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R/C CAR

THE RADIO CONTROL CAR MAGAZINE

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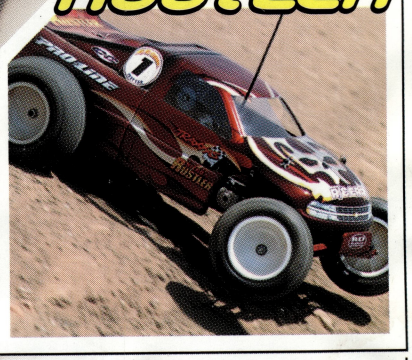
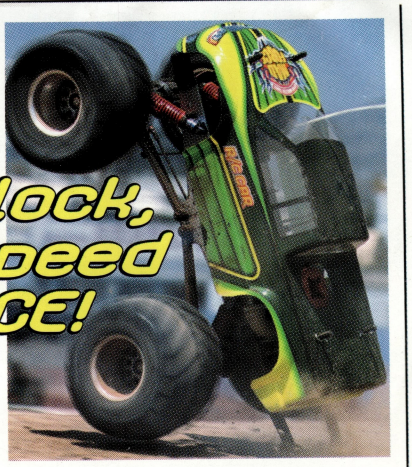


Kyosho's Big-Block, 3-Speed MAD FORCE!



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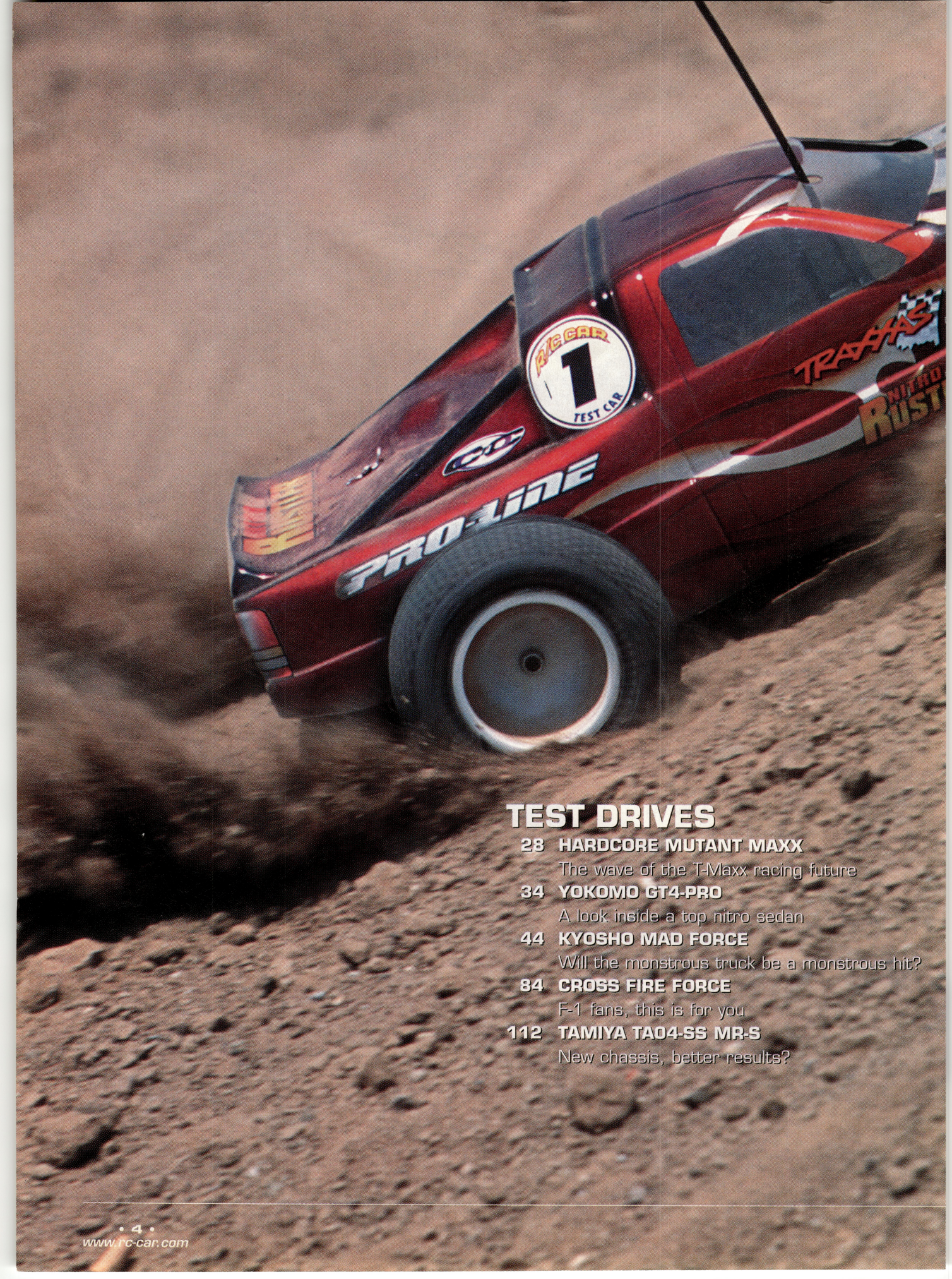

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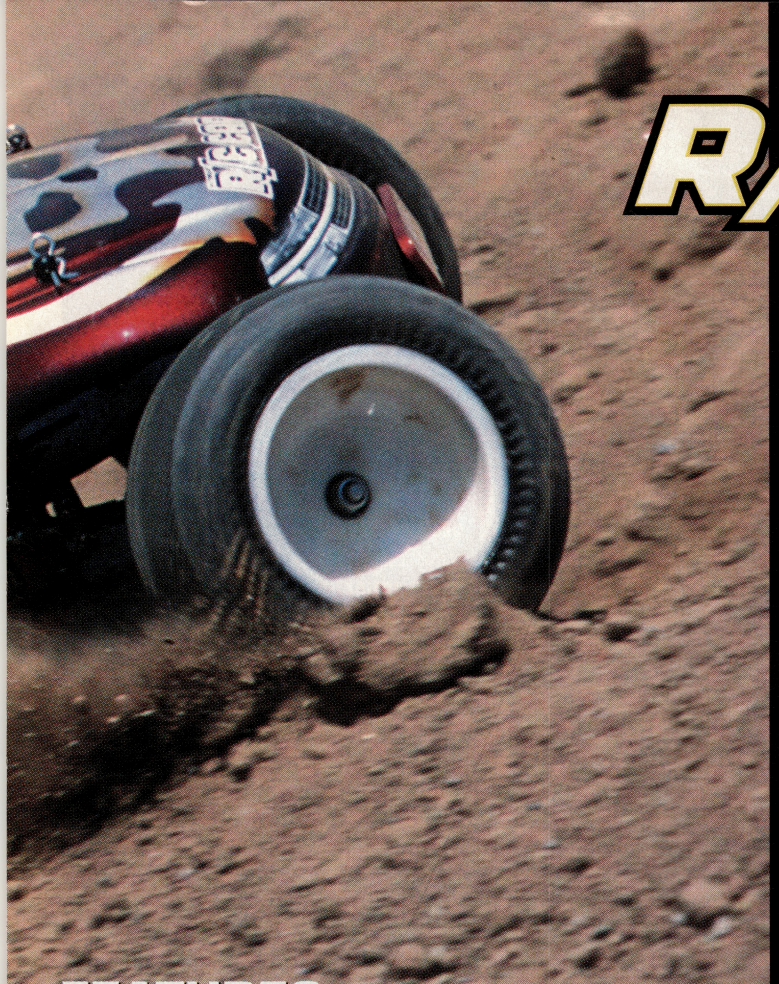

R/C CAR

THE RADIO CONTROL CAR MAGAZINE

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75511 Meathook - Unmounted w/foam insert
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76521 Meathook - Mounted/.5" offset

STREET SWEEPER MONSTER



75510 Street Sweeper - Unmounted w/foam insert
76510 Street Sweeper - Mounted/Standard offset
76520 Street Sweeper - Mounted/.5" offset

REDNECK MONSTER



75512 Redneck - Unmounted w/foam insert
76512 Redneck - Mounted/Standard offset
76522 Redneck - Mounted/.5" offset

DOMINATOR MONSTER



75513 Dominator - Unmounted w/foam insert
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76523 Dominator - Mounted/.5" offset



STREET SWEEPER 1:10

75401 Unmounted
76402 M/P/AE/F
76403 M/P/AE/R
76404 M/L/AE/F
76405 M/L/AE/R
76452 M/P/TL/F
76453 M/P/TL/R
76454 M/L/TL/F
76455 M/L/TL/R

MILITIA 1:10

75402 Unmounted
76407 M/P/AE/R
76409 M/L/AE/R
76457 M/P/TL/R
76459 M/L/TL/R

HOOK-UP 1:10

75403 Unmounted
76410 M/P/AE/R
76411 M/L/AE/R
76460 M/P/TL/R
76461 M/L/TL/R

PROJECTS 1:10

75404 Unmounted
76412 M/P/AE/R
76413 M/L/AE/R
76462 M/P/TL/R
76463 M/L/TL/R

STRAIGHT RAIL 1:10

75400 Unmounted
76400 M/P/AE/F
76401 M/L/AE/F
76450 M/P/TL/F
76451 M/L/TL/F

MEATHOOK 1:10

75405 Unmounted
76415 M/P/AE/R
76417 M/L/AE/R
76465 M/P/TL/R
76467 M/L/TL/R

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P = Pro Compound
L = Long Life Compound
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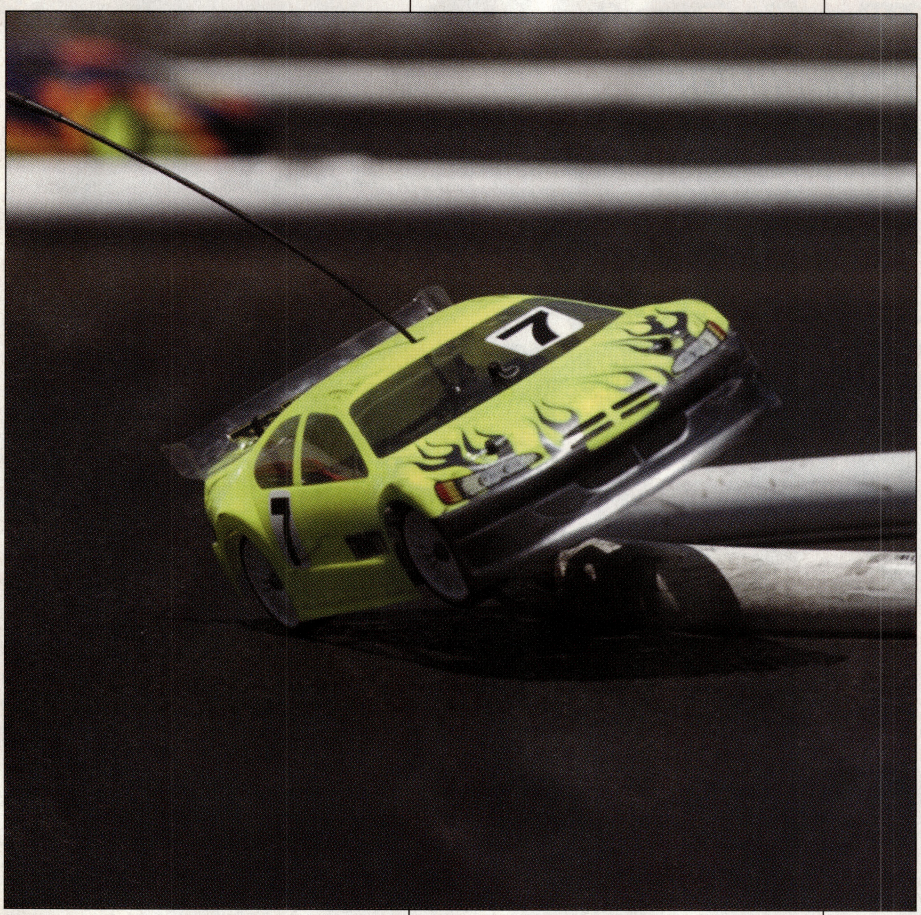
[Drivers' Stand]

BY FRANK MASI

Winning is not politically incorrect

I used to be fast. There was a time when I was the king of the club-racing scene (okay, maybe not the "king," but definitely a duke or lower-house member). I'm not trying to sound arrogant; I'm trying to set up a contrast, because I have a hard time finishing in the top three nowadays. And for all it's worth, I'm better now than I was then. Living in SoCal will do that for you.



I have just returned from a Thursday night club race at Hot Rod Hobbies. Tonight was sedan night, and I competed in the expert stock class, as there is no modified class. I can't figure that one out—people just like stock! I finished fourth overall in the A-main. Not bad considering that I was qualified in seventh position. But how far off the pace was I? With the exception of a gentleman by the name of Fred Hubbard, who, although a full privateer, seems to be about a lap faster than everyone else in the class, I can hang with the rest of the field. I can turn mid-to-high 14-second laps when I'm "on"—as can several other drivers—but Fred has dipped down into the high 13s, and he rarely turns anything slower than a high14. This is the bar to which we all must aspire.

I want to do better. I have good equipment; I'm fairly good at setting up my car and choosing tires. My driving lines are good, and I rarely crash. So, how come I can't win? Concentration, or lack of it, is the reason. I have had the chance to watch many of the world's best drivers in action, and without exception, they all have the ability to block out all distraction and focus on the task at hand. When you can give all of your concentration to driving, then you are not only able to stay on line, but you don't waste any time transitioning from straightaways to turns—throttle and braking become seamless. And when you can give 100 percent of your brainpower to driving, you are able to overcome a car that isn't perfect.

I have a tendency to get nervous before the start of a race. This nervousness exhibits itself in many odd ways. I'll scratch my nose on the straight (this is an inexplicable source of humor for my friends—I don't understand why). I'll blink excessively. I'll obsess about that one marshal who blocks a difficult section of the track. And when I am able to overcome this habit, my lap times drop accordingly. I guess it's like trying to drive your full-sized car with your head hanging out of the window like a flapping jowl hound—you'll do much better seated inside.

If all of this sounds too stressful—especially considering that this is supposed to be a relaxing hobby—please allow me to explain why I worry about such things. I look at it this way; if I'm going to spend the time and effort it takes to race—and in case you're not familiar, this entails endless hours of building, wrenching, painting, and tuning (and, of course, spending). And although it sounds cliché, time is a valuable commodity these days, so I factor in track time into the expense side of my life ledger. In other words, if something's worth doing, do it right!

And to be honest, I derive more pleasure from a sense of accomplishment. As long as I perform as well as I feel I can, I'm happy. After all, what is the definition of racing? It's competing, hopefully winning, but giving it your all. This means that making a last-corner pass to take over fourth can be as exciting as crossing the line in first. Racing is about things coming together all at once; it's a culmination of mechanics, ability, concentration and knowledge. Why shouldn't we be happy to win?

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Mid BB Block



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VoneR, MTX2
K-809
Body Mount Short



VoneR K-431
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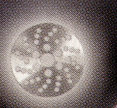
Front One Way



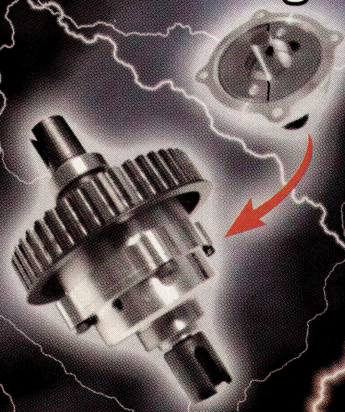
VoneR, MTX2
K-710
Vented Brake Rotor



VoneR K-419
Brake Top Plate



VoneR K-435
MTX2 K-805
Solid Rear Axle





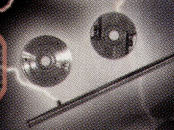
VoneR K-426
Carbon Shock Tower



MTX2 K-717
Mid BB Block



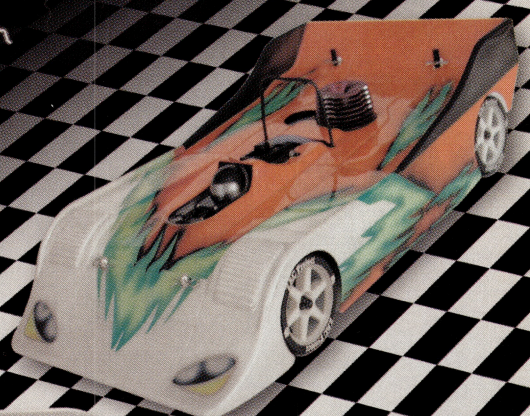
VoneR K-428
MTX2 K-723
1st Gear Housing



MTX2 K-731
Positive Lock
Two Speed



MTX2 K-716
Alloy Brake Top Plate





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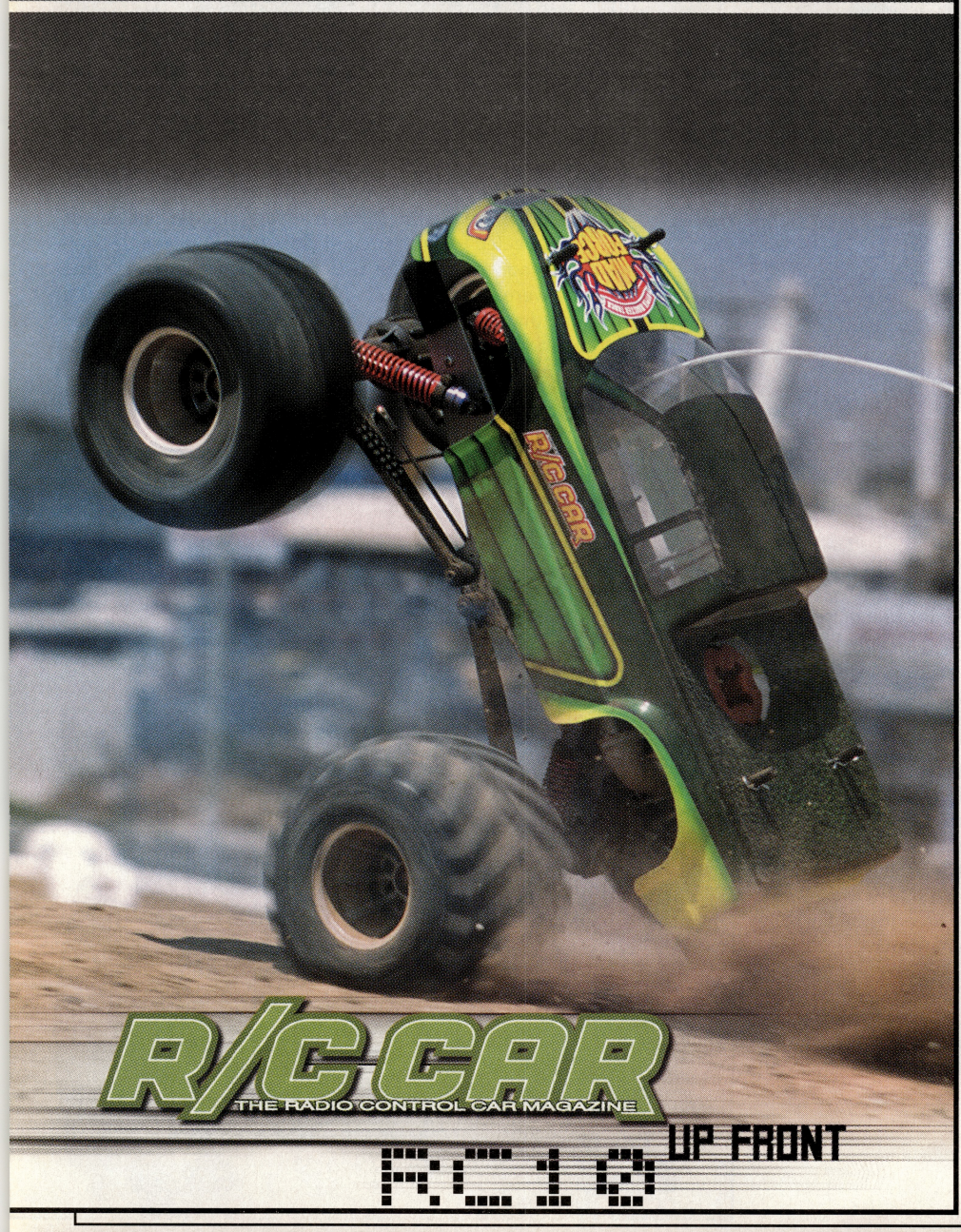



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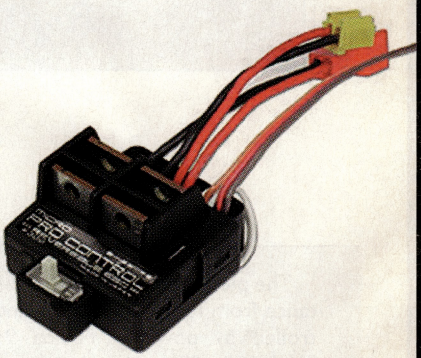

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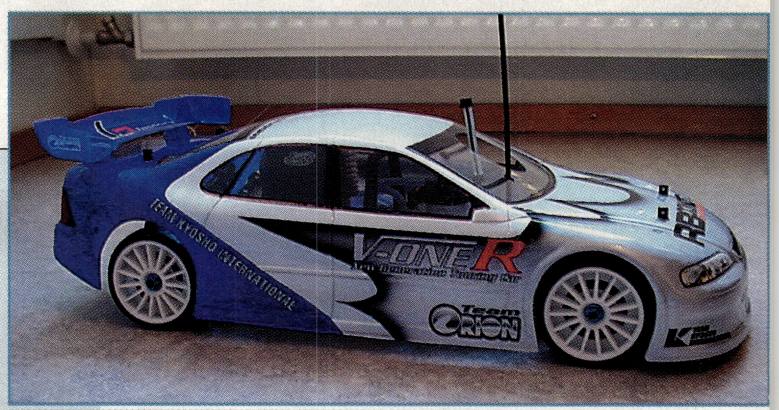
[Readers' Projects]

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!



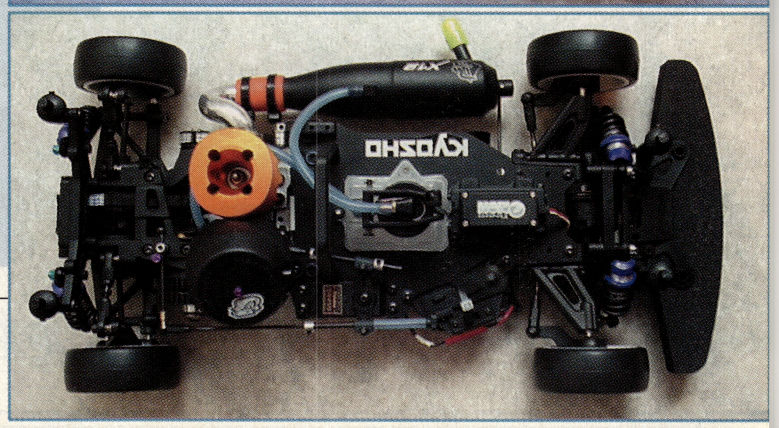
MAXIMUM MISSILE

Dawsonville, Georgia's Jordan Reece, owns this DuraTrax Maximum ST. Jordan's truck is shown with a Bolink 1956 Ford body with realistic head and taillights. The lights actually work and come from a company called Ram R/C Lighting. According to our reader the body is strictly for show, which means this shell never receives any run time. The truck is then outfitted with a Torq .12 engine to take care of the horsepower responsibilities. The power is also beefed up with a tuned pipe that has definitely been a neighbor favorite. The tires and rims are stock but the rims were painted with Indy silver to set this truck apart from the rest. A Hitec Lynx radio is at the helm when Jordan needs an R/C fix.



UPGRADED ON-ROADER

The pictures of this Kyosho V-ONE R came quite a distance from Tony Rahko of Finland. Tony's V-ONE R is controlled by powerful Futaba 9450 servos and a KO EX-1 radio. Since nitro cars require a receiver pack, only a high capacity Team Orion 1100 NiMH pack was able do this racer justice. An RB-X .12 engine with a tuned pipe lay down the horsepower while Fantom 1/8 scale brakes shut down the car with authority. Tony decided to run a front one-way instead of the traditional differential to increase cornering speed. The rear differential is Kyosho's own TCD, which is an upgrade from the kit-provided stock one. For added traction this V-ONE R received a 1/8 scale front stabilizer to tame the steering under hard acceleration. A Kyosho factory engine mount, front universals and an aluminum two-speed shaft complete the list of impressive aftermarket parts. The wheels in the picture are stockers right from the kit, but when it's time to race Tony puts on some Mugen foams and grabs as much throttle as he can handle.

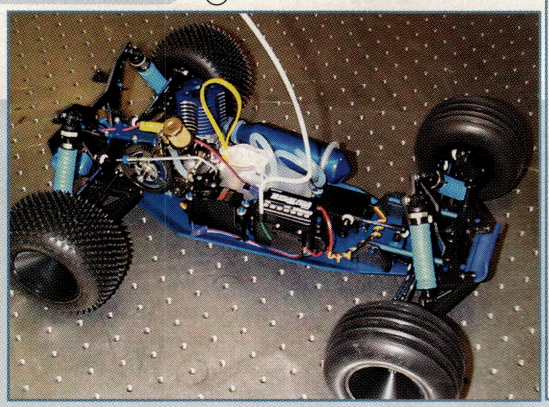


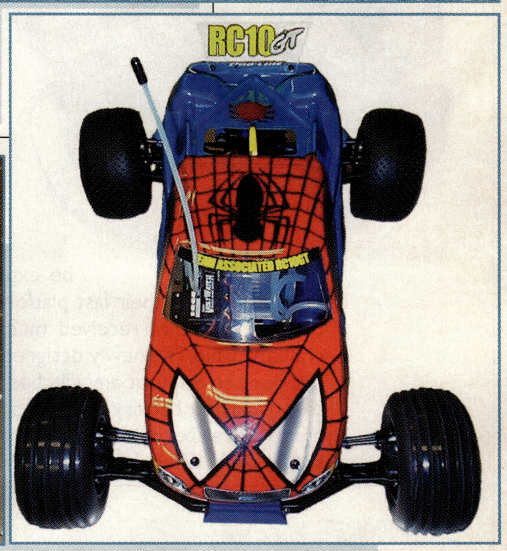
TEAM-EFFORT T-MAXX



The owner of this T-Maxx is Jeff Mrazek of Naperville, Illinois. Jeff is proud to say that his girlfriend painted the Pro-Line F350 body using Team Orion internal graphics. Can you say, "Wow, she's a keeper"? Inside the good looking shell you will find a Megatech .16 engine that provides much more power than the stock pull-starter. The exhaust responsibilities are given to an MIP stinger system, which increases air flow and keeps the engine running cooler. The engine's temperature is monitored easily with the handy Venom on-board temp gauge. Since custom trucks do not use stock wheels, Jeff went with a chrome set from RPM. RPM also provides the longer suspension arms, which increase this Maxx's overall stability. When driven, this beast is controlled by an Airtronics M8 radio and servos. According to Jeff, the truck rips, but the neighbors are not too thrilled with the louder high-performance exhaust pipe. Don't worry about them; just keep your girlfriend happy!

