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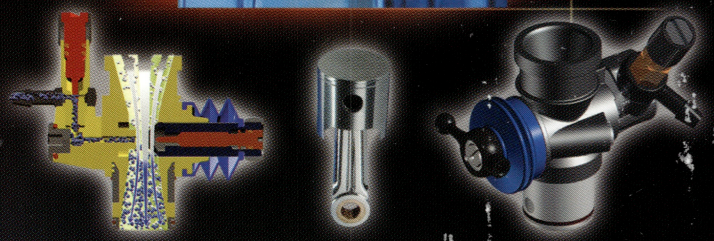
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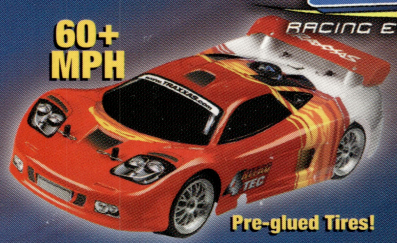
Light, Quick, Agile!

TRX 2.5 RACING ENGINE

Nitro 4-Tec

- Tire Melting, 60+ MPH!
- ProGraphix™ Painted and Trimmed Body
- TRX 2.5 Racing Engine
- EZ-Start Electric Starting System

Nitro All-Wheel-Drive Supercar!



Pre-glued Tires!



Nitro Rustler

- ProGraphix™ Painted and Trimmed Body
- Ball Bearing Tranny with Slipper Clutch
- TRX 2.5 Racing Engine
- EZ-Start Electric Starting System

Nitro 2WD Stadium Truck

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