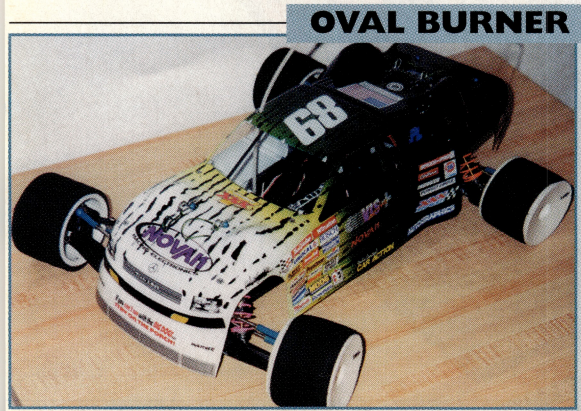
SPIDER-MAN'S NEW RIDE



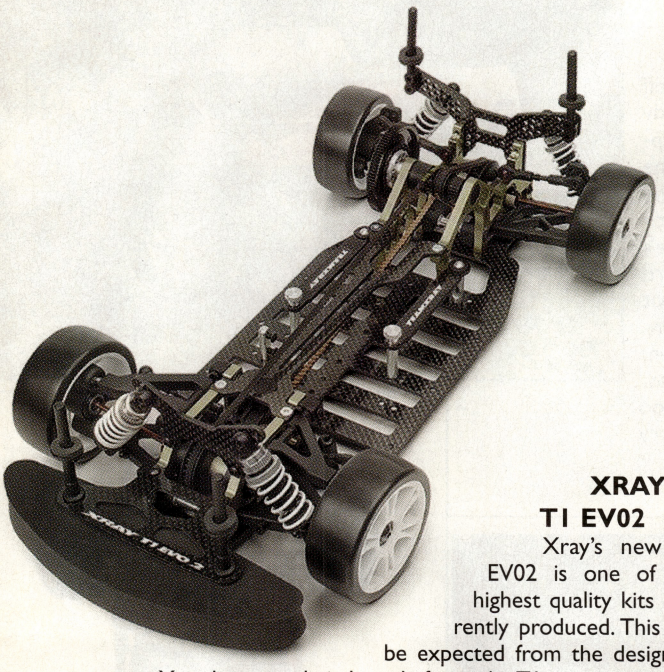


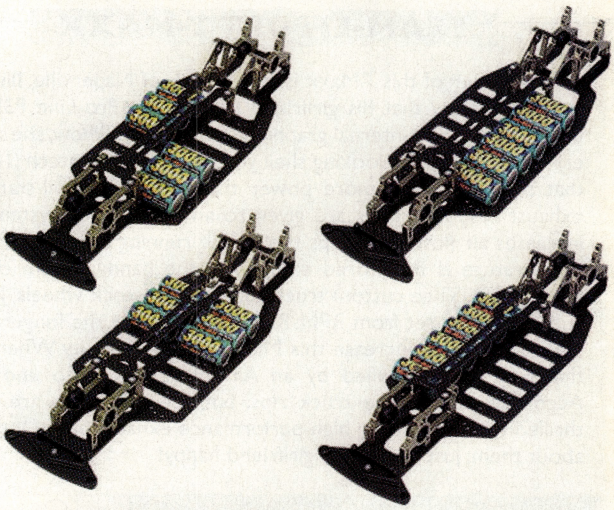
Russell Starks is at it again. This time the Washington, D.C., resident painted an Associated Team RC10GT with his infamous Spider-Man paint scheme. Russell had his Losi XXX-T published back in May. That truck inspired his latest work on his new GT. Russell's Team GT is powered by a meaty O.S. .12 CV-R engine with a 10-ER carburetor. Trinity provides the blue aluminum rear brace, NiMH receiver pack and the handsome receiver box. The powerful servos are HS-645MGs from Hitec. Russell also used an RRP dual slipper, titanium top shaft and steel spur gear combo; these integral pieces were not for show but intended to increase this racer's performance. When it is time to drive the wheelie machine, an Airtronics M8 radio is used for the controls. We have to say, Russell, your paint job is really nice.

OVAL BURNER



Steven Knapp's Losi XXX-T has been completely modified to race around the left-turn-only track in Wallaceton, Pennsylvania. Most of the truck's stock pieces were taken out for lighter race performance parts. The long list starts with MIP Shiny CVDs to lighten the rotating mass of the rear drive wheels for increased acceleration and better top speed. An aluminum top shaft was put to work instead of the heavy steel shaft that just wouldn't cut the mustard, when every tenth of a second is important. The stock shocks were replaced with threaded bodies and receive titanium nitride shafts for smoother articulation and a much better ride. Titanium turnbuckles and hinge pins were installed in this high-speed racer for added strength. Trinity's blue aluminum motor brace, rear arm brace and shock mounts are also strapped in for a personal touch but also to lower weight and add rigidity. Since speed is of the utmost importance, Steven uses a Novak ESC to unleash the Green Machine motor's awesome horsepower. Slower traffic, watch out; this truck might need to get by high in turn number two.





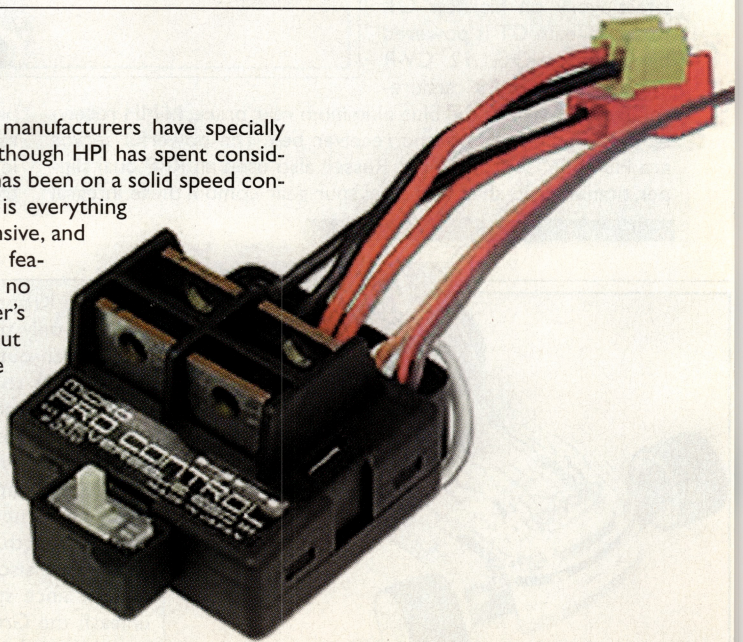
XRAY T1 EV02

Xray's new T1 EV02 is one of the highest quality kits currently produced. This can be expected from the designers at Xray because their last platform, the T1, was a very successful racer that received much due recognition for its craftsmanship. The newly designed EV02 has big shoes to fill, but does so without any glitches. The thoughtfully designed chassis has six battery slots on both sides. This enables racers to place six-cell battery packs on either side or run 3x3 saddle packs a number of ways. Both the front and rear shock towers are graphite and have been redesigned with more anchoring holes for further adjustment. A dual Ackermann servo saver comes with the kit for ultra smooth precise steering. The front and rear bulkheads are made from hard coated T6 aluminum for added strength and durability. As the belts stretch, the bulkheads can be moved to adjust both the front and rear belt tension. The chassis, upper deck, battery straps and upper bumper are all made from high grade graphite to help rigidity and weight savings. Since we do not want to spoil next month's Test Drive, we will finish by saying you should check out the in-depth article of this car in November's issue of *R/C Car*.

HPI Micro Pro Speed Controller

HPI's Micro RS4 has become so popular that many manufacturers have specially designed micro-sized speedos for the small sensation. Although HPI has spent considerable time designing cutting edge kits, their latest focus has been on a solid speed controller for their popular micro. The Micro Pro Control is everything you would want for a micro; it's small, relatively inexpensive, and it comes with the correct plugs for the car. The speedo features full-function forward and reverse and requires no setup—which means it is plug and play! The controller's switch mounts in numerous locations on the case without the use of any servo tape or glue; pretty cool, huh? The speedo will handle any micro-designed motors whether stock or modified. Look for this hot new product from HPI at your local hobby shop.

#306 HPI Pro Control $80.00



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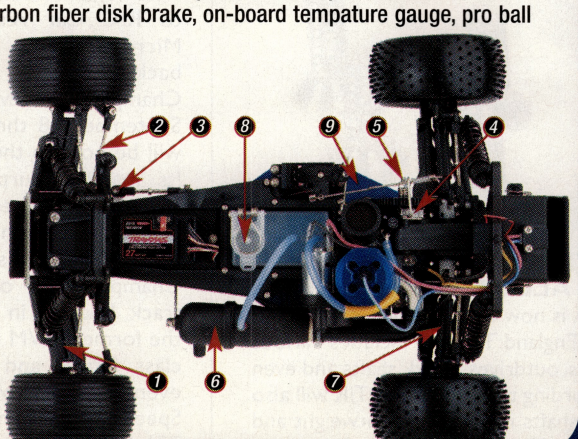
Hot Nitro Rustler Features!

- Nitro Rustler's bellcrank steering geometry virtually eliminates bump steer for precise steering control. Add optional bearings for even smoother steering.
- High-torque steering servo included. Our servo eliminates "mushy" steering response with its precise turning performance and 80 in/oz. of torque.
- Tuned exhaust system increases the engine's power output for maximum torque and incredible top speed. It also promotes cooler running and better fuel efficiency.
- Durable blue anodized T-6 aluminum chassis.
- Adjustable slipper clutch improves traction when racing and provides protection for the drivetrain components during extremely hard use.
- Oil filled Ultra Shocks™ deliver silky smooth performance and precise dampening control with racing style clip-on spring pre-load spacers.
- The deep chrome beauty of the TRX Pro Star™ wheels provide stunning good looks at no extra cost.
- It's easy to make Nitro Rustler even more competitive with optional Traxxas accessories, including carbon fiber disk brake, on-board tempature gauge, pro ball differential and blue-anodized tuned pipe.

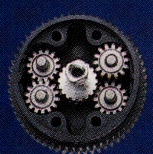


1. X-Tra Long Suspension
2. Adjustable Turnbuckles
3. Bellcrank Steering
4. Disc Brake
5. Adjustable Slipper Clutch
6. Tuned Pipe
7. Telescoping U-Joint Driveshafts
8. 75cc Primerless Fuel Tank
9. Blue Anodized T-6 Aluminum Chassis

TRX PRO .15

- EZ-Start push-button electric starting system
- Hard chrome sleeve
- Oil groove piston
- Dual O-ring carb seals
- Sealed ball bearings
- High power output
- 2-year warranty
- Lifetime engine replacement plan





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



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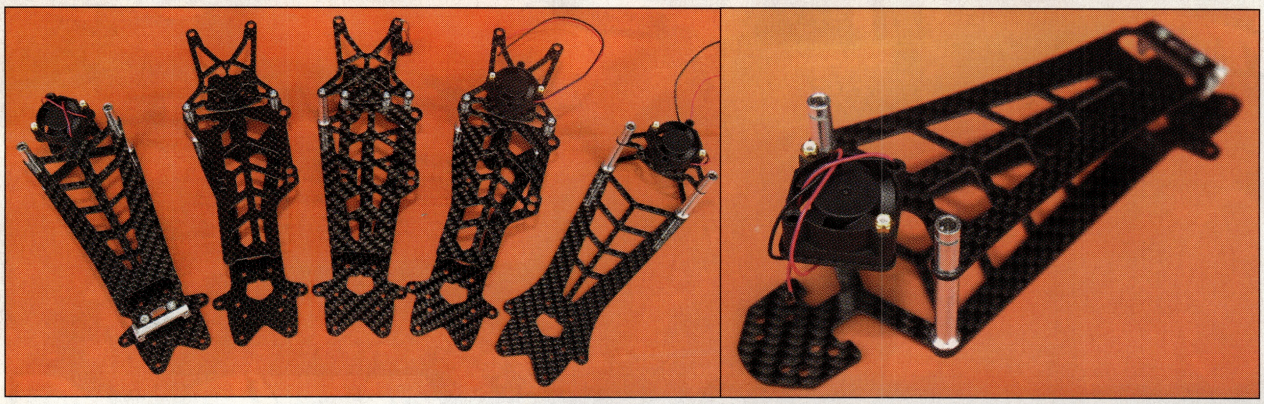


FAN BASE

Team Orion's new line of CRF chassis for the HPI Micro RS4 are unique in that they include a tiny electric fan that is mounted over the motor. The fan is plugged in-line to the speed control, and it activates when throttle is applied, thus keeping the motor running cool. Orion offers the CRF chassis preassembled in several different configurations to achieve different handling characteristics. Contact them at (714) 694-2812 for more information.





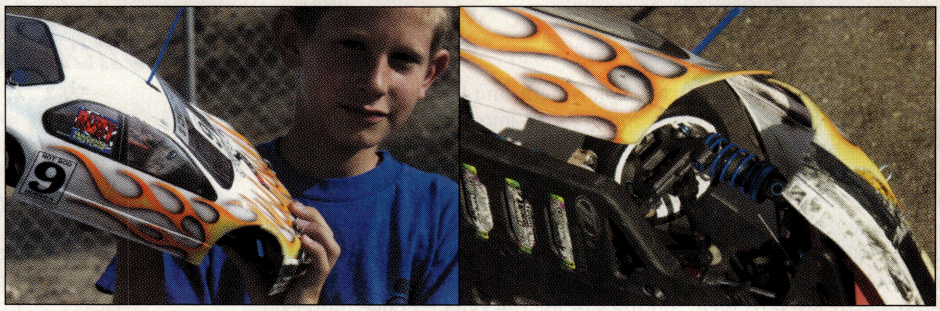
EXOTIC ALLOY

Schumacher USA is now the exclusive importer of TiR titanium parts from England. The line includes various titanium hardware such as screws, outdrives, shock shafts and even pinion gears (in both 48 and 64 pitch). And according to Schumacher, TiR will also be introducing a range of universal-joint driveshafts made from lightweight and strong titanium! Call Schumacher USA at (813) 889-9691 for more information.

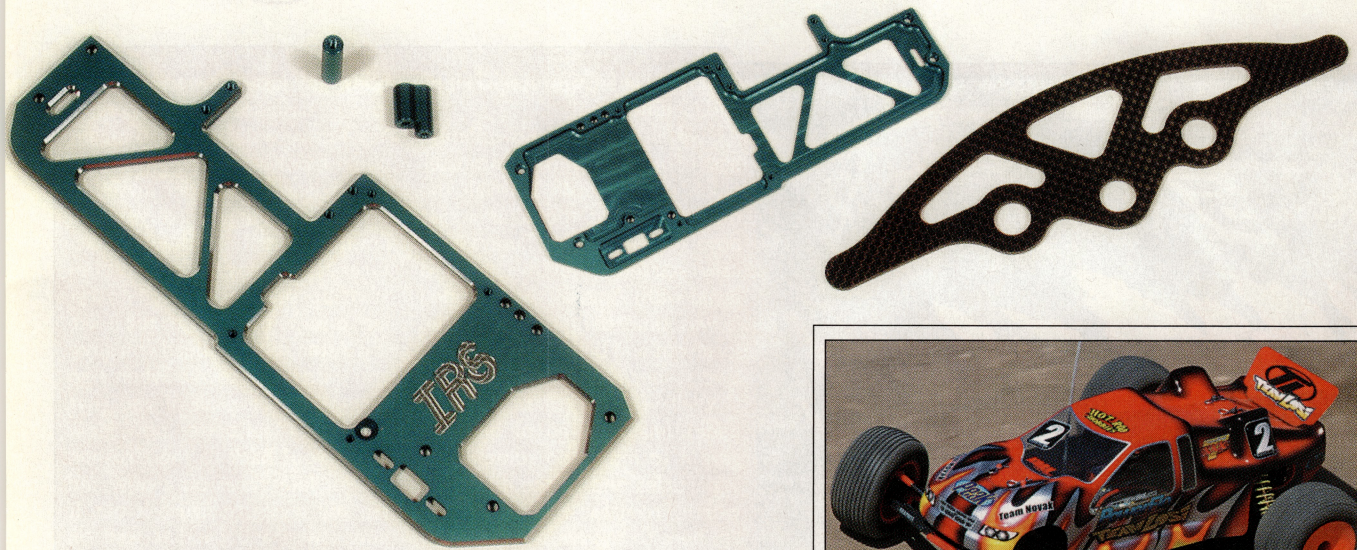
LOCAL TRACK TO HOST BACK-TO-BACK WORLDS

KZ Speedway (Komatsu Zenoah Raceway, to be exact), formerly known to R/C Car readers as Sun Valley Microspeedway, has been awarded back-to-back IFMAR World Championship events in 2003. From September 28 through October 5, KZ will be host to the 1/5-scale worlds on its massive, purpose-built permanent roadcourse. Then, on October 12 through the 19th, KZ will be running the IFMAR 1/10-scale Off-Road World Championships on its expansive dirt track. Located in Sun Valley, California, the former SWM track is truly a world-class facility, and now they have the events to prove it. Contact KZ Speedway at its "hotline" number, (818) 771-1003 for more information.

CRASH OF THE MONTH!



Eleven-year-old Tanner Stumpf and his dad, Dennis, share their racecar-a Team Losi XXX-S touring sedan. At the moment (and just for the moment), dad has the upper hand, but Tanner is closing the gap quickly. For now, however, Tanner is a novice, and as such, he is prone, on occasion, to making mistakes. Take, for example, the results of Tanner's recent practice-time collision with a track barrier. This crash had both dad and several other drivers searching all over the track area for the missing wheel, but as it turned out, the wheel never left the car; it was stuffed back into the body! We don't know who has to pay for the damages, but we have a feeling it will be Dennis (especially if he wants to race next weekend!).

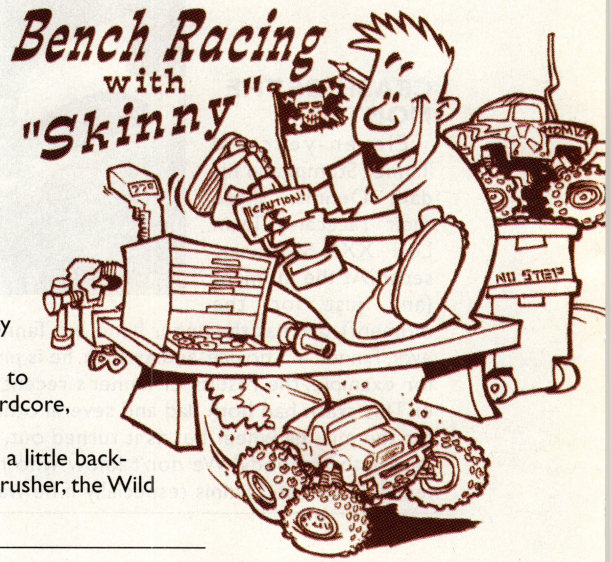


IRS GOES AFTER ASSOCIATED!

No, not that IRS; we're talking about Irrgang Racing Service, the folks famous for their TC3 hop-ups and race-winning fiberglass pan-car axles. IRS has just released a line of accessories for the popular Associated Nitro TC3. Some of the items include a machined-aluminum top plate (which includes an aluminum stand-off and antenna mount), a machined-aluminum brake/drive cup, and a carbon-fiber front bumper. IRS also plans to introduce an aluminum bearing cap and front input shaft and drive cup to the lineup. The aluminum parts are available in either blue or black anodizing. Contact IRS at (609) 476-2371 for more information.

CRAIG WINS BIG RED!

Craig Lantz of Atlantic, IA will soon be receiving a big box from the R/C Car promotions department. Inside, he'll find a brand-new Matt Francis Edition Team Losi Triple-XT truck, a LRP IPC ESC and Phaser receiver, and a motor and battery from Team Orion. Craig won't have to worry about a body, as he'll also be getting a Matt Francis body painted by none other than Matt himself! See? It pays to enter those contests!



Hi Truckers: ace reporter Skinny here, and I'm fresh from the trail to bring you the latest and greatest info that's humanly possible! This month, I have been hot on the trail of the Terra Crusher. Yes my friends, looks like we "large truck" owners have a new truck to look at. In my relentless search to bring you news of this beast, my trail brought me all the way to Paris. Ah Paris, what a lovely place. That is if you like temperatures of 105 degrees and nothing but desert-type surroundings! Huh? Oh yeah, welcome to Paris California! Home of Lake Paris R/C Park (909-378-0803). Great place to race, and the site for the Wild Hobbies T-Maxx Shootout! Yes another race. "But this time it's personal." *R/C Car* and Frank (my boss) ordered me to go along with Hardcore's team honcho Todd "Flanders" Tanner, to put the Terra Crusher to the brutal "Skinny" test of racing, and also to follow up on the spy story I did of the new proto type Mutant-Maxx from Hardcore, and to see how Tanner and the beast did!

First, I want to bring you up to date on T-Maxx Unlimited class, so I'll give you a little background on the subject. Then I'll move onto my regular rantings on the Terra Crusher, the Wild Hobbies event and the cool new stuff I found.



AND IN THIS CORNER... THEEE CRUSHER!

As we all know by now, Tamiya has come out with a monster truck to do battle with all the other MT's out there (as a side note: remember that Tamiya basically started all of this stuff to begin with). Anyway, they decided it was time to get back to the forefront and built, in my opinion, a very, very nice truck.

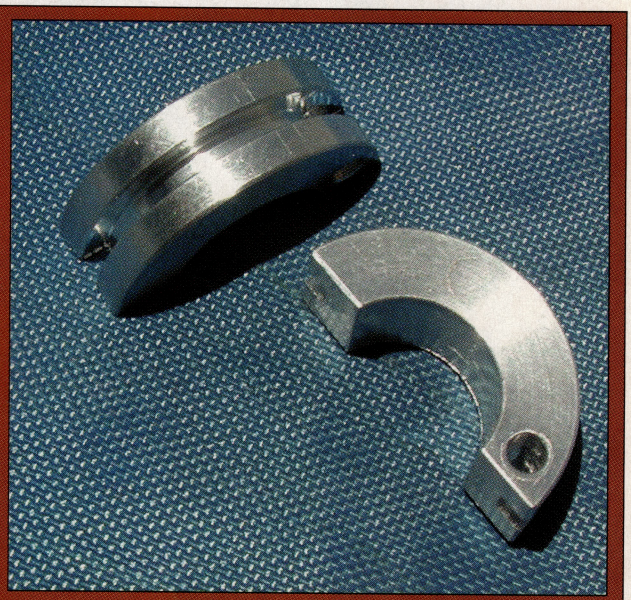
Well, Frank (that Boss of mine), finally let go of one and gave it to me to do some ongoing articles, and to see if this is a worthy rival for the Maxx. Well I'm here to say yes, it is! Sure, it's a new truck and yes, it's got some teething problems, but you know what? So did the T-Maxx. It drives differently than other trucks - as far as using the throttle and braking, but boy does the thing handle! Now I know all you out there have a lot to say about the TC and I am curious about it, and even some of you are naysayers (shame on you!), but I understand. In fact, I'll let this be said now: I, Brian Skinner, aka Skinny, being of sound mind and body, am just an average Joe! I love to bash and I LOVE to race. Yes, I drive well, but by no means could I be considered a pro (not yet anyway!). I consider myself to be a consumer just like you, and I'm not tainted by the manufacturers and pros and their constant persuasions. What I'm trying to say is that I try to tell it like it is. After all, If I mislead you guys, you won't talk to me when I go racing, and I like all of you guys and girls. I feel better now, How about you? Back to the Crusher, it's got four races on it now and I'm still trying to figure it out. It jumps well and handles well on the track, but I'm still figuring out the tranny part. It works differently from other trannies, but at this point, I can't tell if it's bad or good, just different. I think Tamiya based it on a real automatic transmission from a full-sized car, it kind of over-revs some to get the rpm high enough to hit second and to propel the truck out of corners. I'll get back to you next time about the TC; I've got to put more miles on it, but so far so good. I like it.



WHY WE RECYCLE ALUMINUM CANS

Aluminum clutch shoes, that's why! RC Alloys has come out with these new shoes to help give more punch and longer life for the over burdened T-Maxx transfer system. Aluminum shoes are not new, but they are gaining in popularity with 1/8-scale, and Tamiya's new Terra Crusher comes stock with them. This is an idea whose time has come. With the new cars and trucks that are out today, there is a greater demand on drive-trains. Bashing and racing have gone to a new level and these shoes fit the bill! Monster Trucks are heavy and they work the composite clutch shoes to the point of oblivion, and the aluminum shoes are supposed to be more durable.

We put them to the test right away and found out we were missing out. Our test truck never looked so good. These aluminum shoes from RC Alloys hit hard and give great acceleration out of corners. Our clutch now has four races on it and shows no sign of fading - but then, how could it? These things are aluminum and really can't wear out. They might need a cleaning once in a while, but they should last forever. I give them two thumbs up. Contact RC Alloys at rcalloysinc@earthlink.net



THE NON-RACE RACE REPORT

Wild hobbies and Airtronics put on a T-Maxx hoot-a-nanny in June and I had to go. It was all about big trucks and I wanted to see my buddy Todd Tanner go toe-to-toe with factory ace Jared Tebo (a cool kid!) with his new Hardcore Mutant Maxx against Tebo's JT flat-pan creation. Both of them are way fast and their morphed Maxxes would make a good race! And I wanted to put the Terra Crusher to the test, so off we went in the "Great Pumpkin" (as Frank calls it) the night before the event so we could get some good sleep in a hotel and be fresh for the event. Plus Tanner was still building up the Mutant and needed the room in the van to finish it for the race.

As with all good plans, ours went south quickly! First, Tanner and I each thought the other had remembered how to get to the track, and the next thing we knew we were in some campground 15 miles from where we should have been. Plus, Tanner was getting seasick in the back because I was driving like a dork through the twisty roads, and he quickly became tired of being a pinball in the back.

So let's see: Lost, late, an unfinished truck, Tanner mad at me because he has bruises - great start! And to cap it off, I got us locked in the R/C park because Adam (from Wild hobbies/JT Racing) and I were going on about some R/C soap opera stuff so Tanner and I wound up sleeping together in the van - EEEEEW!

Morning comes and Tanner finally wakes up with his now famous "Heeey Buuudy" and a smile. Right then, I knew it was going to be a great day! Tanner and I got the creation up and going, and my truck was a RTR, so we got track time before the race started.

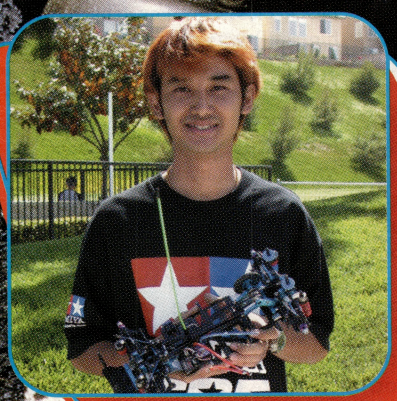
Tebo, Tanner, Smoker, Scott Hughes from Pro-Line and a couple of others (maybe even me!) were looking pretty good, so I was pumped to go race! The day was hot, and I mean HOT! I was, too, until I went to the bathroom and saw Tebo and his friend having a water fight with some girls at the water fountain. I wanted to join in but thought I was too old. Bah! So I grabbed a big cup from one of them and kept pouring water over me until I was soaked like they were and went away a little younger and cooler!

Now that I wasn't comatose any more, here's what I remember of the event: the big truck class was so much more competitive; the racing that weekend was great! I watched my "new" biggest fan, Dang, rip it up in the E-Maxx. In the big block class, Smoker (that's what he calls himself!) was doing really well. And Tebo? Well, the kid is fast; too fast! He went out and drove like he had his pants on fire or something. In fact, he needs to pace himself a little. He will go out and just slam everyone, and lap the whole field like 20 times, and he still drives like some guy is an inch off his rear bumper! When you get that much of a lead, it's okay to slow down a little. I say this because, of course, the truck broke. You can't flog an R/C vehicle like he does and think it will stay together! And Todd Tanner, How did he do in the class? He won! He was hot, and that new truck was hot! The thing looked like a flying brick out there; nothing phased it! Tanner would get hit and the thing just stuck. In the air it looked like the space shuttle landing (another great flying brick!). Too bad Tebo had problems with his truck, because it looks like Hardcore and JT will have some great battles in the future!

On to the small block class. Again Tebo was "The Man," but his incredibly fast driving tripped him up for a minute and he wound up second. After battling with

IFMAR WORL

WIN AT ANY COST...



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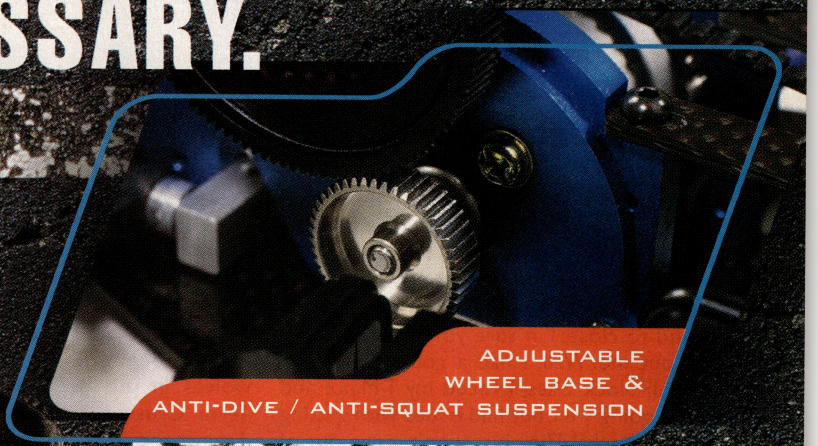
D CHAMPION

STILL NOT NECESSARY.



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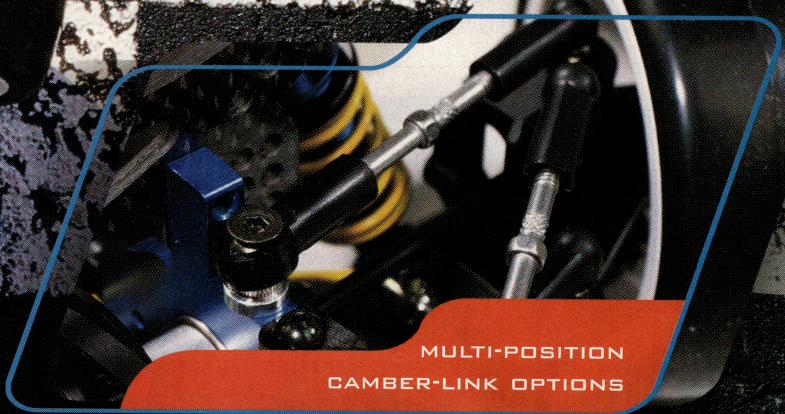

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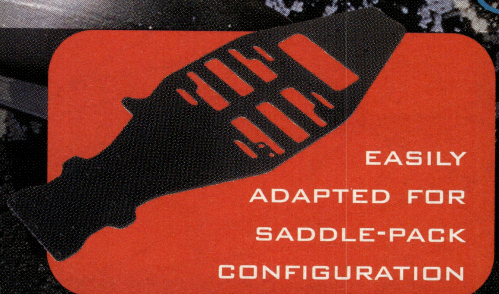

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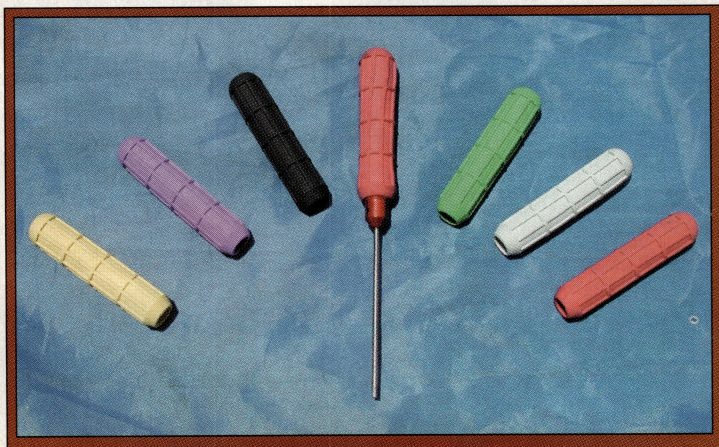
Tebo for a good amount of time, Bob Tillman worked his way into first and stayed there for the 30 minute A-main and took it all home. Great job Bob, that class was brutal!

And to close: I'm sure you want to know about me. Well, I had a good day. In the small block class, I raced my T-Maxx and was going well, but had issues with getting into wrecks! They just won't move out of my way. I wound up in the B-main in like fifth or sixth qualifying position, so I thought that I would bump up. Wrong! My truck grenaded. First my plug, then my driveshaft, and then finally my gears on my Racer's Edge starter broke. I think God was telling me something?

Now here's the big surprise. Because it has a .18 engine, I got thrown to the wolves in the Big Block class with my Terra Crusher - and it was box-stock! Against the .21s? The TC was Killer! I was really jammin' out there with it. I even took some high speed head-ons on the straight, and the thing stuck like glue and was not even fazed. I was shocked when I had seen that I has qualified in seventh in A-main with the big boys.

In the A-main, I again had trouble. I got hit in the first corner and a fuel line had been cut. Also ome white fiber stuff got into the carb and ended my day. But I still wound up eighth in the main, and put to rest some thoughts about the Terra Crusher; it can indeed play with the Maxxes and do well.

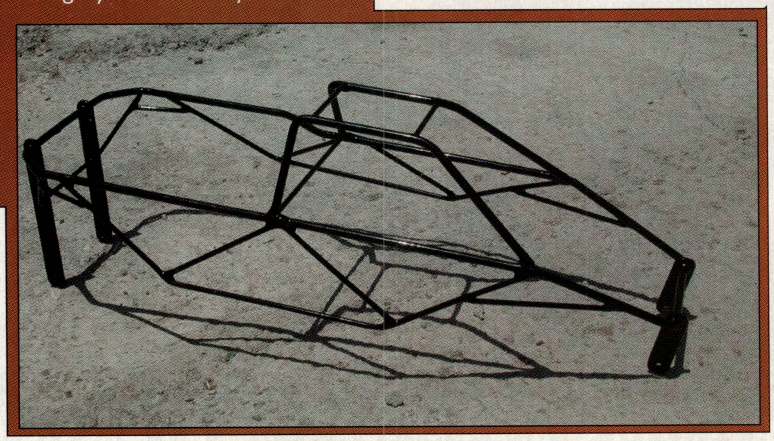


IT'S A GUY THING!

Tools. Man I love tools! So when the boys from Racers Edge said they were sending me tools (along with the replacement gears for my starter), I was in heaven! I could not sleep until they got to my desk. They had sent me a complete set of Allen drivers and a set of cool rubber grips to slide over the tools' handles if I wanted. And I did! The drivers were put to use right away, and to this date, are working well. Thanks guys, I really needed some Allen drivers. The grips also fit many other brands of drivers, and give such a great hold for your hand; I can't believe nobody thought of this before. Anyway, it's all good stuff, and order a Pro Start while you're at it. That gizmo is the greatest thing since sliced bread! So give Racers Edge a call at 1-866-855-5566. The grips are $11.49 for the bag, and the Allen driver kit is $59.99. You can also get the drivers separately for $12.49 each.

RAGE IN THE CAGE!

Will it ever stop? The new products just keep rolling past my desk. The guys from Star Accessories have a way cool roll cage that they've just released. It's so cool looking that when I got mine, I could not bear to cover it up with a body, so I put some aluminum skin on it and raced it as a desert-style single seater! By running my truck this way, I found that it looked super-cool and made working on my truck a snap; no need to remove a body. I also found that the engine is much happier in the open and runs cooler. Of course, you can run a body on top, but for me, it looks too trick with just the roll cage. If you like what you see, Give Star Accessories a call at (805) 686-8867.



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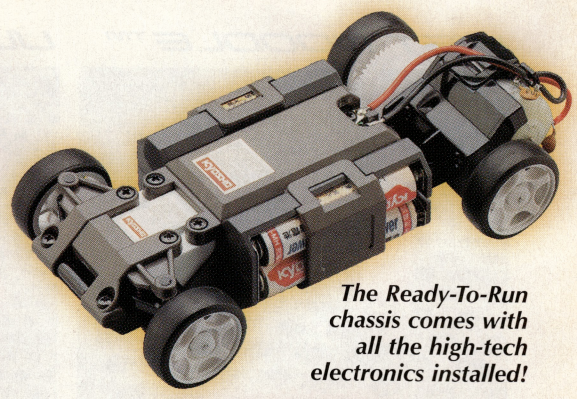

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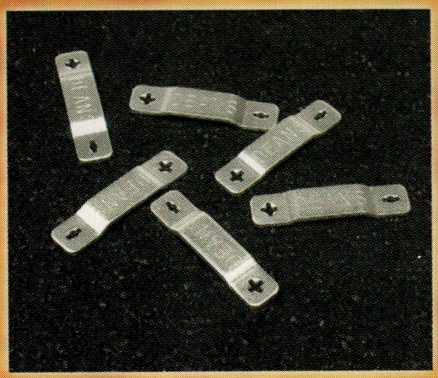

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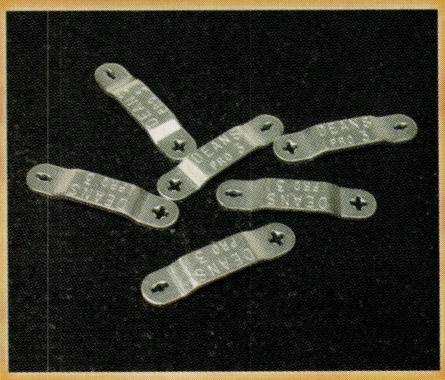

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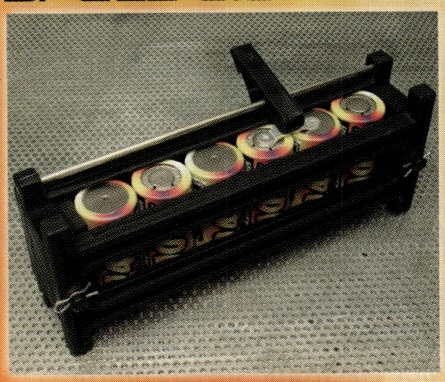

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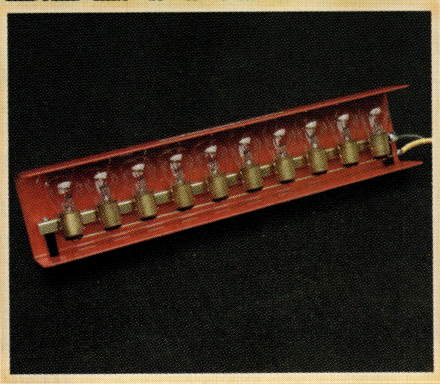

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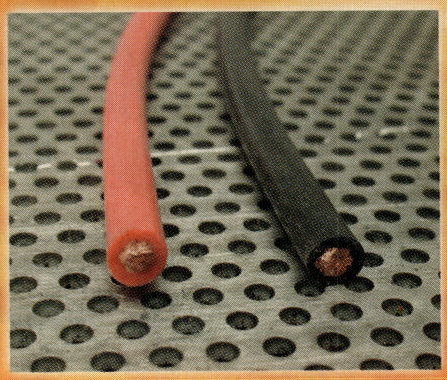

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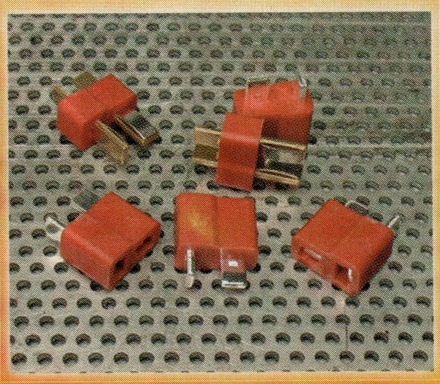

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E-mail your letters direct to the editors! You can get ahold of Frank Masi at evaone@attbi.com or Jason at jasons@hi-torque.com. If you're going the old-fashioned route, send along your letters to R/C Car at 25233 Anza Dr., Valencia, CA 91355. Check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





THE ULTIMATE BACK-YARD TRACK: WE'RE JEALOUS!

So, how bad do you have it? Dare to compare? Obsession for R/C racing is exploding at our house in the small town of Wanamingo, Minnesota! You may be jealous after you see this! Kendall, my 12-year-old son, has always been crazy about remote control cars. When he was a toddler, my husband took him to a R/C track in Rochester to watch guys practice. Kendall was so amazed that he asked, "Daddy, can I bring my 'mote control' here too?" Kendall was about three at the time, and his car was a little Fisher Price toy. His fat little plastic toy was no match for the "big boys," considering that he could walk just as fast as the car could run. Regardless, he was hooked, and every year, people gave him more and more R/C cars, trucks and cycles as gifts.

A couple of summers ago, Kendall saved up enough money from his summer job to buy a "real" R/C car. He ordered a Rustle from Tower Hobbies and drove it relentlessly for the next year. Las summer, we took him to a hobby shop in the Minneapolis/St. Paul area to race at their outdoor track. As his mom, I warned him not to expect to win a ribbon since it was his first time racing. But I was wrong! He won and won and won - all summer long. As a matter of fact, the only race he lost was when his battery finished before the race did.

My husband Rex is a successful local dirt track stock car racer. Rex has raced stock cars for nine years, and before that he was auto crossing, drag racing and BMX racing. He decided to take this summer off of racing to spend more time with our family to try his hand at R/C racing. This way, Kendall and his eight-year-old brother Walker have more time to pursue their hobbies. As an added bonus, dad gets to play too! So for Christmas, I bought them an Evader. Needless to say, I was never loved more! Kendall has been teaching his dad and brother the finer points of R/C racing and car handling. But having to drive to the track wasn't satisfying enough for my guys!

A couple of weeks ago, I came home from work to find a tractor sitting in our backyard. There were huge piles of dirt and a vast portion of the grass was gone! I walked into the house, looked out the patio window and asked my husband "Is someone building a house in our backyard?" I was answered only with smiles and laughter from my men. "That's our R/C track!" Although I think it may have started as a ploy to get out of mowing a large part of the yard, they are completely obsessed with it now.

We now have a large dirt track in our backyard, which is quite challenging from what other drivers have told me. Yes, we are attracting other R/C racers! Complete with a drivers' stand, outdoor electricity and a corner-marshal hole in the middle of the track (which is dug into the ground so the drivers can see past the marshals). Friends, co-workers - everyone wants to check out Kendall's track! They have organized a couple of races, and I'm sure they will spend most of their summer kickin' up dirt at the native mosquitoes with those speeding, hot tires. Does it get any better than this? Not in Rex, Kendall and Walker Welch's opinions. The hottest show playing this summer? The Dirt Wars at the Welch's!

Alicia Hunt-Welch
Wanamingo, MN

We'll take the room nearest the tabletop jump, and we like breakfast at 8:00AM sharp.

WHICH '04?

Hi, my name is William Szwarc I live in Salt Lake City, Utah. I want a competitive touring car to race at the local track in the stock class. I had the Tamiya TAO4-R in mind. Is that a nice competitive car? I heard that the "carbon fiber" body is kinda' on the heavy side. Should I put on an aftermarket body that is lighter? Or do you have any weight saving or lightening tips?

William Szwarc
via rc-car.com

The '04-R is a competitive car, although most racers prefer the TA04 carbon chassis set as it allows the batteries to be centralized on the chassis (with the '04-R's molded tub, you can only run the batteries across the chassis). The molded tub is also more prone to becoming tweaked, although we didn't experience this during our November '01 test. We found the car to be an excellent handler, and virtually every part and accessory that fits the TA04 and 414M chassis will fit the '04-R. As for the body, it is heavy, but that's not the reason we wouldn't run it: it's too darned pretty to risk!

DOWNSIZED NITRO BUGGY

I am an addicted R/Cer, and I own one car, a Micro RS4, and I absolutely LOVE

IT! It's hopped up with some pretty trick parts. But my friends down the road drive nitro cars, and when I first saw one of them, I had a puddle of drool at my feet. I want one so badly, but there are so many choices. I like the look of the buggies and 4WD, but the 1/8-scales are around 500 bucks! And most 13 year olds have trouble making that much money. So I looked at a downsized buggy - the Kyosho TR-15 to be exact. It looks like a good choice, but I was hoping you could help me out. Is it easy to tune? Is it durable? And does it make good power? Would it be able to go through grass and gravel and up and down ditches? Thanks for any help I can get.

Joey Jacobs
via rc-car.com

Joey, we had a blast when we tested the TR-15, and yes, it's fast, and very durable. The engine - a Kyosho GS-15 - comes only with a single-needle carb, which limits its tuning potential. Kyosho does offer a dual-needle carb that will fit this engine, and if you get the TR-15, we recommend the optional carb. As the car is full-time 4WD, it will handle most any type of surface and terrain that you can think of.

T-MAXX GUYS RESPOND TO THE AUGUST DRIVERS' STAND (WE THINK)

I have had my MAXX for three years. It is the most R/C fun I have ever had. I was able to whip the guys with .21 motors using the stock .15 and a 18-tooth clutchbell. I tried a FS-40CX four-stroke setup, and found it to be more for less! I kept the longer wheelbase, and used TMS shock towers and the stock engine and gears. I also have my rig set up for on-road trucking. It is fast fun! Once you have done a complete dimension change on the original specs, it isn't a T-Maxx anymore, so go run with the 1/8-scale boys.

SLUGGO (Jeffrey LaPointe)
via rc-car.com

Hello Mr. Masi. I am a late comer to R/Cs. I am 32 years old and in the last three months have bought a T-Maxx and a Losi Triple-X NT Drake Edition. I live in a small town in South Carolina. I have raced my trucks one time each. Like I said, I am new, but last week I went racing and there was this new guy and he had some type of T-Maxx that sounded and ran just like a 1/8-scale

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buggy! But I tell you one thing, down the straights, he could blow away everyone, but in the turns he couldn't keep it on the track. Needless to say, he placed third. First place was a Monster Pirate, and second was a T-Maxx with an O.S. engine. If he would have been a better driver, he would have dominated. Therefore I don't think he should have been able to run with normal Maxxes.

Mudweiser
via rc-car.com

Thanks for the feedback guys. The issue of what is and what isn't a "Maxx" is a hornet's nest - especially with all of the new trucks on their way to market. Keep those letters coming in, and you never know - we might publish yours!

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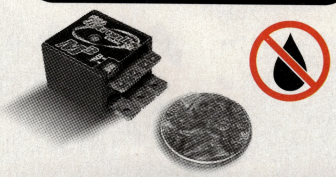

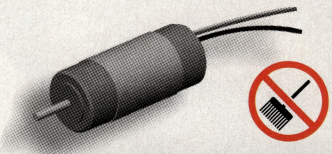

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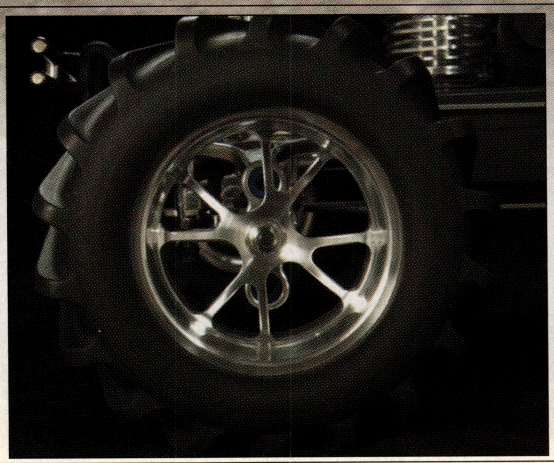
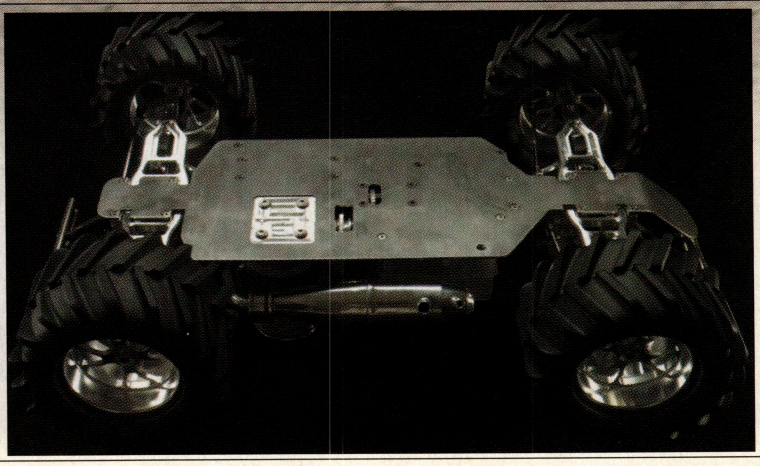
Mutant X: The Shape of







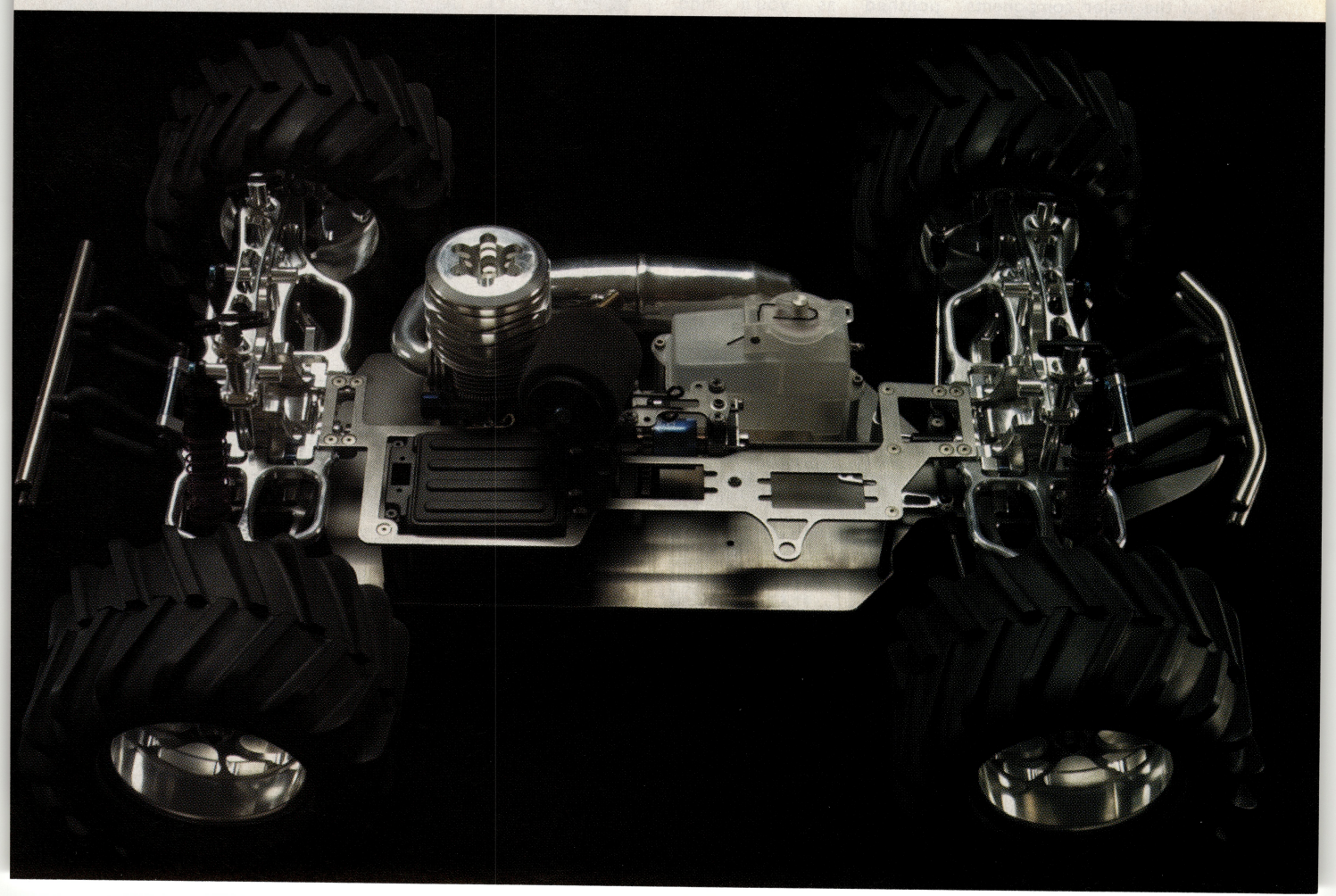
Things to Come

Hardcore Racing ushers in a new era of monster truck insanity!

For months we've known that Traxxas will soon be introducing a new T-Maxx-type truck, but what we don't know is what it will look like, what type of engine it will have, or if Traxxas will retain the two-speed reversing gearbox. What we do know, however, is that Traxxas has assured us that the new monster is expected to be better than the T-Maxx in all categories. Hard to believe, but that's what we've been told. As for speculation, we've heard every rumor in the book, including big-block engines, three-speed trannies and three diffs. Right now, however, it's all just Elvis in a UFO. We'll all just have to wait to find out.

Not the aftermarket; the people who make their livings from affluent T-Maxx owners have even less patience than we rabid magazine guys. They aren't waiting around to find out what the mad scientists in Dallas are planning; they're creating the future of monster trucks right here and now.

One such company is Hardcore Racing - the people who invented the high-end T-Maxx aftermarket. Hardcore makes enough billet aluminum and titanium hop-ups to practically create its own heavy-metal T-Maxx, and their big-block conversion is one of the most functional and complete kits available. But this hybrid, the latest to roll out of this Valencia, California company's R&D department, verges on the brink of overkill. Think you've seen radical before? Check this out.



Mutant X:



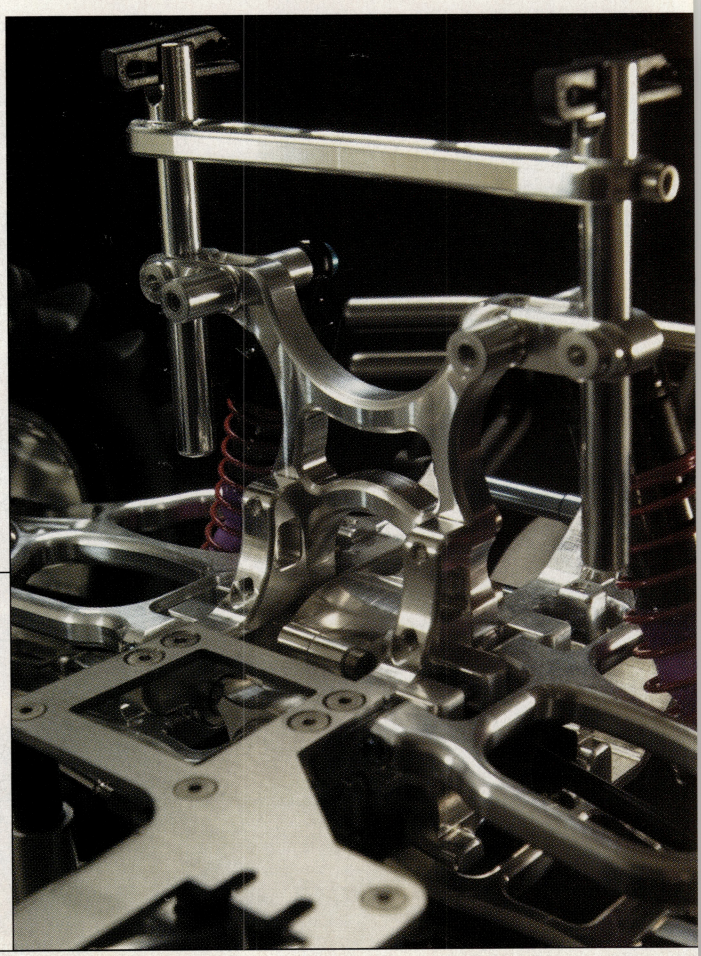
IT'S ALIVE!

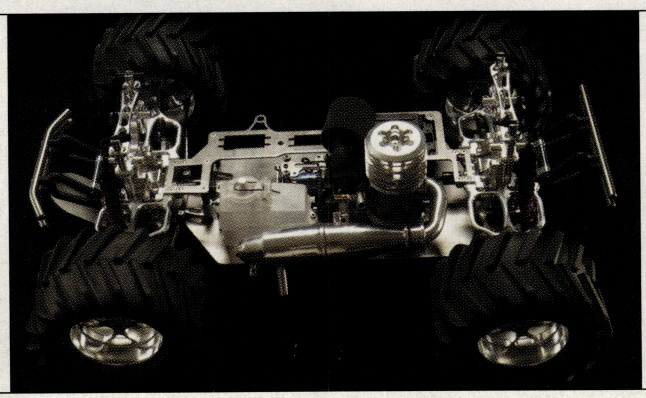
The Mutant Maxx, as it is being called, is pretty much what its name suggests: a melding of a T-Maxx and a 1/8-scale nitro buggy. Stock T-Maxx suspension - from the bulkheads outward - is grafted to an all-new titanium chassis plate that lowers the entire plane of the deck from above the bulkheads (as seen on the stock T-Maxx) to being level with the bottoms of the bulkheads. This is a significant change to the truck's center of mass, but not as much as one might imagine with such a modification. Ground clearance, though reduced, is still greater than that of a 1/8-scale buggy. Although the Mutant might not be the rock-crawler it was in its previous existence as a T-Maxx, on the track, the lowering of the major components makes a night-and-day difference to the truck's cornering prowess.

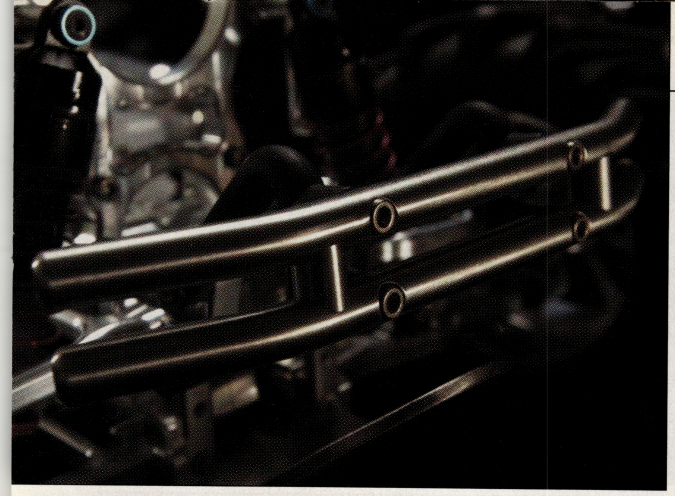
And what rests on the new, lower chassis is just as, if not more, impressive than the newly acquired stance. Gone is everything that resembles a stock T-Maxx. This includes the gearbox, fuel tank, TRX-15 engine - it's all trash-canned. In the place of the stock truck's guts is the heart and soul of a fire-breathing 1/8-scale nitro buggy. This transformation includes the transplanting of not only a larger .21 big-block engine, but also the entire shaft-driven 4WD system from a GS Storm buggy. Where the clever Traxxas reversing gearbox once resided, you'll find an oil-filled center diff that sends power to the stock Traxxas front and rear diff cases. The center diff does something that the stock tranny could not; it is able to apportion the engine's power to the front and rear diffs in accordance with the weighting of each during acceleration, braking and cornering.

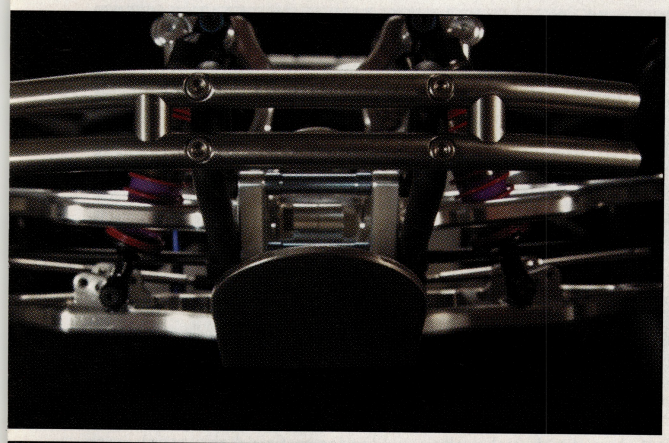
MAKING THE MONSTER COMPLETE

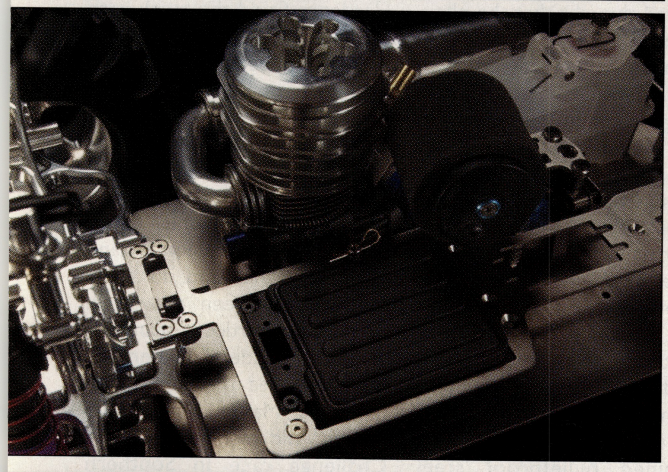
Although the concept behind the Mutant can best be described as garage engineering at its most deranged, the execution of the Hardcore conversion kit is as slick and as polished as you'll find. Hardcore's goal was to produce a kit that required no additional purchases beyond that of the "donor" T-Maxx truck, the engine and the pipe. In this vein, the kit includes not only the titanium lower chassis, but also a titanium upper deck (to hold the radio gear and help stiffen the lower plate), a molded radio box and 100cc fuel tank (also from the Storm buggy), and a complete center diff unit and half-shafts that are ready to bolt in (Hardcore is supplying pre-assembled diffs).



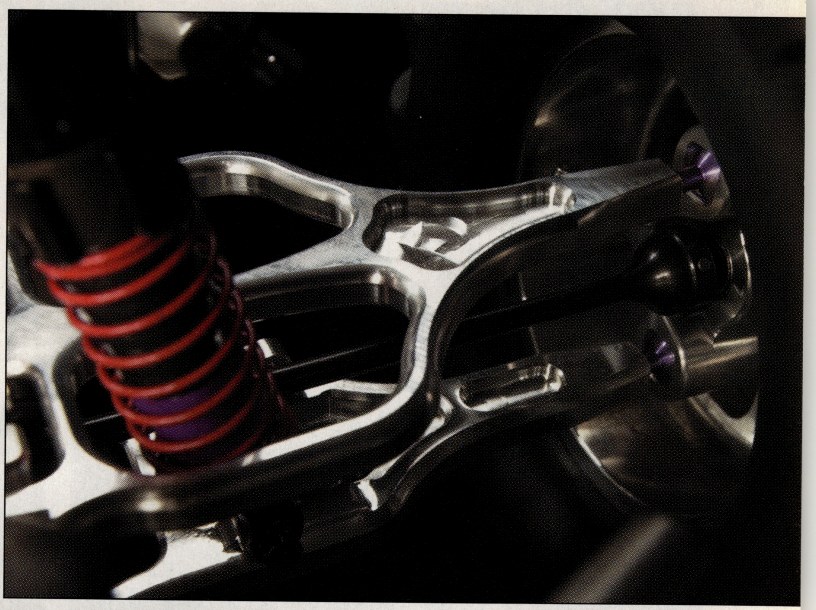














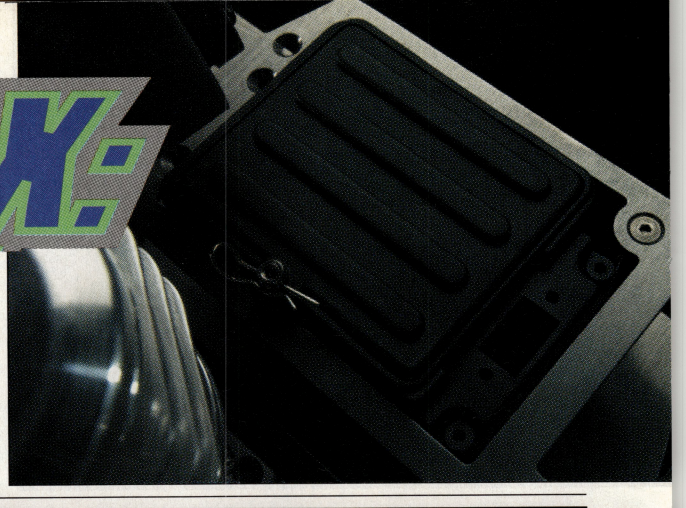
CONSTRUCTION

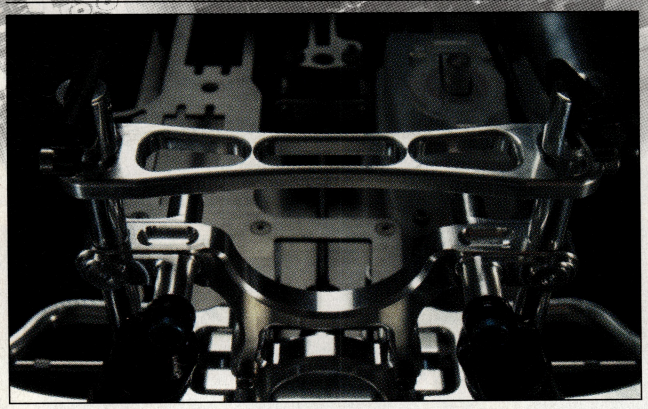
Hardcore will be offering the Mutant as a bare-bones conversion kit (to keep the price down), and as stated, company president Aaron Harris' goal is to provide everything needed to make the conversion. As the T-Maxx is what's known as a modular design (meaning that it is made up of three main sections: a front end, the middle chassis section and the rear end), it's a surprisingly simple conversion to begin the mutation.

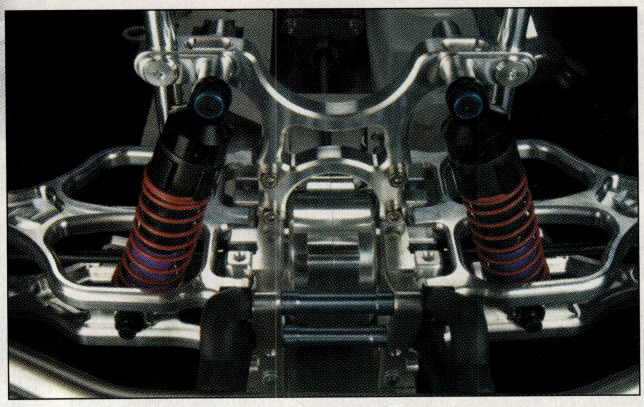
The first step is to remove the front and rear suspension/gearbox assemblies from the stock chassis and bolt them to the new, elongated Hardcore titanium Mutant chassis. The new chassis is a flat, plate-style deck that spans beneath both suspension bulkheads. The bulkheads are bolted in place using the stock skid-plate holes. As the Mutant uses the stock T-Maxx differentials, all that's required to prep them is to replace the stock plastic U-joint couplings with the steel drive cups supplied with the conversion kit.

From this point, completing the conversion is a simple matter of installing the new center diff to the chassis. The diff is supplied with a pair of machined-aluminum supports (from the GS Storm) and a pair of steel half-shafts, which are used to connect the center diff to the front the rear gearboxes. As this is a true 1/8-scale buggy setup, the truck can now benefit from a dual-disc brake system whose stopping power can be apportioned to the front or the rear. For durability, a hardened-steel spur gear is supplied.

Mutant X:







The final step is the installation of the titanium top-deck, which also serves to hold the servos and molded radio box. As the Mutant conversion does away with the T-Maxx's system of lower braces, the top deck is an essential structural member and greatly stiffens the chassis. And while the stock Traxxas servos can be re-used, we recommend (highly) that a high-torque steering servo be used to make the most of the new chassis' performance potential. Finned aluminum engine mounts are provided to allow the use of most high-performance .21 engines. And of course, you can now use that high-end non-pull-start big-block, as it's easy to access the flywheel through the underside of the chassis.

MUTANT ON THE LOOSE!

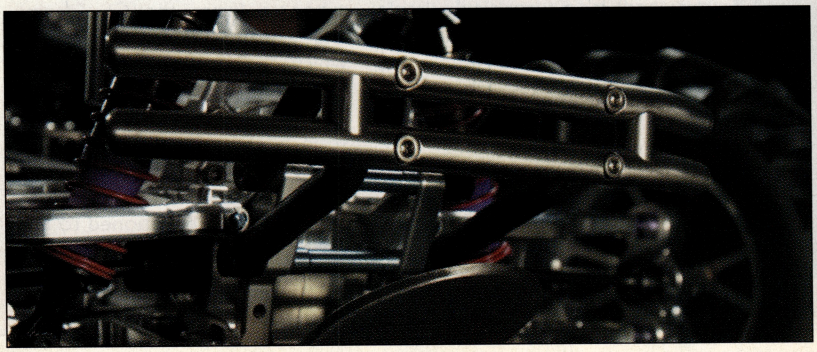
If you've ever driven a big-block T-Maxx, then you're no doubt familiar with the feeling of insane amounts of horsepower in a capable, but sometimes overwhelmed chassis. Forget about any idea that the Mutant is intimidated by its new turbocharged demeanor; it takes all the power that a big-block engine can muster and begs for more. We have dubbed the truck as the "flying brick," which seems to best describe its unflappable handling. Compared to a 1/8-scale buggy, the Mutant could be described as more stable and easier to drive, but certainly not measurably slower.

Steering is more deft than we would have predicted. We also had thought that the elimination of front kick-up (and of any front wheel caster as a result), would have caused strange handling, however we found that the lack of kick-up isn't an issue, and that the steering is perhaps even more responsive than that of a stock T-Maxx.

The truck we tested was a prototype, and it had been fitted with virtually every Hardcore hop-up in the book, including all suspension components as well as the front and rear gearboxes (which contained bulletproof steel gears from Robinson Racing). For reduced weight, our truck also had a set of aluminum four shocks from the GS Storm buggy in place of the T-Maxx's eight plastic shocks. For power, Hardcore fitted the truck with the latest RZ-B .21 from O.S. Engines (topped with their own high-flow cooling head).

CONCLUSION

Is the Mutant the future of monster trucks? After driving it, we certainly hope so! It's a very nicely made conversion kit, and its performance and durability have already been proven in battle, with Hardcore team driver Todd "Flanders" Tanner having conquered the field in the unlimited Maxx class at the recent Wild Hobbies T-MAXX Challenge race in Southern California . Although no one outside of Traxxas knows for sure what the next Maxx installment will look like, we can hope that it's as good as this awesome hybrid.



SOURCES

General Silicones Co. USA Inc., 650 W. Duarte Rd., Suite 205, Arcadia, CA 91007 • (626) 445-5036; fax (626) 445-6084

Hardcore Racing, 24895 Avenue Rockefeller, Valencia, CA 91355 • phone (661) 294-5032; fax (661) 294-0770

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Yokomo GT-4 Pro

VENERABLE, BUT STILL

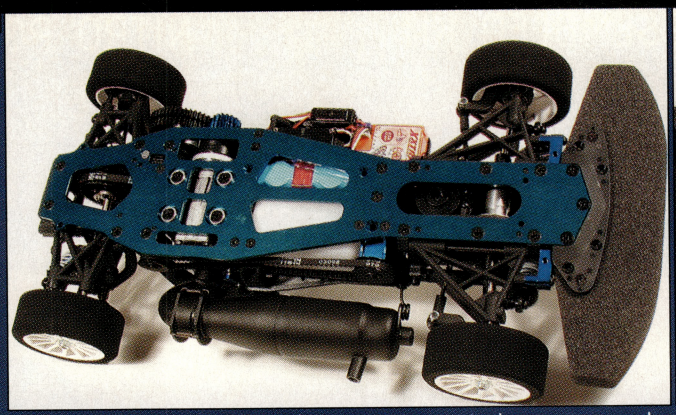


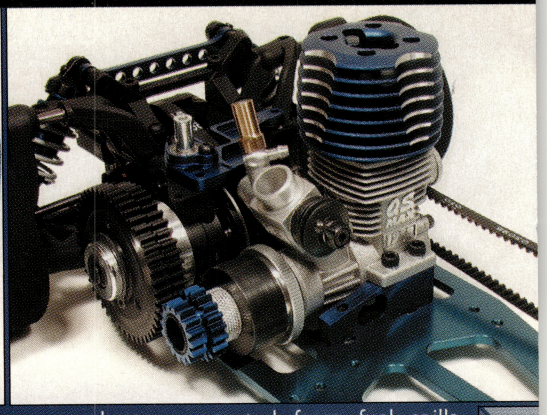
Yokomo's GT-4 has been around for several years; it was actually the first pillow-ball suspension nitro sedan to be released after Serpent's Impulse created the category. Despite its age, the GT-4 is far from long-in-the-tooth. Thanks to a steady regimen of testing and refinement, the venerable Yokomo has remained competitive - a credit to its initial design. The latest iteration of the GT-4 is the Pro, which, in addition to the inclusion of a host of Yokomo's option parts, carries several newly designed parts that boost its performance even further. We set out to see an older nitro sedan could hold its own against the younger set. To find out what we learned, read on.

IN THE GAME

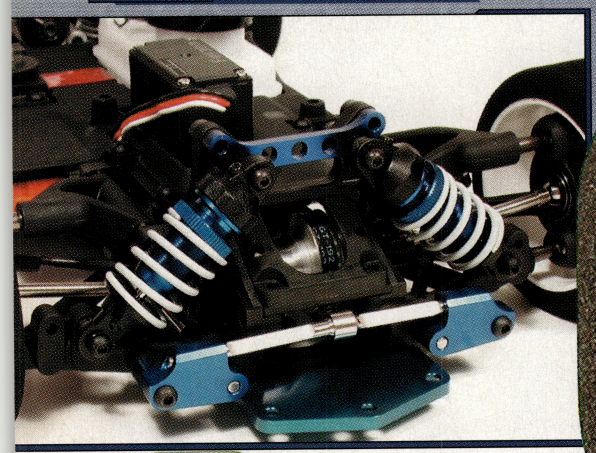
SUPERIOR SPINE

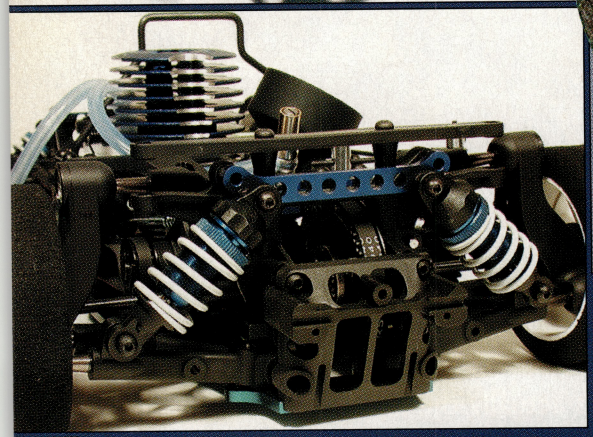
One of the key ingredients to the Pro package is a new, thicker 4mm aluminum chassis. Machined from aircraft-grade alloy (the regular chassis is stamped), the chassis is then heat-treated before receiving a blue anodizing that gives it a trick look. New, machined-aluminum engine mounts replace the cast pieces of the regular GT-4 kit, and allow the engine to sit lower in the chassis. The engine actually resides in a recessed area that has been machined into the chassis. In other words, you can't get an engine any lower than with the Pro kit.

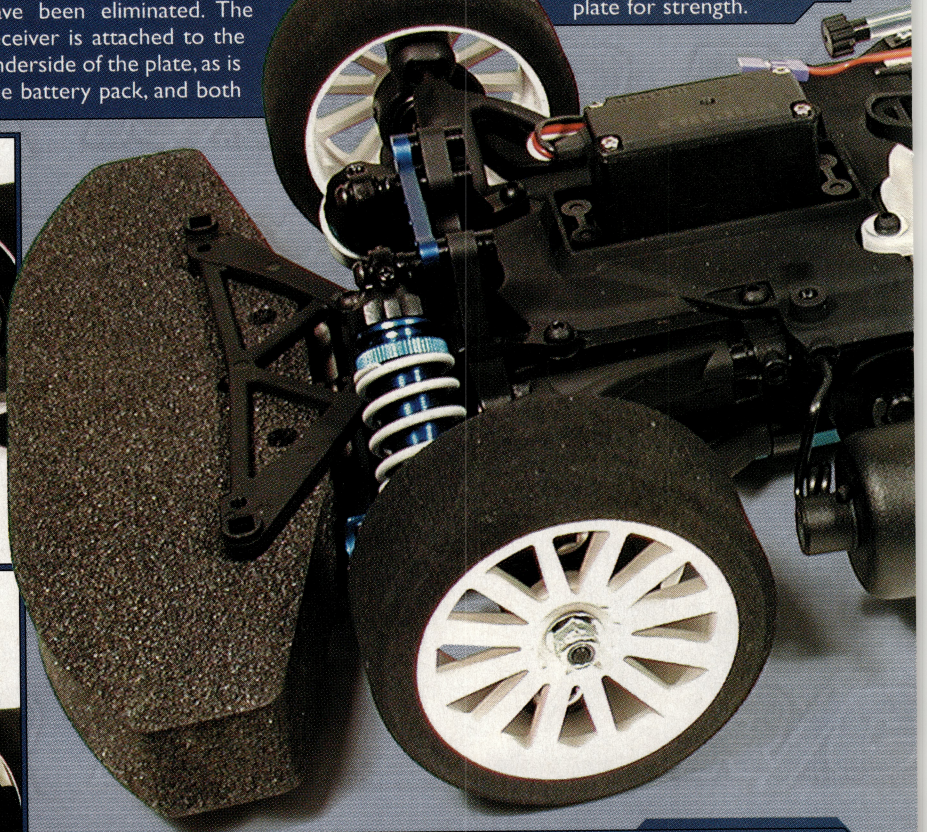




Less conspicuous is the new upper chassis plate, which has received a subtle redesign. The new plate allows the fuel tank to sit lower in the chassis, and the openings for the receiver and battery compartments have been eliminated. The receiver is attached to the underside of the plate, as is the battery pack, and both are better protected from fuel spills. Yokomo has also changed the material of the plate to a more rigid molded composite to increase the stiffness of the chassis and suspension - both of which rely on the upper plate for strength.







SUSPENSION UPGRADES GALORE

The GT-4's effective pillow-ball suspension is both lightweight and strong, so it's no wonder that its basic design has remained unchanged since the car's debut. However, Yokomo includes several upgrades that increase both durability and handling of the car. The first is the inclusion of Yokomo's excellent aluminum shocks, which have blue, threaded cylinders that have been hard-anodized for improved longevity. The shocks come with Yokomo's stiff gray springs and a bottle of unidentified clear shock fluid. We used the springs, but ditched the fluid in favor of Yokomo's heavier 700-silicone fluid. The shocks have threaded pre-load adjusters, which use O-rings to keep them from moving during a race. As always, we found it nearly impossible to fit the O-rings into the little groove inside the adjusters, but since they must be used, we persevered.

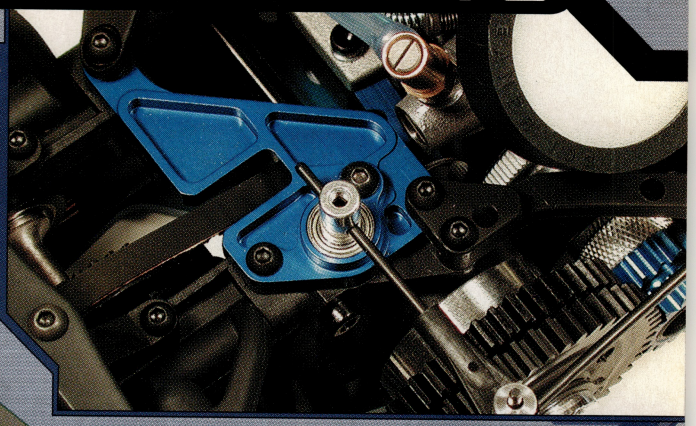
To help the car's molded shock towers to cope with the stiffer springs and heavier damping, Yokomo includes a set of blue-aluminum braces that fit between the shocks and the towers. Without the braces, the towers flex excessively, but when they're installed, the braces virtually eliminate any movement and allow the suspension to be more effective.

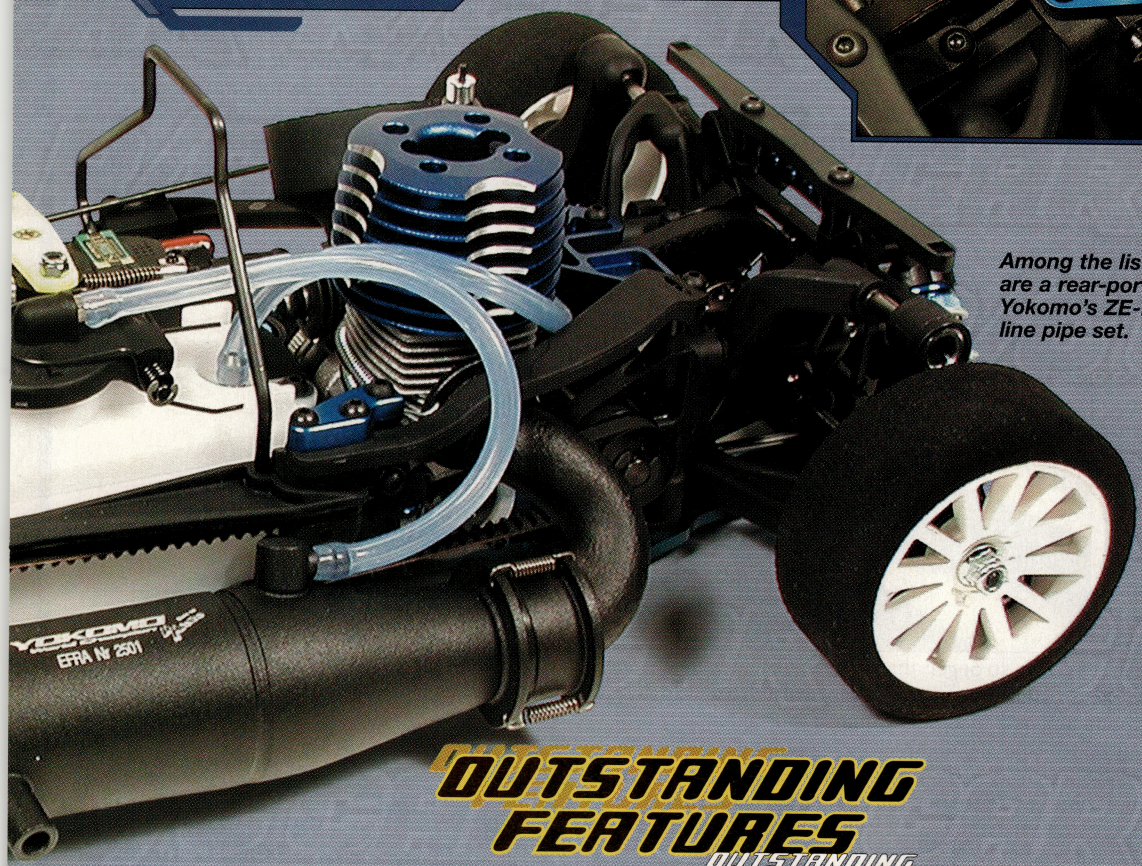
Finally, Yokomo includes its blade-style front anti-roll bar. Unlike most sway-bars, which are made from bent steel rod, this type of bar uses a pair of flat bars that meet in the middle with a ball-and-socket joint. The amount of roll-stiffness is set by the way the bars are oriented in relation to the suspension arms. Laying the bars flat provides the softest setting, while standing them up provides the most roll resistance. Of course, the bars can be set to anywhere in between these two extremes, which gives them a range of possible adjustments far greater than the standard style of roll bar.

Yokomo GT-4 Pro

BETTER BRAKING

Like all GT-4s, the Pro uses a thin steel brake disc that's clamped by a pair of fiber-lined pads. To prevent the chassis and rear bulkheads from flexing during hard braking, the Pro comes with a blue-anodized aluminum brake plate in place of the regular kit's molded piece. The new plate also supports the top of the brake shaft with a ball bearing. We found that the brakes have a tendency to drag, so take your time to ensure that the pads are not binding, and make sure that your linkage is adjusted properly.





Among the list of optonal items we used are a rear-port .12 from O.S. Engine and Yokomo's ZE-MMBP MMielke Black in-line pipe set.

OUTSTANDING FEATURES

OUTSTANDING FEATURES

RACE TESTING THE PRO

It had been a while since I had raced nitro sedan, and I was extremely excited to be testing the Yokomo - I had never owned one, but I was always curious about how well it worked. Yokomo had sent along a few option parts with the car - most significant were the solid rear axle and front one-way - and I felt compelled to try them out. Although the car felt pretty good on its Yokomo 38s (foam tires, but not included in the kit), I could tell right away that this particular drivetrain setup was not the right combo for Hot Rod's track. Solid axles and one-ways are designed to help a car get around larger, faster tracks that have flowing turns. We were racing the Yoke on a small-to-medium sized (for nitro sedans) course that had several slow, tight turns. The car was awesome through the chicanes and sweepers, but it didn't like the 180s at all!

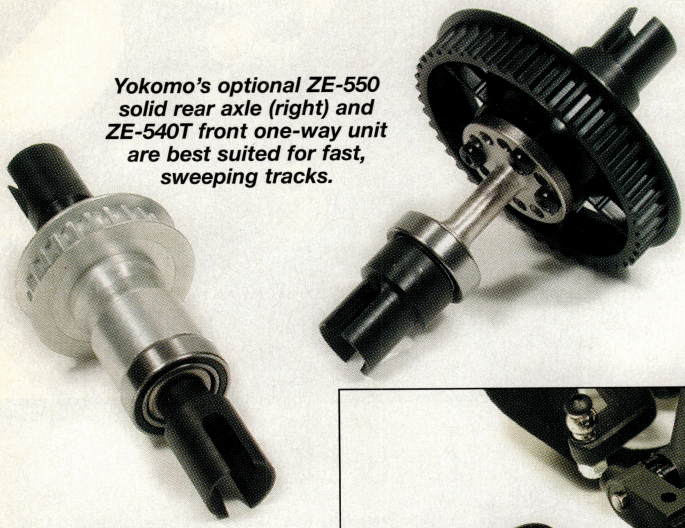
As I didn't have the time to install diffs (which come in the kit, but surprisingly aren't O-ring sealed), I made due by dialing out nearly all the steering by using my radio's dual-rate. I drove the car and only allowed enough steering throw to make the tightest turn (it was something like 85 percent), and this made the Yoke much easier to drive, but using the brakes was simply out of the question.

We were treated to three rounds of qualifying on this particular Sunday, and I seemed mired in fourth (out of four, no less) in the expert gas class. I was fairly close to the second and third place cars, but the TQ was way out front. But I was encouraged by my lap times, which had dipped as low as 13.9 seconds during qualifying. During the recent NORRCA On-Road Nationals, held on this same layout, the factory drivers had been doing fast 13-second laps, so I didn't feel too bad.

During the 10-minute-long A-main, I was able to maintain a solid third place position for the first five minutes. During the second half of the race, I had moved up to second and, according to my pit man, was actually closing slightly on the leader with each successive lap. At the end of the race, a bobble by the leader's pit crew (I think they were playing a joke on the poor guy!) allowed me to pull to within two feet to challenge for the win. At the wire, I just missed the win by inches!

I like the Yokomo's tried-and-true design, and its drivetrain is among the most free of all the triple-belt cars. I have already begun testing the car using the gear diffs (packed with thick grease), and this had made the car much better on our particular track. Now that I can use brakes, I've got my times down as low as 13.6 seconds, and I'm very much looking forward to the next club race!

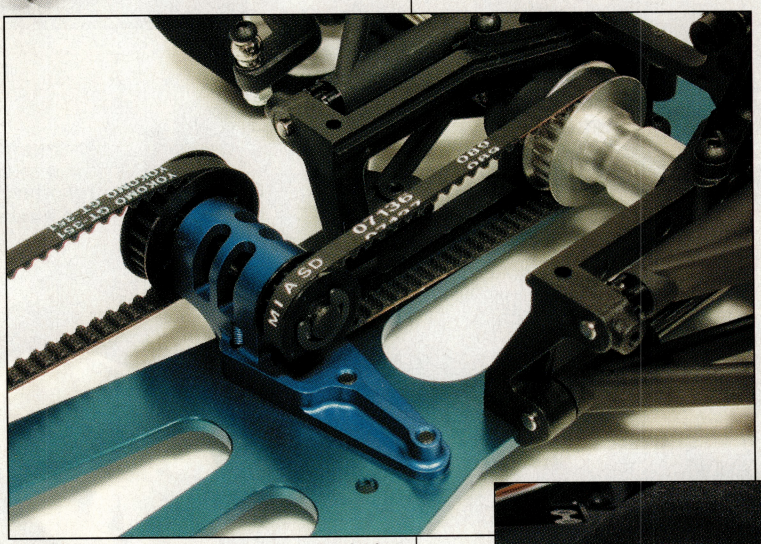
—Frank Masi



Yokomo's optional ZE-550 solid rear axle (right) and ZE-540T front one-way unit are best suited for fast, sweeping tracks.

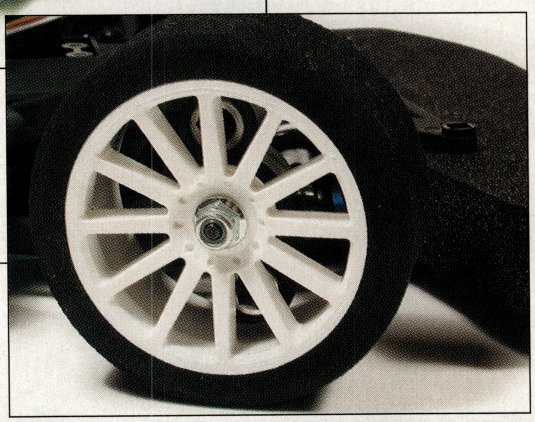
The Pro arrives with planetary gear diffs for both ends, but as they aren't O-ring sealed, they can't be filled with silicone fluid to tune their stiffness. One alternative is to fill the diffs with heavy grease, which Yokomo offers as an option. However, we fitted our test car with Yokomo's optional front one-way drive and one-piece rear "spool." The one-way allows the car's front wheels to coast freely off-power, and the rear spool acts as a solid axle. This is definitely a setup that's only useable with foam tires on a clean, high-traction racing surface.

And speaking of tires, our car was equipped with Yokomo's pre-mounted and trued foam tires (38s all around, although the front tires are Yokomo's long-lasting A compound, while the rears are the higher-grip "L" compound). Don't look for these in the box, as the Pro doesn't come with tires or a body.



A LITTLE DRIVETRAIN BEEF-UP

The GT-4 Pro has the "industry standard" triple-belt full-time 4WD system that's also found on just about every car in this class. The Yoke's system is among the smoothest and most free-spinning (less drag) drivetrains in its category, but the Pro gets the added benefit of a new aluminum support for the middle layshaft, which is stronger than the regular kit's plastic support. Up front, more efficient universal-joint shafts have replaced the separate dogbone and axle assemblies, and all four axles get fitted with Yokomo's very cool blue-aluminum clamping hex-hubs. To provide clearance for rear-port engines, the Pro also comes with a blue-aluminum, ball-bearing supported tensioner for the center belt.

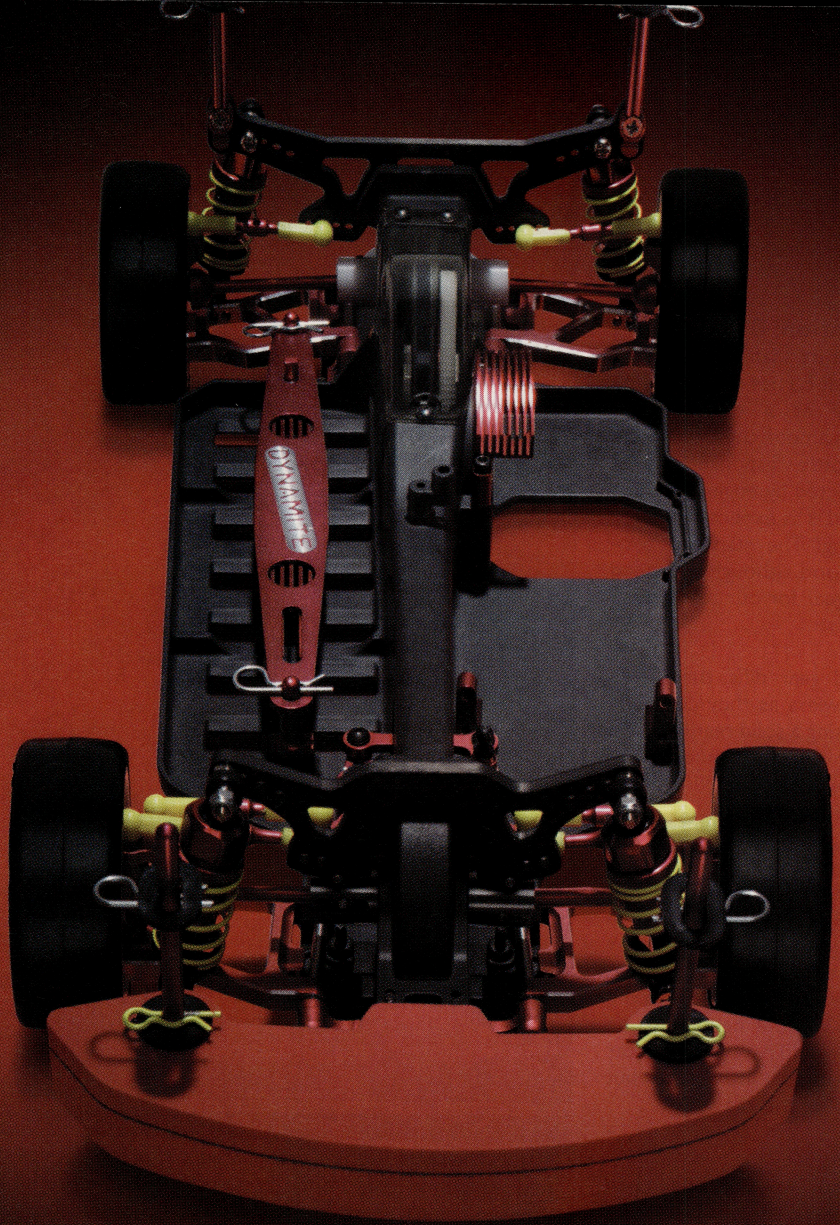


MINI TEST

As the GT-4 Pro comes sans body, we chose to try out Pro-Line's all-new Crowd Pleazer 200mm sedan body. This body is a unique sculpt in that it isn't patterned after any full-sized automobile. The body has a fairly long, sloping nose to provide good steering; while it's minimal rear overhang makes it perfect for tracks with lots of tight, fast turns. The included wing can be mounted in one of four positions, and includes medium-sized side dams for added stability. We mounted our wing as far back as possible for the greatest amount of rear downforce.

As you can see, the body looks great mounted on the GT-4 Pro chassis. The overall reaction to the body during the Yokomo's first outing was overwhelmingly positive - we haven't had so many people ask us "what body is that?" in a long time. We also liked the new protective film that Pro-Line now includes, as well as the great stickers on high-quality vinyl material.





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DYN6809 Alum Rear Block/Pivots – 2°
DYN6810 Alum Rear Block/Pivots – 0/4°
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Okay, so maybe your XXX-S doesn't really need any help. But, since when does need have anything to do with it? Dynamite parts for the XXX-S are strictly for those who can't stand to be sheep, so let the customizing begin. Add Dynamite parts to your soul's content, and make it all yours. You'll find them at better hobby retailers nationwide.

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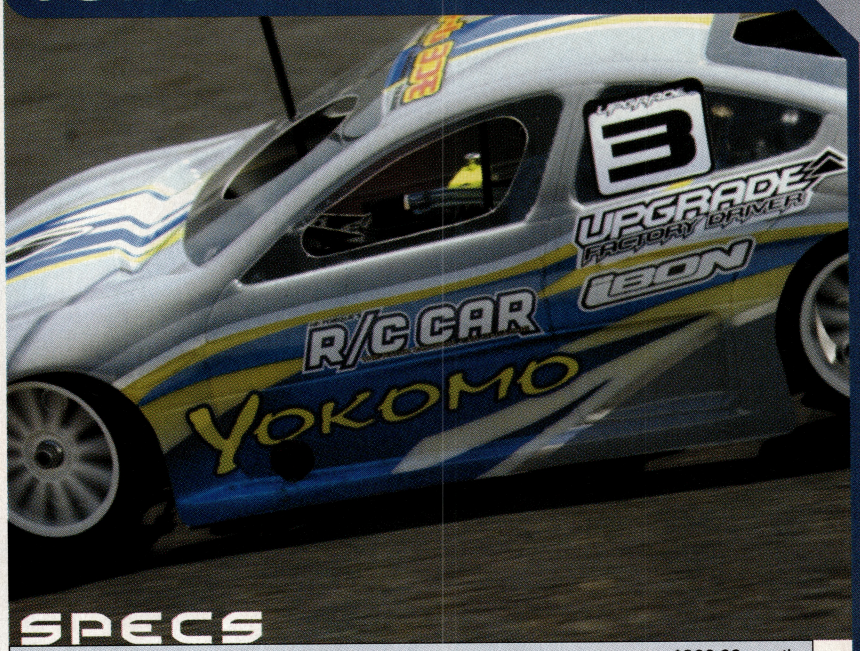
Yokomo GT-4 Pro



REPORT CARD

Test location: Hot Rod Hobbies Raceway, Santa Clarita, CA

Test conditions: permanent asphalt road-course, high traction.

Speed and acceleration: B

The Nitro TC3, with its shaft-driven 4WD, has shown us that when it comes to off-the-line snap, three belts are at a disadvantage. However, the Yokomo is among the best of the belt-breed, and its throttle response is quite good - and it is less affected by engine and drivetrain torque. Top speed is as expected of a car in this class - blistering! The standard two-speed's ratios are very good, although we ended up locking out second gear for our test track.

Braking: ?

With the standard gear diffs, the GT-4's brakes are about as flawless as they come. As we raced our test car using a solid rear axle and a front one-way, braking was pretty much out of the question, as even the slightest locking of the rear tires resulted in a nasty spin.

Low-speed steering: A-

With a variation of Chris Tossolini's national winning setup, our GT-4 Pro proved that a well balanced car equipped with a one-way doesn't need to rely on brakes to negotiate tight, technical turns. The Pro can be driven hard into the turns, and it hugs tight without needing to be slowed excessively. We would have liked the car to transition through S-turns a little better, but overall, we liked the feel of the car.

High-speed steering: A

Through high-speed sweepers and when powering out of turns, few cars can claim to be as effective as the GT-4 Pro. With our setup, the solid rear axle pushes the car out of the turns with authority, while, when on-power, the front one-way acts as posi-traction to pull the car. At full-speed, our car could be driven hard off the main straight and on to the fast sweeper, hugging the inside pipe perfectly.

Durability: A

Aside from clipping pipes and the occasional traction-roll, we did manage to send the GT-4 Pro cart wheeling into the solid track barrier at about 40mph. Fortunately, our race day wasn't ended prematurely, as the Pro survived this encounter without so much as a scratch. While we can criticize the car for its rather flexible plastic, it does make this a very rugged machine.

Accessories you'll need:
Two-channel radio, steering and throttle servos, five-cell battery, .12 engine, manifold and pipe, starter box, glow-plug igniter, 200mm sedan body, paint, fuel, fuel bottle, wheels and tires

SPECS

Price:	$399.99 retail
Length:	15.4in /390mm
Width:	7.9in /200mm
Wheelbase:	10.15in/258mm
Track (f/r):	(F/R): 6.4in/162mm
Weight:	1,750gram.
Chassis:	4mm machined aluminum; blue-anodized
Suspension:	ind. Double wishbone; pillow-ball style
Transmission:	belt-driven 4WD; 2-speed
Gear ratios:	6:1 (first); 4.74:1 (second)
Damping:	threaded aluminum oil-filled shocks
Bearings:	metal-shielded ball-bearings
Wheels:	not included
Tires:	not included

Final Score

Highs The GT-4 Pro is a time-tested and proven design that remains very competitive against its more modern classmates. The Pro kit provides an exceptional value, as the total sum of the included hop-ups well exceed Yokomo's asking price.

Lows The material that makes up the suspension parts is very flexible. This doesn't seem to be a bad thing, as once the car is assembled, the parts work well together to form a rigid structure. Yokomo now offers a set of harder suspension arms as an option. We also didn't like that the Pro uses a less reliable finger-style two-speed instead of the clutch-type that's more common in this class.

The verdict Despite its being one of the older designs in the nitro sedan class, Yokomo's GT-4 Pro gives up nothing to its competition. It's a solid, well designed platform that can be tuned to suit any condition (especially with the diff options that are available). The Pro kit includes everything that a serious racer would want in a competition kit, and at a price that is a surprising bargain.

SOURCES

Byron Originals, Inc., P.O. Box 279, Ida Grove, IA 51445 • phone (712) 364-3165; fax (712) 364-3901

Futaba, O.S. Engines, 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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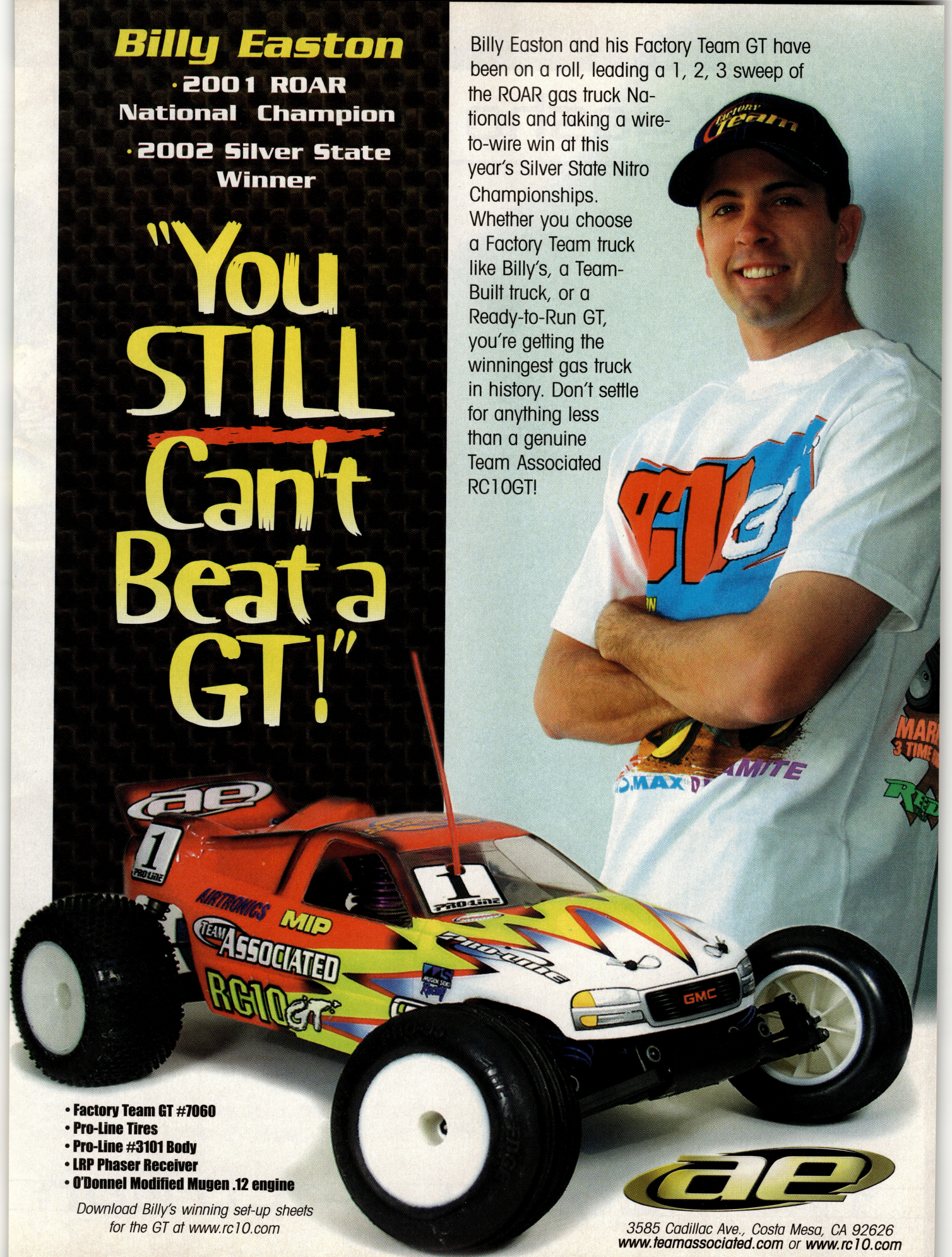

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Kyosho Mad Force

By Jerry Lundergaard



Let me serve as an example to all you kids and say that if you don't ask, you never know what you'll get. As you may remember from my previous micro articles, I made a big stink about being a big guy and always getting stuck reviewing tiny cars. It was all in fun (I mean, come on), and I get to play with R/C cars all day long, so how can that be a bad thing? Yet, through my relentless creative badgering, the bigwigs at *R/C Car* saw my true reviewing prowess and kicked me down the mother of all monster trucks. Actually, now that I think about it, maybe they did it just to shut

THE RADICAL SOLUTION

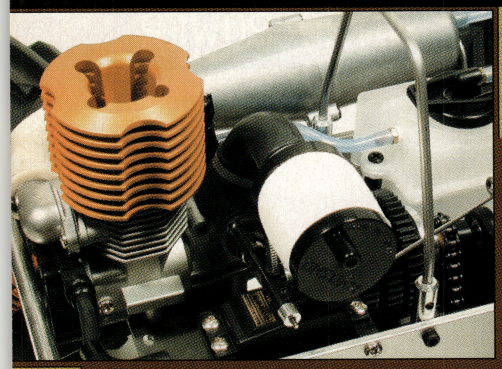


me up. Regardless, it worked. It seems someone else was listening to my little lesson as well. With the advent of the monster truck genre, buyers have been eagerly asking for bigger and badder trucks. Wait no longer, my friends. Kyosho has heard our cries. Behold, the Mad Force 1/8-scale monster truck. For the Mad Force, Kyosho's R&D team decided to think outside the box . With a big block .21 powerplant, a three-speed transmission and a radical straight-axle torsion-link suspension, can the Mad Force finally dethrone the T-Maxx?

TO MONSTER TRUCKING

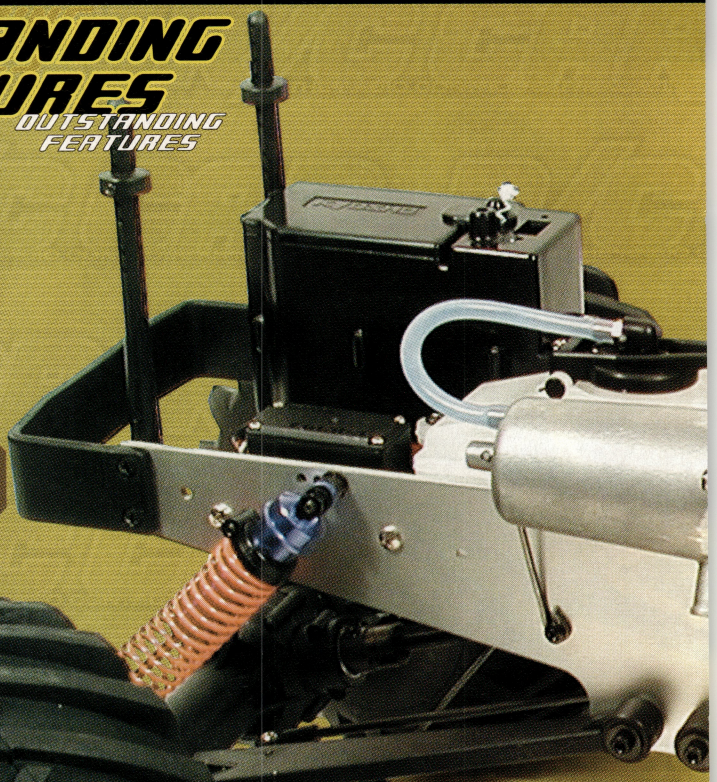
OUTSTANDING FEATURES

OUTSTANDING FEATURES



THE POWER STATION

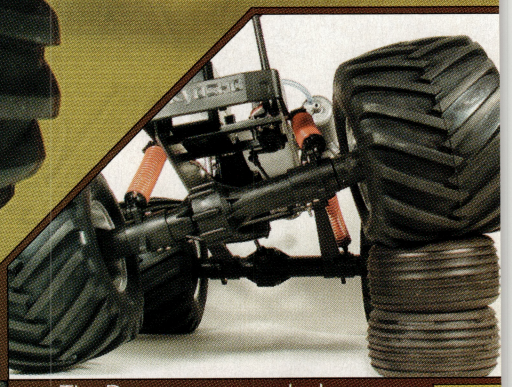
What can I say? This thing cooks with gas right out of the box. The GS21R pullstart engine uses a durable ABC construction and when its two-needle slide carb is tuned properly, will provide lots of reliable power. With a motor of this size, it is very important to break it in properly. Rush the break-in and you'll pay for it in the long run. Properly break it in and you'll have the fastest truck we've seen come out of the box, blasting past out radar gun at 40 plus mph! The only downside I saw was the molded plastic fuel inlet on the molded plastic carb. Let's hope I don't wad this thing too hard and snap the inlet off.

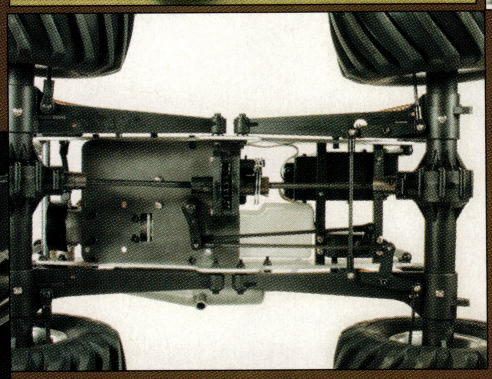


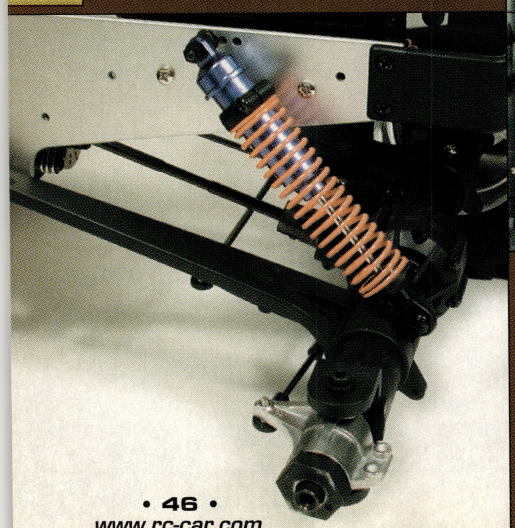
THE BUMP TAMERS

A truck with this kind of speed needs a suspension that can keep it stable and firmly planted. Now, let me ask you something: What do you do when you have the world championship winning 1/8-scale buggy in your repertoire of vehicles? Duh; you raid the parts bins. To help absorb the bumps, the Mad Force sports four of the Inferno's blue-bodied aluminum dampers. These silky smooth units have volume-compensating bladders, seals that load from the bottom, and a boatload of travel. The only complaint I had with the shocks stemmed from the kit's injection molded plastic pieces. The instruction manual gives numbers to the parts on the plastic trees, yet none of the trees were actually numbered! *Doh!* Aside from not being numbered, the injection pieces looked pretty good with only one of the shock pistons needing a little hand finishing to fit properly.





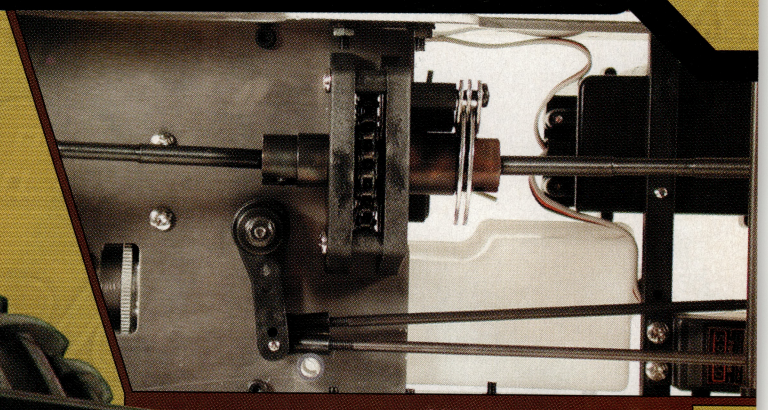




The Dampers are attached to a very unique suspension arm setup. Most monster trucks we have seen thus far use one of two types of suspensions: either a fully independent setup like the T-Maxx and Terra Crusher, or a four-link system like the TXT-1 or Juggernaut 2, which uses a combination of links and leaf springs. Kyosho jumped off the monster truck bandwagon when it came to the suspension of the Mad force, because their design is completely different. Although it uses a straight-axle design like that of the TXT-1, it only uses two tapering flat-torsion links instead of the usual skinny four. By design, the flat links give excellent suspension articulation while resisting side-to-side shift. Because they are flat and want to stay flat, the torsion links act as a swaybar and greatly improve the handling of the truck with their anti-roll characteristics.

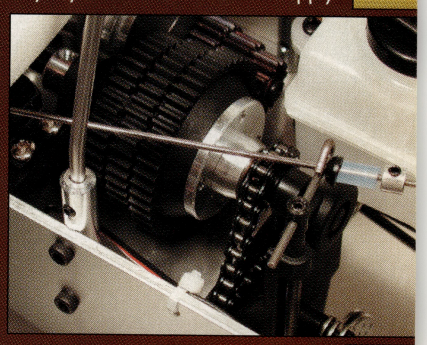
What are the benefits of a dual link setup? It is mechanically more efficient and it has fewer parts to break, which is always a good thing. Don't be surprised if you see some aftermarket companies designing Torsion links out of different materials to help further the ability to tune the suspension.

Kyosho Mad Force



C'MON, RIDE THE DRIVETRAIN

While you're raiding the parts bins for the shocks, why not nab some stuff for the drivetrain? The Mad Force takes advantage of some of the Inferno's race-proven drivetrain components and comes with a pair of O-ring sealed gear diffs. Because they are sealed, you have the option of fine-tuning them with silicone diff oil. Unfortunately, Kyosho chose not to supply any in the kit. Though the diffs have space allocated for four spider gears inside the diffs, they only come pre-assembled with two, allowing for some future adjustability. Both front and rear axle assemblies come prebuilt which saves a lot of time in the build process and only requires you to install the internal dog bones and alloy Inferno knuckles.



Because the Mad Force uses parts off of the Inferno, any of the aftermarket Inferno diffs and knuckles should drop in without any problem, making the drivetrain bomb-proof. The diffs are spun via steel dog bones that reach out from a transfer sprocket at the center of the chassis. Yes, I said sprocket. The Mad Force uses a chain to transfer power from the monster three-speed transmission down to the sprocket that drives the dogs. This is where it gets kind of scary. A big block .21 spins a three-speed tranny that transfers gobs of power via a steel chain to what? A plastic sprocket? Uh-oh. So far we haven't grenaded it, but a steel sprocket seems like it would have been a much more logical choice. All of this power is kept in check by utilizing the dual disk brake setup from the Inferno. Bravo!

BODY, WHEELS & TIRES

The tires are carried over from Kyosho's USA-1 truck, but hey, who cares! These things are lightweight, look great, and are very functional. The wheels are similar to the original USA #1 rollers in that they have a really nice chrome finish, but they have some extra support ribbing to beef them up. The body is a Kyosho-designed shell that has good proportions and a decent set of decals.

THE CHASSIS

The chassis is rather simple. Two 3mm aluminum side plates mate with a shelf plate to form a rigid platform that houses all of the truck's internal udna-udna stuff. Personally, the quality of the shelf onto which the engine, transmission and fuel tank are mounted was quite disappointing. It's a minor gripe, and doesn't affect the performance of the truck in any way, but it looked like it came right out of the foundry. Heat discoloration and scratches made it look very unfinished. Although you really never see it, with a kit in this price range it would have been nice to have some quality anodizing to help protect the stuff and give it a little more flash. Other than that, it's simple, and it works. Oh yeah, I almost forgot! This baby has wheelie bars! Nothing flashy, which again would have been nice, but they're effective, and let me assure you, you're going to use them quite a bit.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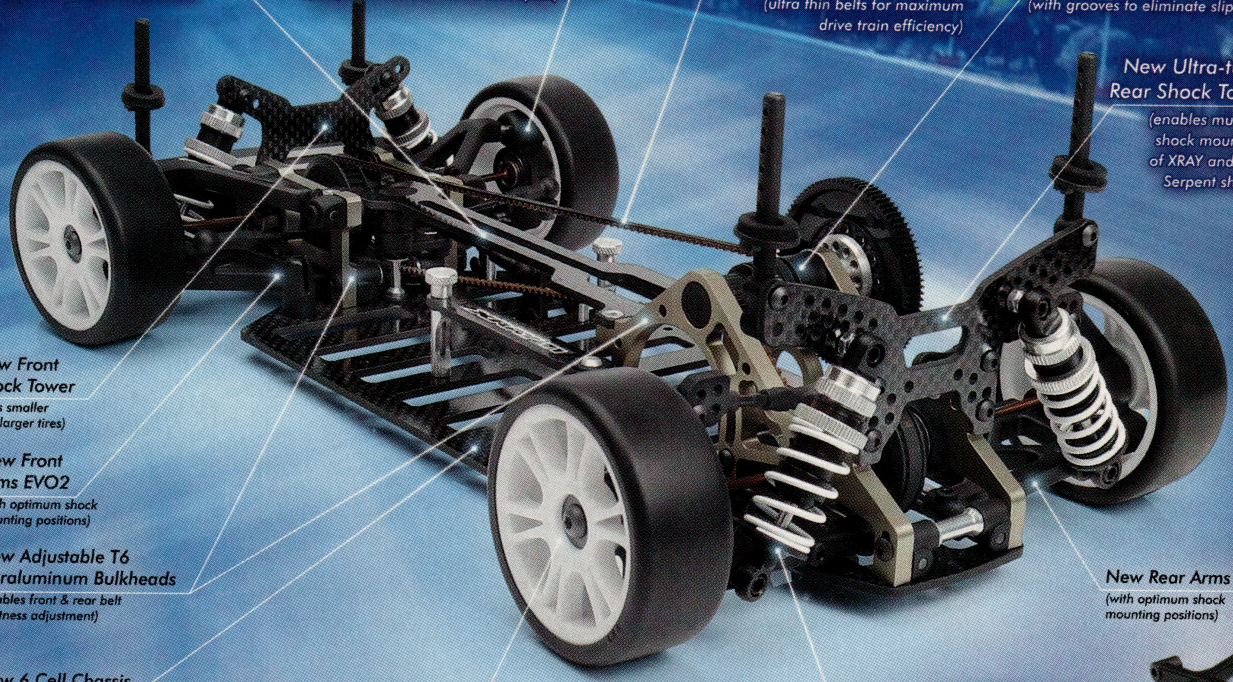

New Front Shock Tower
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(with optimum shock mounting positions)

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(enables front & rear belt tightness adjustment)

New 6 Cell Chassis
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New HUDY Starburst Wheels
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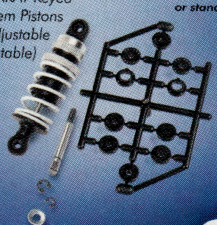

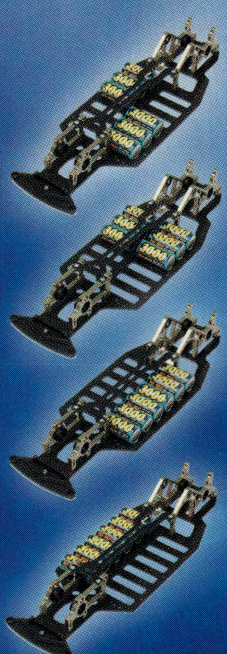

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Kyosho Mad Force



REPORT CARD

Test location: Sun Valley Microspeedway, Sun Valley, CA

Test conditions: dry and dusty dirt, loose sand, big dirt hills

Engine: A

Although not the powerhouse we expected (after all, this is a big-block!), Kyosho's GS-21R proved itself a reliable and torquey mill. From break-in to tuning, the GS-21R never faltered, and what's better, it makes plenty of torque without needing to be set too lean. The two-needle carb responded consistently to even the slightest tuning change. Overall, it matches this chassis well.

Acceleration and speed: B

The Mad Force has a three-speed, so one would think that it would be a rocket - but it isn't. We found that the extra gear seems to have been added as a climbing gear rather than a top-speed gear. This is fine with us, as the Mad Force was plenty fast enough for blasting down the road. The super-low first gear provides enough leverage to make the Mad Force a formidable crawler/climber. We would rate the Mad Force's speed about even with a stock T-Maxx.

Suspension: C

While the Mad Force's link-type suspension may be great for crawling over large obstacles at a snail's pace, it is too bouncy for high-speed handling. With its stiff springs and solid axles, the Mad Force is easily deflected from its course at anything more than mid-speed. We also attribute part of this to the rather bouncy paddle tires that come standard. However, we also feel that with some work (softer springs, thicker oil, softer tires, etc.), the Mad Force could be made to handle high-speed situations with the same finesse it exhibits during low-speed maneuvering.

Steering: B-

When we found out we'd be reviewing the Mad Force, we ordered a high-torque Futaba S9450 digital servo to handle the task of steering those massive front tires. We're glad we did, as the powerful Futaba made the big Mad Force feel nearly as nimble as a smaller and lighter race truck. If you're going to get a Mad Force, know that a cheaper servo will create numb handling.

SPECS

Price:	$449.99 retail
Length:	21.6 in./550mm
Width:	16.5 in./420mm
Wheelbase:	12.4 in./315mm
Track (f/r):	(F/R)12 in./310mm
Weight:	155oz.
Chassis:	3mm aluminum ladder-type
Suspension:	dual torsion-link, flat axle
Transmission:	chain-driven 3-speed
Gear ratios:	25.7:1 (first); 19.8:1 (second); 15.6:1 (third)
Damping:	aluminum oil-filled shocks
Bearings:	metal-shielded ball-bearings
Wheels:	chrome-plated plastic
Tires:	paddle-style rubber, semi-pneumatic

Final Score

Highs: The Mad Force is a really well engineered kit, and it's very realistic suspension performs with aplomb during low-speed rock-crawling and vertigo-inducing hillclimbs. The included GS-21R engine is both powerful and torquey, and it's among the easiest big-blocks to get running and tuned. We also liked the nicely sculpted truck body, which is a combination of racing looks and scale proportion.

Lows: The Mad Force should be a RTR, not a kit. If Kyosho wants in to the Maxx market, this trucks needs to be pre-assembled. The suspension, though unique and realistic, is far better suited to slow off-roading than to all-out speed runs; the truck just tends to float over bumpy dirt without really hooking up.

The verdict The Mad Force may very well be Kyosho's best effort at cracking into the modern monster-truck market. It's well engineered, solidly built and lots of fun to drive. The inclusion of the three speed, the big-block engine and the unique chain-drive shows that Kyosho is looking to define its role without being a copycat. Although we firmly believe that Kyosho will sell twice as many Mad Forces if the truck were a ready-to-run, it's still a good project for the trucker who likes kits.

SOURCES

Futaba and 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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HCR-53040
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HCR-53050
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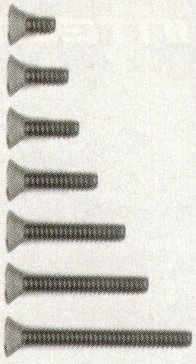
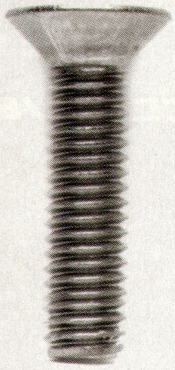
HCR-53060
4-40x1" 8 Pack





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2mm Hex driver required.

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HCR-51030
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HCR-51040
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HCR-51050
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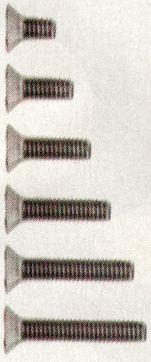



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HCR-54040
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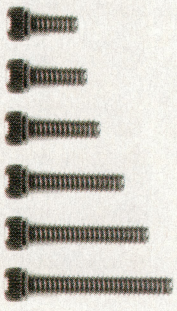
HCR-54050
4-40x3/4" 8 Pack





3mm Socket Head

2.5mmHex driver required.

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HCR-51230
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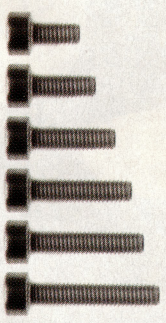
HCR-51240
3mm x 14mm 8 Pack

HCR-51250
3mm x 16mm 8 Pack





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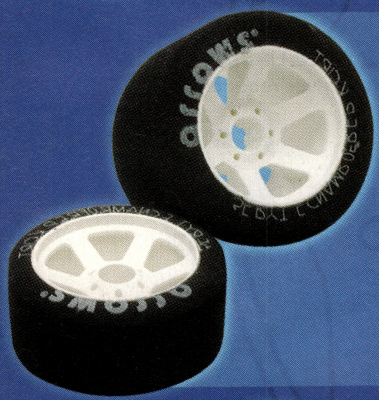

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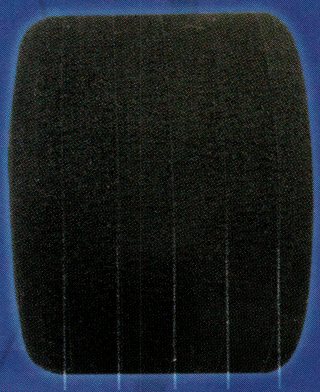

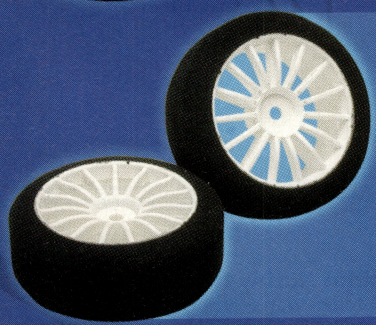

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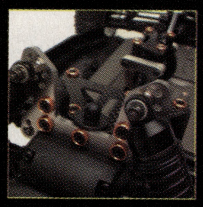

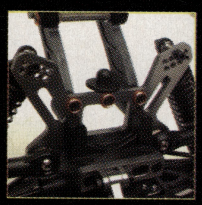



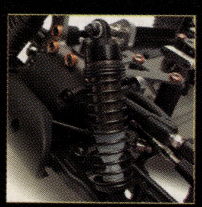

FEATURES

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- 7075 T6 FRONT/REAR SHOCK TOWER
- 7075 T6 FRONT UPPER SUSPENSION HINGE PIN HOLDER
- 7075 T6 3° LOWER SUSPENTION HINGE PIN HOLDER SETS
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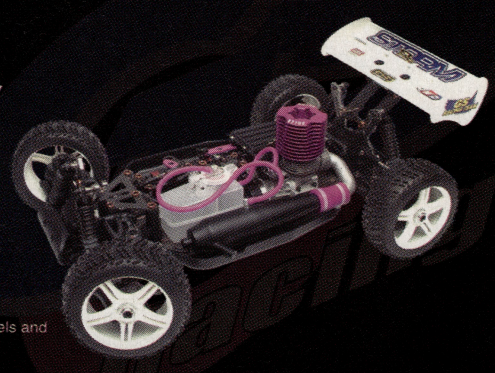
GS Racing



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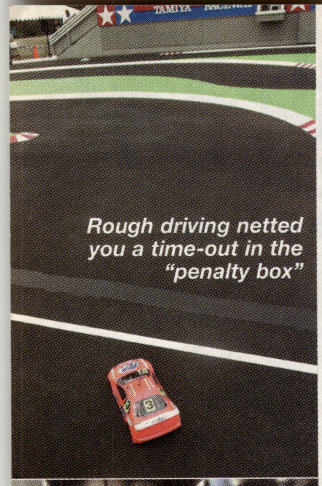
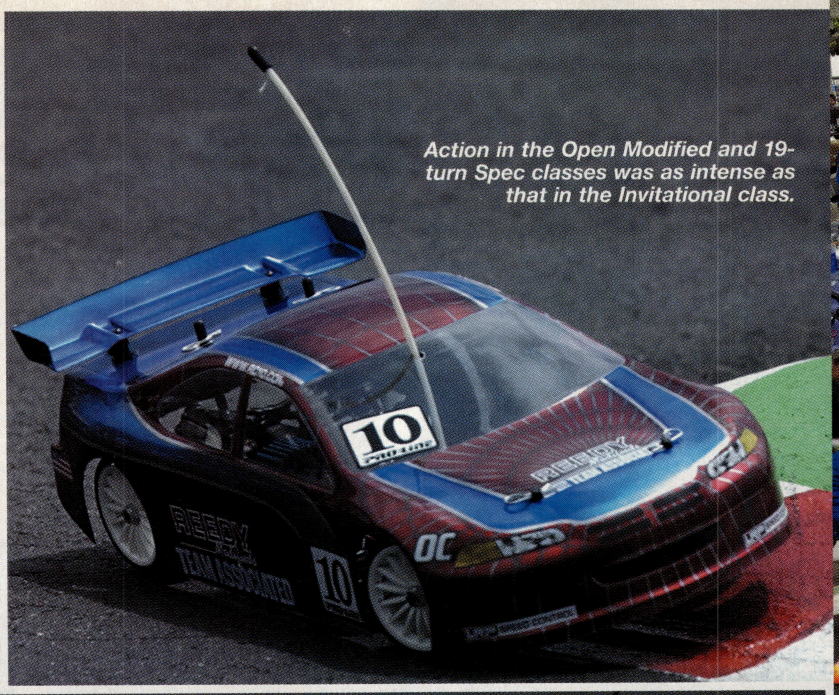
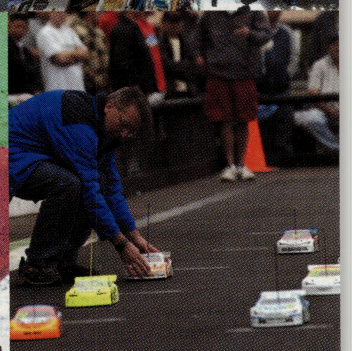


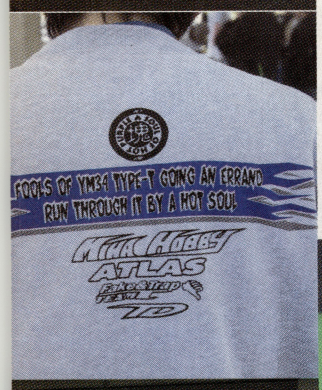
Rough driving netted you a time-out in the "penalty box"

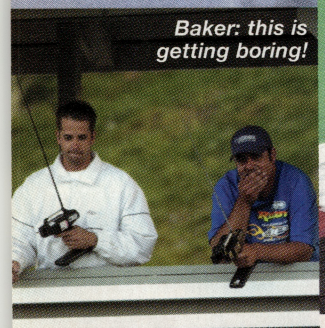


Action in the Open Modified and 19-turn Spec classes was as intense as that in the Invitational class.





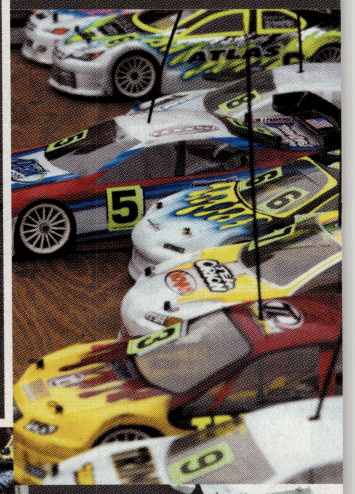


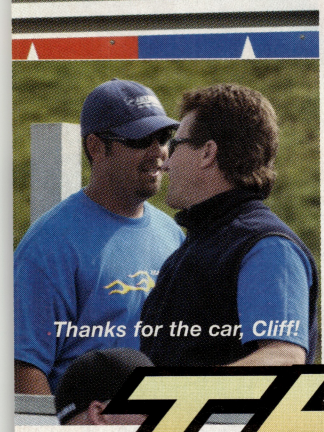


Baker: this is getting boring!

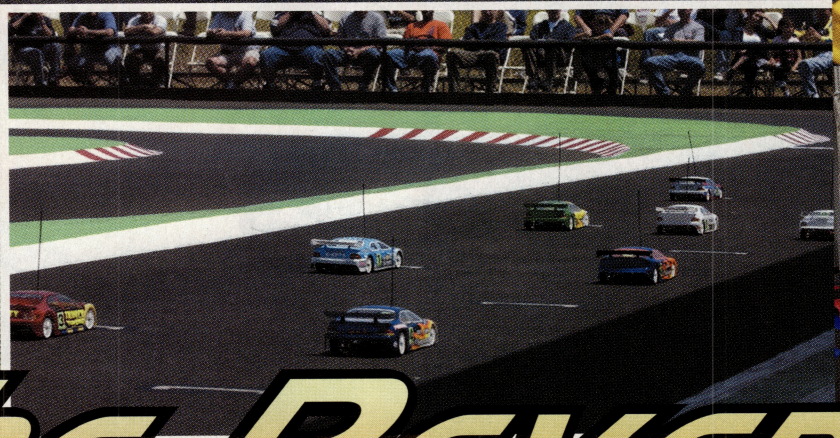


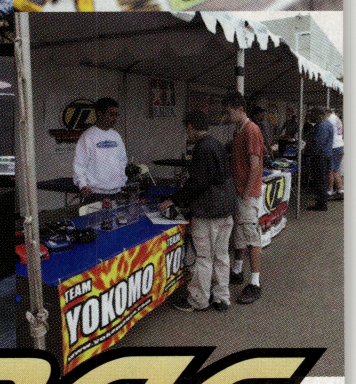
Hara chases down Yokomo's Chris Tossolini. Hara was fast, but his HPI prototype was unreliable.





Thanks for the car, Cliff!





The Revenge

The fifth annual Reedy Race of Champions

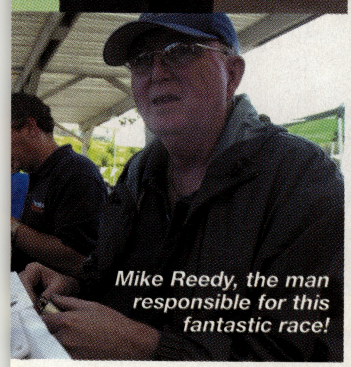
By Frank Masi Photos by Sparky

Who is Mike Reedy? His company, which is a division of Associated Electrics, makes electric motors and batteries. And to say that he's been successful in his field is to do Mike a disservice—his hardware has won more IFMAR world championship titles than every one of his competitors combined. And what is the Reedy Race? The event began about 15 years ago

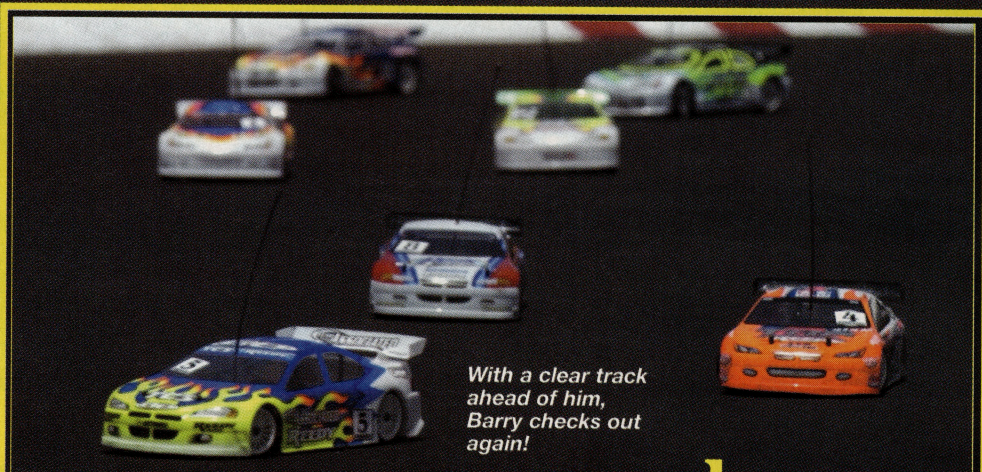


ovak's Tyree Phillips plays the ational anthem. Great job Tyree!

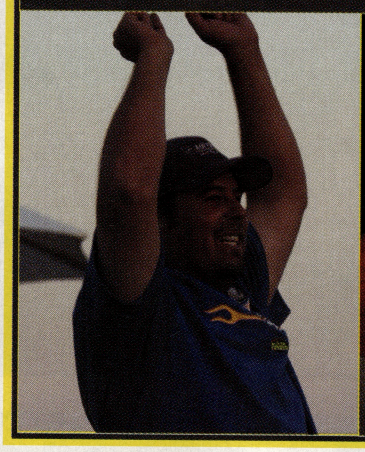




Mike Reedy, the man responsible for this fantastic race!



With a clear track ahead of him, Barry checks out again!





THE TOP TEN: OR "BARRY'S REVENGE"

1

Barry Baker

All of the Associated cars looked good, but Barry was still perhaps a notch above everyone else on the track. When Barry had a clear track, no one could catch him. Barry had the most wins, taking first in five of the eight rounds. Basically, Barry only lost if he crashed. His Reedy-powered TC3 was the class of the field.

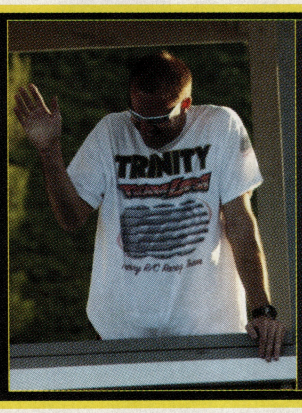
# of Barry!

as a celebration of Reedy's birthday. Mike invited the world's finest off-road racers to compete heads-up in an invitational class, with the driver who had the best combined results from both the 2WD and 4WD classes being declared the champion. So how did we end up at a race that was not only on pavement, but also not even on Reedy's birthday? The story will eventually make sense.

THE TOP TEN: OR "BARRY'S REVENGE"

Matt Francis

Matt's on-road ability came as quite a surprise even to him. The Losi cars really didn't look fully up to speed until Sunday's rounds (Matt's chant of "Where's my buggy?" was a crowd favorite), but that didn't stop Matt from picking up a win in Saturday's round two. On Sunday, the Losi guys seemed to have found their speed, and Matt was able to capitalize on this with a string of victories in rounds six, seven and eight.





2



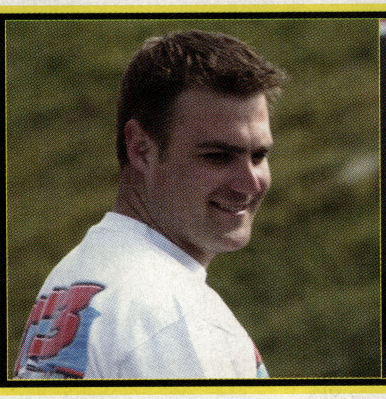
3

Mark Pavidis

Despite the incredibly close competition, there were a handful of drivers who seemed to be able to make up ground no matter how far back they were at the start. Mark Pavidis was one of them. Saturday started with Mark getting the worst of several crashes, but by the end of Sunday, his consistent top-three finishes (including three wins) secured him a place on the podium. Juggling his career at Pro-Line with his ever-growing family hasn't slowed Mark much at all, but his consistency isn't what it once was.

Craig Drescher

Next to the Naked Chef, Craig Drescher is one of Great Britain's best exports. Not only does Craig fly with an off-road car, he's equally fast behind the controls of a touring car. Early on, Craig looked to be the only man who might be able to end Barry Baker's streak, but bad luck—particularly on Sunday—dashed any hope of an overall win for the likeable Brit. Still, Craig amazed many of the SoCal locals not only with his on-track savvy, but by using a stick radio!





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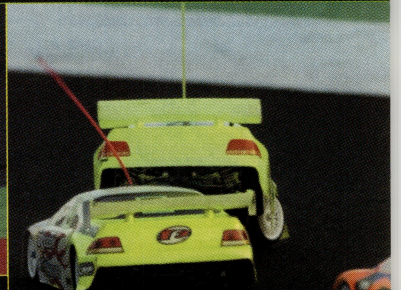
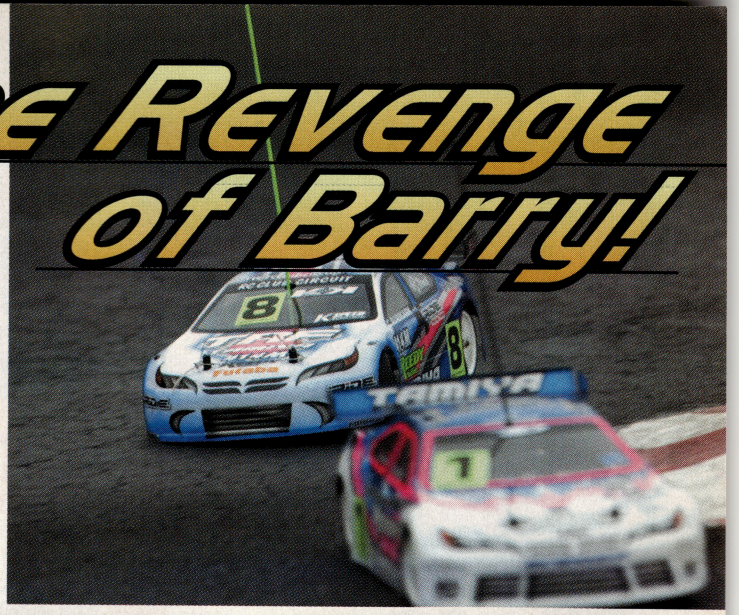


Mike Dumas

I used to race with this kid all the time back in Connecticut. Then, I had only seen Mike run off-road, where he was the local hotshot at Chris Marcy's R/C Madness in Enfield. Mike's all grown up now, and a ride on the powerhouse Associated/Reedy team has allowed him to show his stuff. Mike is a great on-road driver, and he is not a bit intimidated by anyone on the track. Expect to hear more about Mike in the future—he's definitely one to watch.

6

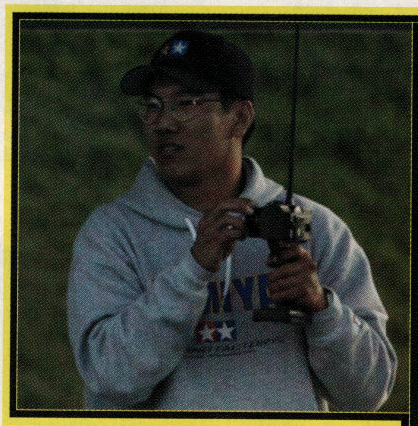
The Revenge of Barry!

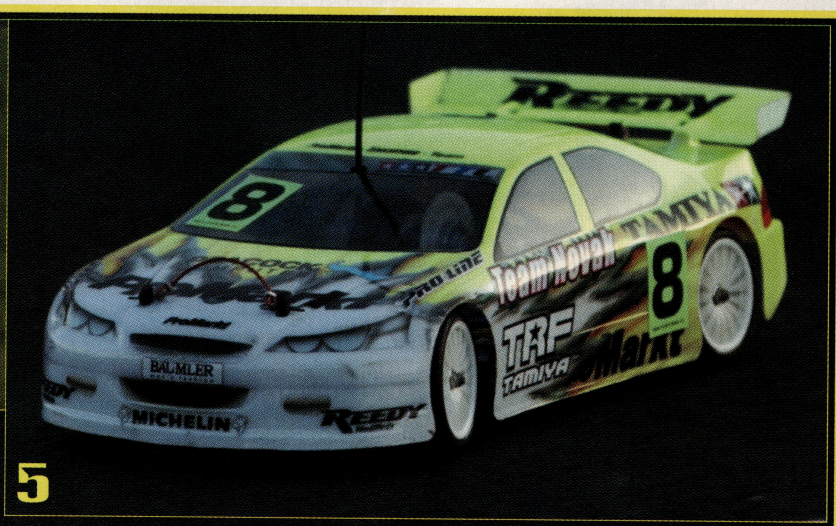


JOURNEY FROM DIRT TO PAVEMENT

The original premise of the Reedy Race was to showcase international competition, but as the interest in off-road waned overseas, fewer and fewer foreign drivers felt the urge to fly across the ocean to get whooped on the American supercross-style tracks. As a result, the Reedy Race had turned into a replay of any American off-road national. Coincidentally, the market for on-road touring cars was booming in the European and Asian markets, and substantial interest in this type of racing was also happening here in the U.S. As a result, Mike decided to hold two annual events—one for off-road and one for touring cars.

As expected, the interest in the Reedy touring car race was phenomenal, and the international attendance rivaled that of even the earliest Reedy off-road races. This was five years ago, and the reputation of the on-road Reedy Race has grown to the point that this is now considered one of the most important touring car events in the world.





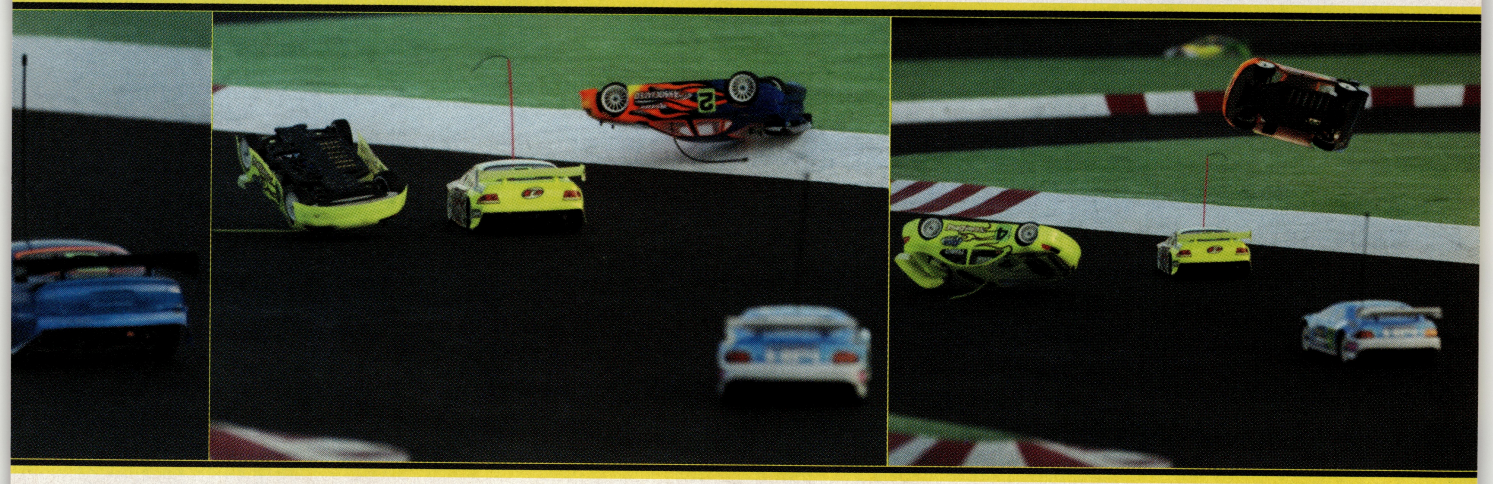
THE TOP TEN: OR "BARRY'S REVENGE"

5

David Jun

"Everyone thinks that because I work at Tamiya America, I'm always out on the track. That's totally not true!" This is the mantra of this former ROAR National Champion. No matter; Dave is always a crowd favorite at the Tamiya track, and he proved that he—and his Tamiya TRF 414MII—could hold his own against the world's best. Dave was best known at the Reedy Race for his incredible four-wheel drifts. Dave also scored one win, waiting until the last moment (round 8) to do so.





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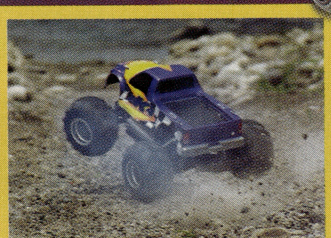





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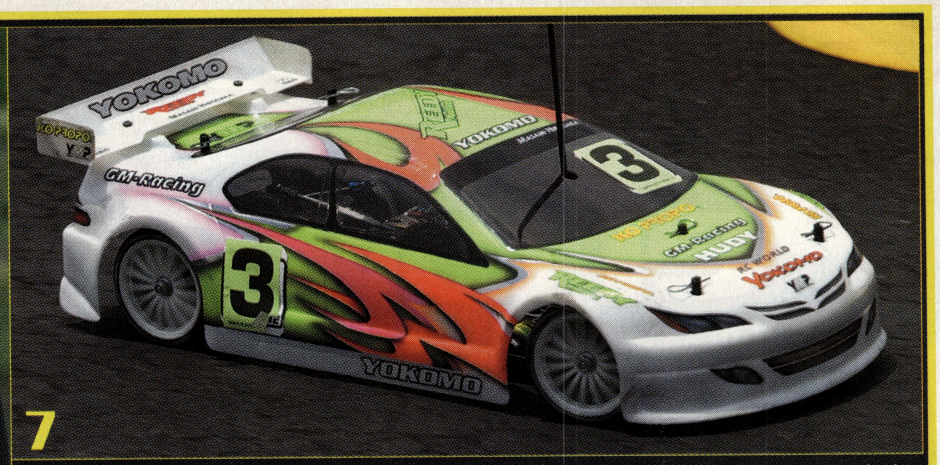


7

Masami Hirosaka

What can you say about a guy who has won the IFMAR World Championship 13 times? Masami is every team-owner's dream: he never complains if the car isn't 100 percent, and he is so talented that he can make up the difference. It was evident that the Yokomo team hadn't come to grips with the no one-way rule, as their MR-4Tcs seemed to struggle as compared with some of the other cars. Still Masami wasn't far off the pace, and with three of the event's most exciting wins, he once again showed everyone why he is a legend in R/C racing.



8



Brian Kinwald

With a nickname of The Dirtinator, one wouldn't come to this event expecting to see Brian dominate on pavement as he does on dirt. And although he didn't win any rounds, BK finished no worse than third, relying more on strategy and consistency than sheer speed. As with the rest of the Losi team, Brian didn't really show speed until the later rounds, when he seemed to have arrived at a more favorable setup.

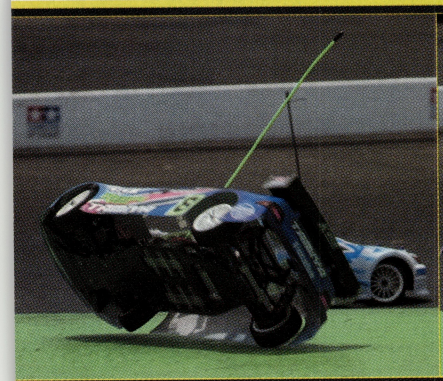
Daisuke Yoshioka

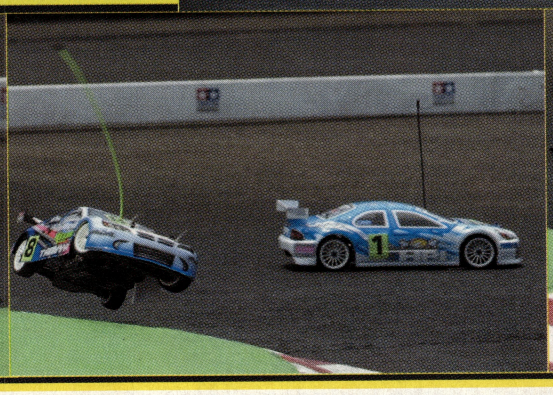
If it weren't for Atsushi Hara's string of DNFs, it's likely that Daisuke wouldn't have been the highest finishing HPI driver. But after suffering multiple front diff failures, Hara's bad luck proved to be a blessing for Daisuke, who did a good job of picking up the slack—even winning a race in round four. Like Hara and most of the HPI team, Daisuke was using the shaft-driven HPI prototype car, but with less drivetrain problems, it would seem.

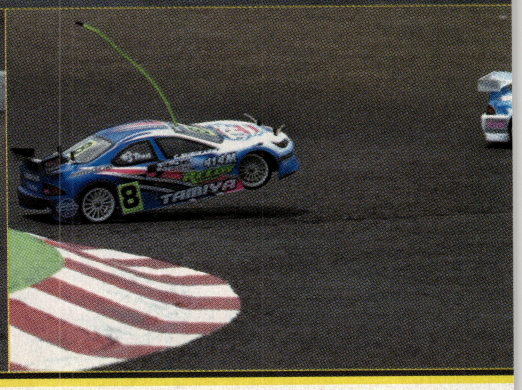


10

Daisuke (1) mixes it up with the new World Champ.







The Revenge of Barry!

THE TOP TEN: OR "BARRY'S REVENGE"



Surikarn Chaidajsuriya

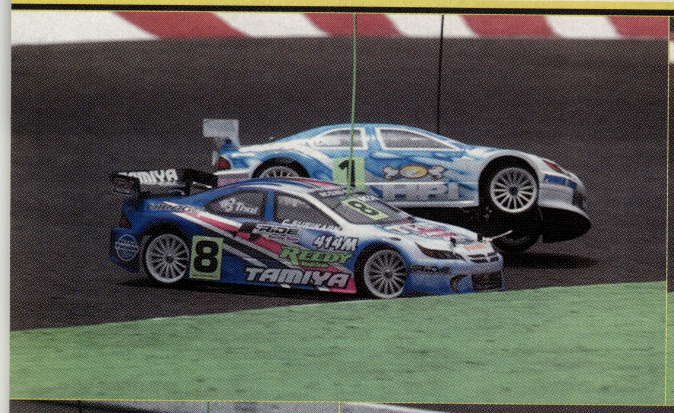
The newly crowned World Champion was plagued with DNFs on Saturday's rounds, but Surikarn would bounce back by winning three of four rounds on Sunday. Tamiya's top driver certainly had the speed, and when in the lead, Surikarn looked nearly as untouchable as Barry Baker. One thing that stands out about Surikarn is that he is unaffected by pressure. It doesn't matter who is on his tail, you can be sure that it won't be Surikarn who makes the mistake.

TOO POOPED TO RACE?

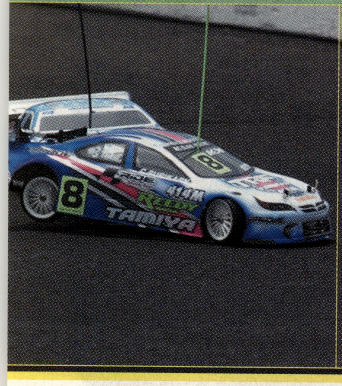
With everyone recovering from the grueling IFMAR Worlds in South Africa, which was held just a week prior, I really thought that the turnout for the Reedy would be dismal, but I couldn't have been more wrong. As trusty photographer Sparky and I strolled into the pit area at Tamiya America's awesome permanent track in Aliso Viejo, California, we were greeted by a virtual who's who of R/C talent. And not just the fast Americans, but some of the best drivers from Europe and Asia, including 13-time world champ Masami Hirosaka, former champ Atsushi Hara and Britain's Craig Drescher, of course.

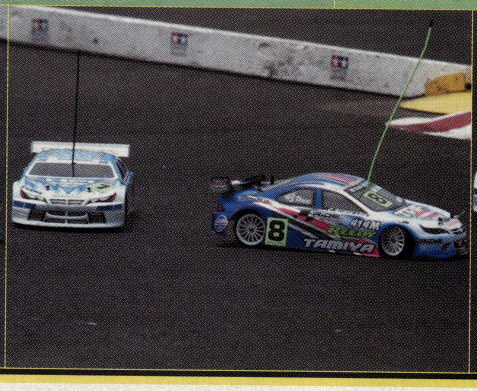


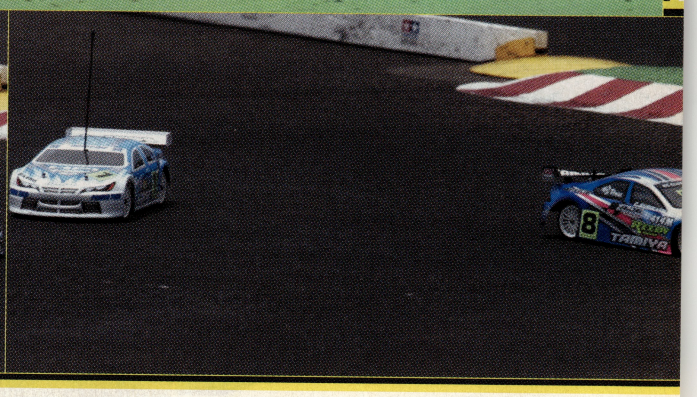
9









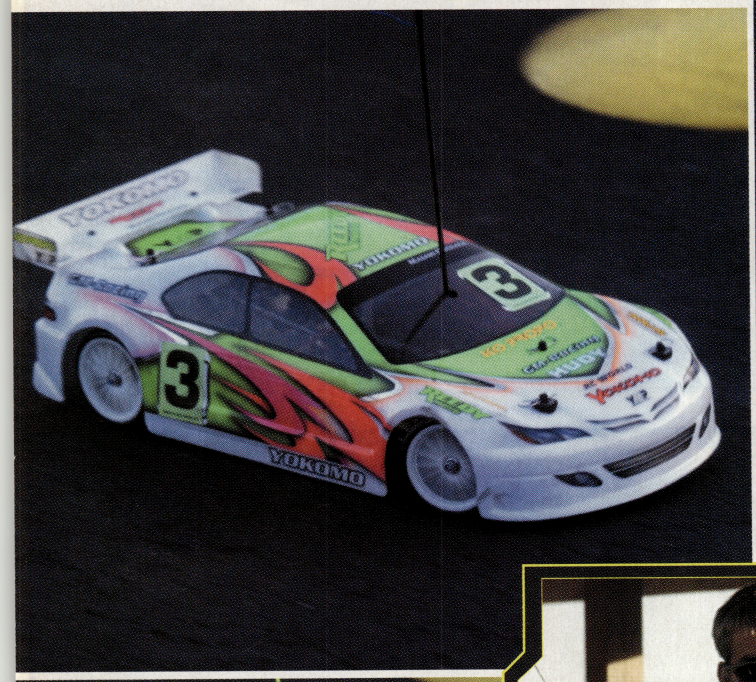


The Revenge of Barry!

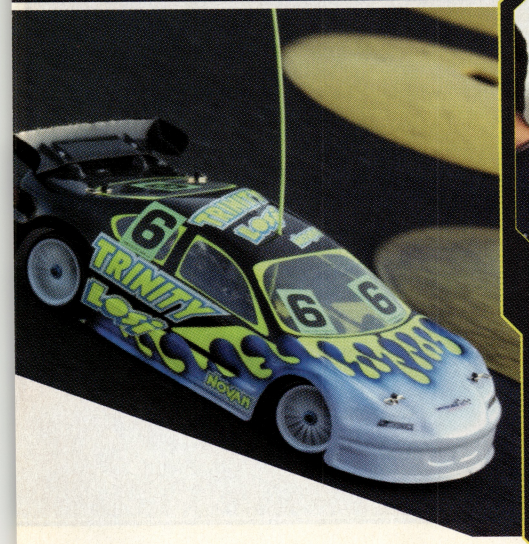


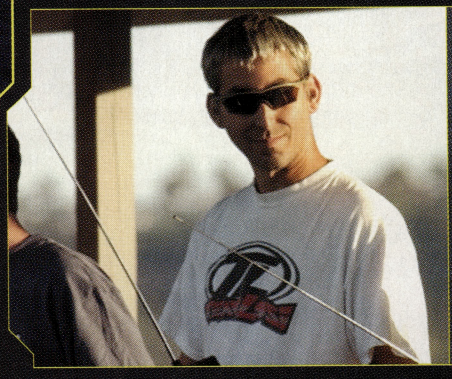
REMOVING MORE VARIABLES

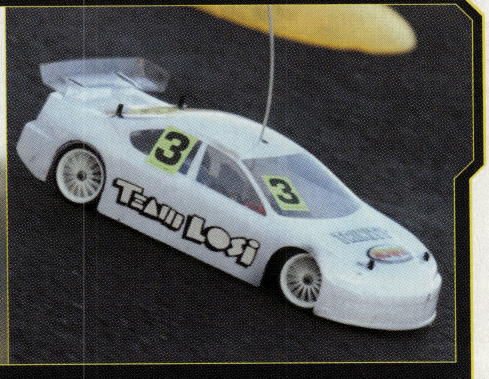
In addition to the 10-turn motor limit, the Reedy Race employed controlled tires to eliminate the tire issue. But this year, the rule was taken to the next level through the use of Take Off's CS-27 controlled tires, which come pre-glued, with inserts, on Cross white mesh wheels. Each driver was allowed four sets for the entire weekend, and the drivers whom we spoke to all agreed that the 27s worked well on the Tamiya track. If you're tired of dealing with all of the different wheels, tires and inserts that are available, you can purchase the Take Off controlled tires in various compounds (ranging from 22 through 32) through Schumacher USA. Call them at (813) 889-9691.











JUNIOR'S RETURN TO RACING

Those of you new to the hobby might only know of Gil Losi Jr. as the man who designed such vehicles as the Triple-X buggy and XXX-S sedan. But did you know that Junior was, at one time, one of the fastest R/C racers in the world? In fact, not only was Junior a threat in whichever class he ran (both on- and off-road), but he was the first IFMAR off-road champ in the modified class. The Reedy Race marked Junior's unofficial return to the racing scene - in other words, he felt like racing again; we have no idea when the mood will strike him next. And despite his lengthy hiatus, Junior looked pretty competitive in the Open Modified class, in which he qualified fourth and finished in eighth overall - antenna shaking and all.

WHEN MORE RESTRICTIONS ARE A GOOD THING

This year, Mike Reedy decided to prohibit the use of one-ways, which are often the source of "accidents" and pileups. When a car is equipped with a front one-way, it cannot brake, so therefore, the driver has little choice but to slam into the car in front of him when things get tight. By prohibiting one-ways, Reedy ensured that the racing would be clean, and tight! And the results were beyond anyone's expectations; we got to witness some of the closest racing the sport has ever seen. Drivers had to plan far in advance - often several laps ahead of time - just to make a pass on a rival. You could see the racers set up the car in front for a pass, only to slam on the brakes as that driver successfully slammed the door! With one-ways, usually the only "slamming" that occurs is when the guy behind you takes out the side of your car!

The no one-way rule affected some teams more than others. It was evident - especially in the early going - that some teams had done their homework with the new setup, while other teams were at a distinct disadvantage. Team Associated seemed to have arrived at the track with the best setup, as their cars looked the fastest early in the race. We spoke to Cliff Lett, Associated's chief designer, about the setup his team was using. He said that they were running locked front diffs, which not only provided even more braking force than with a normal front diff, but that the "posi-traction" of this setup would also prevent the car from flipping or slowing when it went up on the Tamiya track's steep curbing. Other teams had also adopted the locked front-diff setup, but with varying levels of success. Former world champ Atsushi Hara was plagued with DNFs thanks to broken front diff parts. Otherwise, he was fast enough to have easily cracked the top 5, if not higher.

The cars may not have been as fast as they would have been if one-ways had been allowed, but the fans and spectators certainly didn't care. Mike Reedy's one-way ban created the closest, and cleanest, racing any of us have ever seen, and allowed the world's best drivers to really show us what they can do.



INVITATIONAL

Fin	Pts	Driver	Chassis	Motor	Battery	ESC	Body	Radio
1	8	Barry Baker	TC3	Reedy	Reedy	LRP	ProtoForm	Airtronics
2	8	Matt Francis	XXX-S	Trinity	Trinity	LRP	Trinity	Airtronics
3	10	Mark Pavidis	TC3	Reedy	Reedy	LRP	ProtoForm	Airtronics
4	10	Craig Drescher	TC3	Reedy	Reedy	LRP	ProtoForm	KO Propo
5	13	David Jun	414MII	Reedy	Reedy	Novak	ProtoForm	Futaba
6	13	Mike Dumas	TC3	Reedy	Reedy	LRP	ProtoForm	JR Racing
7	14	Masami Hirosaka	MR-4TC Pro	Reedy	Reedy	GM Racing	Yokomo	KO Propo
8	14	Brian Kinwald	XXX-S	Trinity	Trinity	Novak	Trinity	Airtronics
9	15	Surikarn Chaidajsuriya	414MII	Reedy	Reedy	Futaba	ProtoForm	Futaba
10	16	Daisuke Yoshioka	HPI Prototype	LRP	LRP	LRP	ProtoForm	Sanwa/Airt.

19-TURN SPEC

Fin	Qual	Driver	Chassis	Motor	Battery	ESC	Body	Radio
1	1	Josh Anderson	TC3	Handout	Reedy	LRP	ProtoForm	Airtronics
2	3	Josh Numan	TC3	Handout	Reedy	Novak	ProtoForm	Airtronics
3	10	Pat Thavomthon	TC3	Handout	Integy	Novak	ProtoForm	Sanwa/Airt.
4	5	Timmy Heiser	Mission	Handout	Reedy	Novak	ProtoForm	KO Propo
5	8	Patrick See	Xray T1	Handout	Pro Match	Novak	N/A	Airtronics
6	6	Davide Zorn	TC3	Handout	TeamOrion	Novak	ProtoForm	Airtronics
7	7	Alex Siemantel	MR-4TC Pro	Handout	Pro Match	LRP	Yokomo	Airtronics
8	9	Taylor Jacks	TC3	Handout	Trinity	Novak	ProtoForm	Airtronics
9	4	Glen Gregorio	TC3	Handout	Trinity	Novak	ProtoForm	Futaba
10	2	Charlie Suangka	MR-4TC Pro	Handout	Peak	Novak	ProtoForm	Futaba

OPEN MODIFIED

Fin	Qual	Driver	Chassis	Motor	Battery	ESC	Body	Radio
1	1	Andrew Swanson	TC3	Reedy	Reedy	LRP	ProtoForm	Airtronics
2	5	Eric Desrosiers	TC3	Reedy	Reedy	Novak	ProtoForm	Airtronics
3	6	Tony Phalen	TC3	Reedy	Reedy	LRP	ProtoForm	Airtronics
4	7	Thad Garner	HPI Prototype	Reedy	Reedy	LRP	Yokomo	Airtronics
5	10	Derek Furutani	XXX-S	Peak	Peak	Novak	ProtoForm	Airtronics
6	2	Andrew Cartwright	Mission	Fanton	Kinetix	Novak	ProtoForm	Airtronics
7	8	Jeff Brown	TC3	Reedy	Reedy	Novak	N/A	Futaba
8	4	Gil Losi Jr.	XXX-S	Trinity	Trinity	Novak	ProtoForm	JR Racing
9	3	Ryan Cavalieri	XXX-S	Team Orion	Team Orion	Novak	Yokomo	Airtronics
10	9	Mark Garvey	XXX-S	Trinity	Trinity	Novak	ProtoForm	Airtronics

ROCKET to

Team Losi sweeps ROAR Modified Nationals again, setting the top qualifying times in all three classes and then racing away with 1st-2nd-3rd place finishes in every class! (In fact, there were only three of the thirty A-main finalists that weren't driving Team Losi chassis!) And that's on top of winning both 2002 IFMAR World's Off-Road Championships!

Team Losi at the 2002 ROAR Modified Nationals

Modified 2 Wheel Drive: TQ; Greg Hodapp, Winner; Brian Kinwald
Modified Truck: TQ & Winner; Dave Montgomery
Modified 4 Wheel Drive: TQ; Greg Hodapp, Winner; Brian Kinwald





It's the fourth year in a row that Team Losi has won every off-road modified national championship and, the first time a company has ever won both off-road world championships at the same event. If you want the same winning performance, you've come to the right place.

The **XXX-T Matt Francis Edition** is a sizzling, high-tech version of Matt's own championship-winning truck. The race truck to reckon with, the XXX-T provides less chassis flex, a stronger suspension, a "Fury" truck body with Francis special edition decals, and the hottest hop-ups around. The **XXX Kinwald Edition Buggy** is essentially the same car that Brian races in competition and using only the highest-caliber components, it's the most advanced yet user-friendly 2WD car Losi has ever produced. And of course, the **XX-4 Worlds Edition Buggy** is legendary for its trophy-winning performance, durability and ease of maintenance.

XXX-T MATT FRANCIS EDITION		List	Our Price
LOSA0075	XXX-T Graphite Francis Edition	399.99	249.99
XXX BRIAN KINWALD EDITION			
LOSA0029	XXX Graphite Kinwald Edition	399.95	239.95
RECOMMENDED MOTORS & SPEED CONTROLS FOR XXX-T & XXX:			
TRID4110T	D4 10T Single (Modified)	95.00	59.99
DYN4900	Power Pulse ESC w/Rev (Stock Motors)	89.95	59.95
NOV1775	Cyclone C2 ESC	249.00	169.99
GMM2846	V12XC World Champs Edition ESC	249.99	159.99
XX-4WD WORLDS EDITION			
LOSA0011	XX-4WD Worlds Edition	499.95	299.95
RECOMMENDED MOTORS & SPEED CONTROLS FOR XX-4:			
ASC419	Reedy Fury 9T Triple	95.00	59.99
TRID4HVS9	D4 9T Split Wind Double Hi-Torque	95.00	59.99
NOV1775	Cyclone C2 ESC	249.00	169.99
GMM2846	V12XC World Champs Edition ESC	249.99	159.99
RECOMMENDED PINION GEARS FOR XX-4:			
LOS4126	26T 48-Pitch Pinion Gear (Stock Motor)		2.75
LOS4120	20T 48-Pitch Pinion Gear (Modified Motor)		2.75

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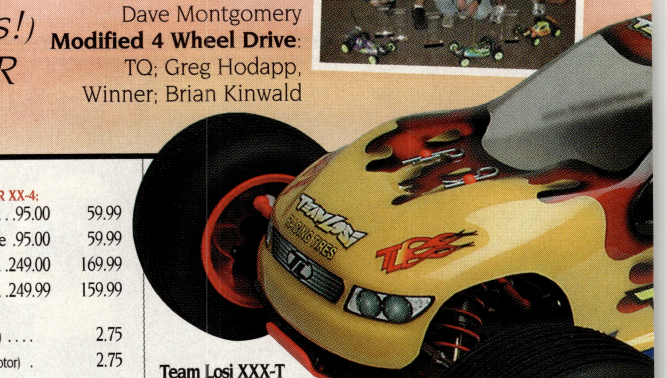
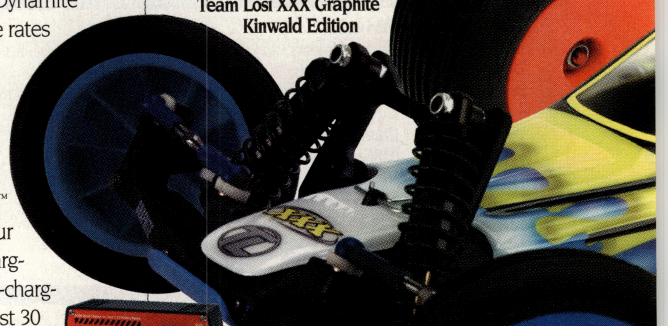
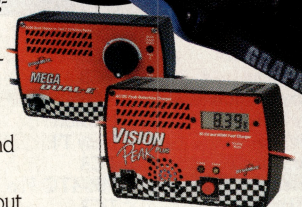


Team Losi XXX-T Graphite Francis Edition



Team Losi XXX Graphite Kinwald Edition



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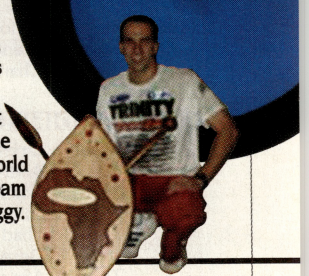

Congratulations to Matt Francis, who captured the 2002 IFMAR 2WD World Championship with a Team Losi XXX Buggy.

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VICTORY





Team Losi XX-4 Worlds Edition

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JR RADIOS

		List	Our Price
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		List	Our Price
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The best brands in the business.

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Solve Your Handling Woes—Electronically!

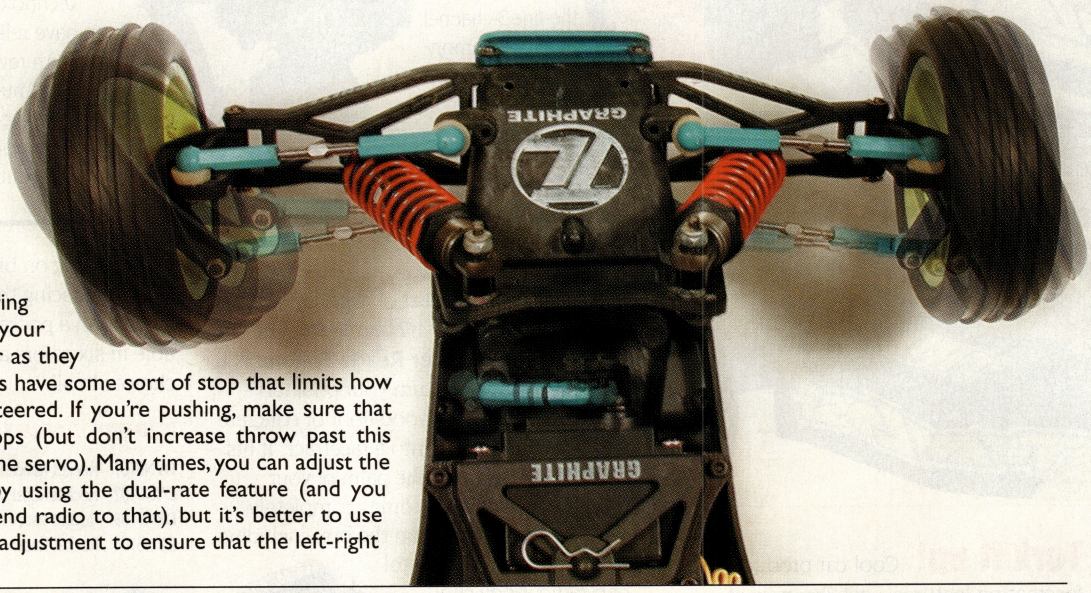
Tune by wire!

There are many reasons why people buy higher-end radios. Some like them for their improved signal strength and reliability. Some buy them because they can be used with many different models. And there are a few people out there who buy high-end radios just to keep up with the Joneses! But there is far more to these electronic marvels than just strong signals and good looks; they can be invaluable in the tuning equation.

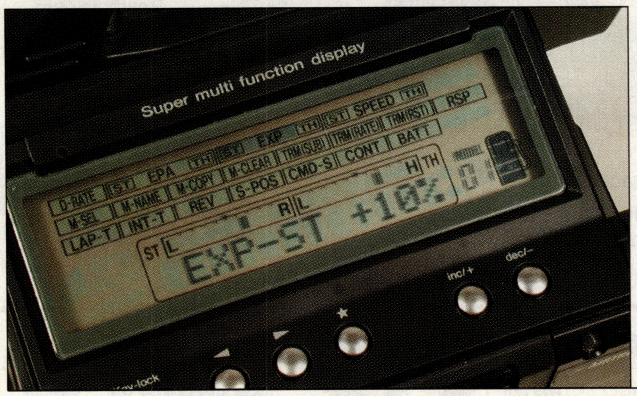
Unfortunately, most of us overlook this one crucial element when tuning our cars - especially when our cars aren't working all that well! We'll often tear apart the chassis, buy new tires and pull-out our hair before we even give our radios any thought beyond whether or not they're charged. In this article, we'll show you some simple steps that you can use to improve your car's handling - without ever having to leave the drivers' stand!

IF YOUR CAR IS PUSHING...

"Push" is just another name for understeer, which means that when you turn the wheel, your car doesn't steer as tightly as you'd like. Sure, this can often mean that you are entering the turns with too much speed, in which case slowing down a bit could give you that extra steering, but there are a couple of easy fixes that you can make using your computer radio.



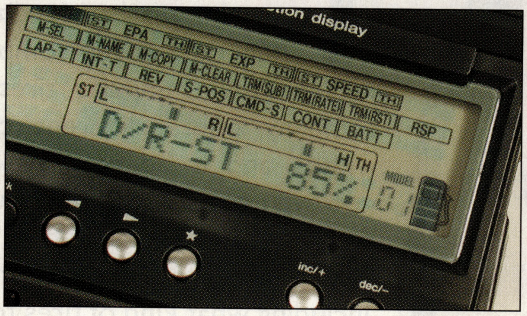
■ Increase the steering throw. Check that your wheels are turning as far as they can. Most cars and trucks have some sort of stop that limits how far the wheels can be steered. If you're pushing, make sure that your wheels hit the stops (but don't increase throw past this point, as this can strain the servo). Many times, you can adjust the steering throw simply by using the dual-rate feature (and you don't even need a high-end radio to that), but it's better to use your steering end-point-adjustment to ensure that the left-right travel is equal.



■ Speed up the exponential. A common misconception is that exponential, or "curve," actually changes the speed of the servo. This is a false assumption. What exponential does do, however, is allow you to increase the steering throw in relation to how far you actually turn the steering wheel. Although the speed and total travel of the servo remain unaffected, dialing in a little positive steering exponential can make your car feel as if it has a quicker servo in it.

IF YOUR CAR SPINS OUT WHEN ENTERING TURNS...

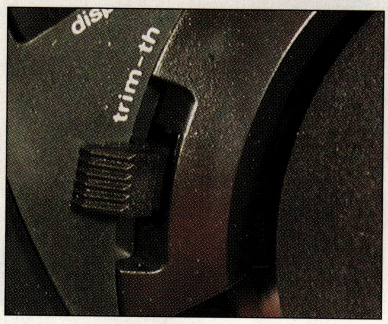
There are few things as irritating as a car that spins out when you let off the gas. Most of the time, this can be caused by drag in the drivetrain that transfers too much weight to the front wheels. Here are some things you can do to reduce the loops.



■ Use that dual-rate thing again. Assuming that you've already set your car's steering end-point-adjustment so that the wheels steer equally in both directions, you can use the dual-rate feature to dial-in just the right amount of steering throw - and dial-out oversteer. Since most radios have dual-rate adjustments that you can use while driving (such as a thumbwheel on the radio's grip), you can reduce the dual-rate bit-by-bit until your car ceases to be a whirling dervish!

■ Slow down the steering. Set the steering exponential feature to a negative value to slow the initial reaction of the servo. Often, this can be used to tame a hyperactive car.

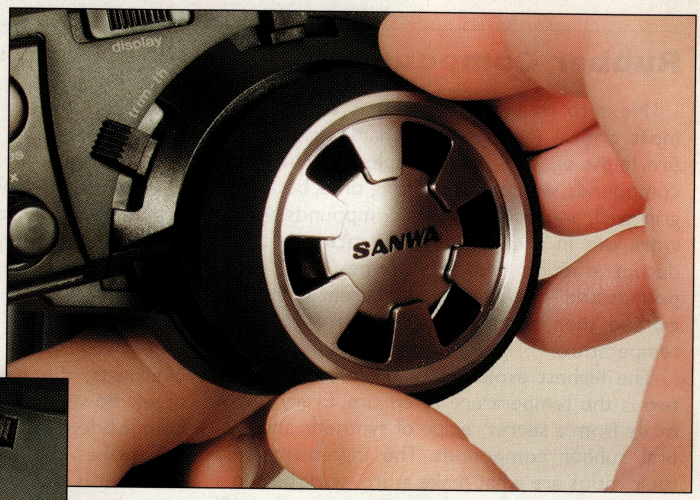
■ Get rid of drag brakes. If your car has even the slightest amount of drag braking, this can cause it to spin out when it enters a turn. And this can affect both nitro and electric cars, but especially electric cars that have stock motors, as the increased timing of these motors creates significant drag when off-power. To remedy this, use your radio's throttle trim to set an amount of coast that prohibits the motor or brakes from slowing the car too harshly off-power. With stock motors, you may actually have to set the trim so that the wheels will spin forward when the throttle is at neutral; so just hold the brakes until you're ready to run.



IF YOUR CAR SPINS OUT WHEN ENTERING TURNS...

How can you use all that horsepower if you can't even get on the gas out of the turns? Try these radio settings to see if you can't lay down more power.

■ Reduce the throttle exponential. As with steering, the exponential function can also be used to mellow-out the feel of the throttle - especially when you're using a modified electric motor or a powerful nitro engine on a slippery surface. By changing the exponential to a negative value, you'll find that you'll be able to control the power with more finesse, which will translate into more traction, faster lap times, less tire wear and no more spinouts.



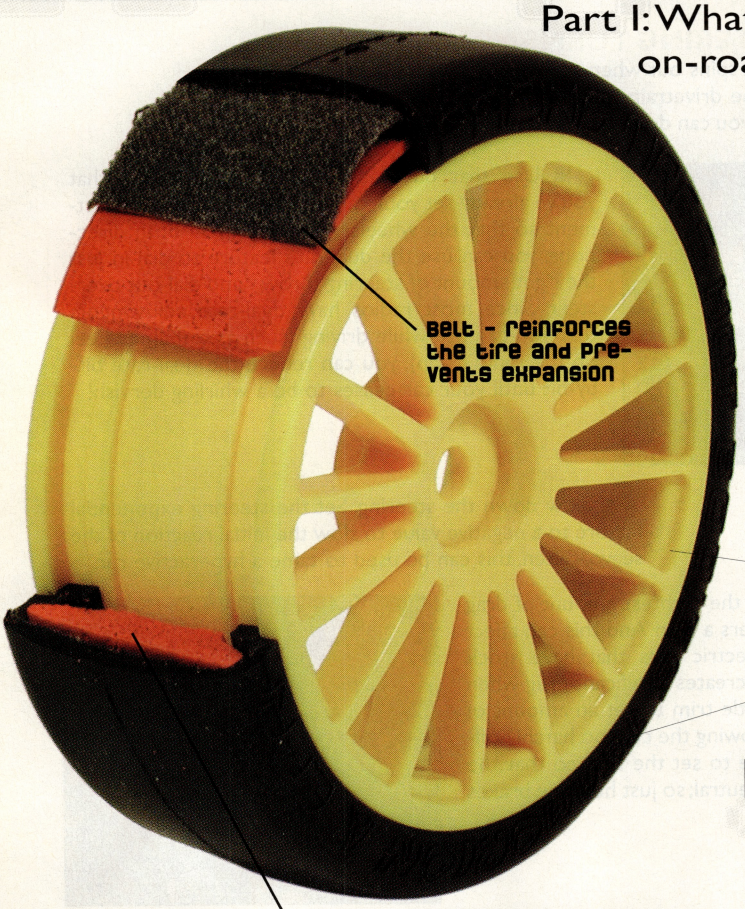


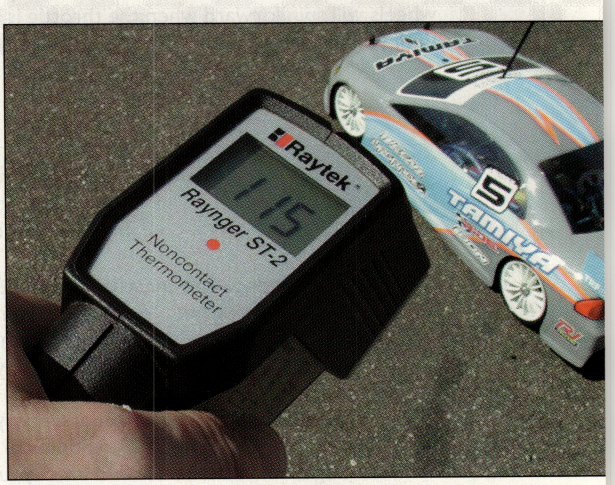
■ Reduce steering travel. One of the causes of oversteer when exiting turns is too much steering throw. As before, reduce the travel of the steering servo by using the radio's dual-rate function.

THE MYSTERIES

Part I: What you need to know about on-road wheels, tires and inserts

The sheer amount of tires available on the market is dizzying. Not only do a dozen companies or so sell the most popular tires, but each company offers different compounds, widths, and tread patterns—and that's not even getting into the issues of belts and inserts. Our goal here is to distill all the important information for you, including what kind of tires to use when, and what all the buzz words mean.





Nitro racers aren't the only ones who can make use of a infrared temp gun. Knowing how hot the track is will tell you which tire to use.

Rubber Compounds

Next to tread pattern, this is arguably the most critical (and argued) characteristic of a tire. In the old days it was simple—you had hard compounds, which lasted a long time, but didn't grip well, and you had soft compounds, which wore out in a day's worth of racing, but had decent traction. But then came "pro" compounds, and "one-runs," and different thicknesses, and then compounds that were rated by temperature.

The highest evolution of the modern sedan tire is the temperature rated tire. Every tire is made from a secret recipe of synthetic and natural rubber compounds. The ingredients and their ratios are what make a tire work best in a specific temperature range. For example, HPI makes different tire compounds for use with track temperatures of 32-59, 50-86, 68-95, 77-150 and 104-158 degrees Fahrenheit (and you never thought a temp gun would come in handy for electric). Matching the compound to the temperature is the key starting point in determining a good tire setup. If the tire you are using is too cool for the track temperature—say, using a 60-degree tire on a hot summer day—the tires may work well for one lap, then they will overheat and lose traction.

According to Team Sorex USA's Billy Bowerman, when the tire overheats, the materials in the tire start to break down, and some of the oils in the tire composition get released to the surface, and this makes the tire slippery. Another way to look at it is that overheated tires seems to sort of "melt away," making them wear faster and feel like they have lost traction. Tire compound choice can be critical in all-day races, especially in the late afternoon as shadows start to cover the track. We've been to many championship races where "chasing the compound" was just as critical as the rest of the car setup.

Choices: Use the tire manufacturer's temperature ratings as a starting point, then ask other racers or the track director what compounds work best. Experimenting one compound in either direction is a good idea, but can get expensive, since the tires are the most expensive part of the wheels/tires/inserts triangle. So try to do as much research as possible before hitting the track.

OF TRACTION



Slick tires (left) are for when the surface is clean and dry. On dusty, bumpy or wet surfaces, a treaded tire works best.

Tread Patterns

Simply put, there are two kinds of tires: non-treaded and treaded. Non-treaded tires, more commonly known as "slicks," have a smooth shape all around and are best used on prepared (swept or blown with traction additive on the track surface) or semi-prepared (swept or blown) tracks.

Treaded tires come in a variety of patterns. Some tread patterns are copied from successful full-size tires, such as HPI's venerable X-Patterns and their newer Advan tires, which are "scale" copies of Yokohama performance street tires.

The treads on, well, treaded tires are designed to enhance traction in two ways. First, like full size tires, the treads are designed to allow a channel for dust, small rocks, and even water to sift through, allowing the remaining contact patch to be on a "clean" surface. Second, on treads with a finer pattern, like Pro-Line Road Rage tires, the tread blocks conform to and grip the irregular track surface, like rough asphalt. But on a clean track, slicks have a larger contact patch than treads, which can feel "squirmy" on high-bite surfaces.

Choices: Prepped tracks—use slicks or shallow treads, like Advans or Furys; on dusty parking lots—use deeper treads like X-Patterns or Pit Shimizu treads; on really dusty parking lots—try Sedan Hawgs or HPI Super Radials.

What About Belts?

Belted tires came about as tire compounds started to get softer and softer. An inner belt, typically made from woven cloth, serves two functions: first, it prevents the tire from ballooning up, or increasing diameter, due to centrifugal force; second, when the load of a tire is placed across the face of the contact patch, like during hard cornering, the belt serves to even the forces and prevent the tire from laterally deforming in the turn.

Choices: In general, nitro cars should always use belted tires. This is because of the higher wheel rpm achieved compared to electrics, and the increased weight of nitro cars, which creates a much greater side load on the tires during cornering. On electric cars, and nitro cars used on small tracks without long straights, non-belted tires are preferred. Another benefit is that non-belted tires are slightly lighter than belted tires, which is especially important in the stock classes.



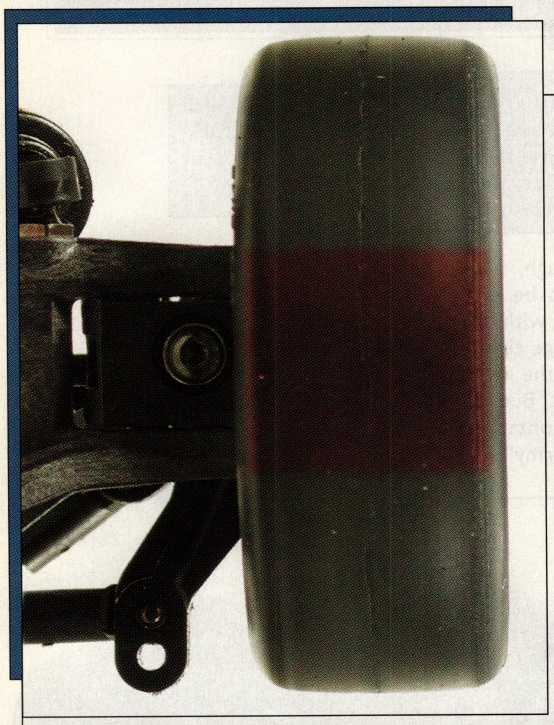
Belted tires (left) are best for high-rpm conditions or for use with softer rubber compounds. Beltless tires (right) can still perform better under certain conditions.

THE MYSTERIES

Tire Widths

In the beginning there was 26mm and 31mm tires—standard and wide. Then came 22mm and 21mm (super-narrow and sub-super-narrow), which soon disappeared. Then 24mm popped up—dubbed mid-narrow—and a few more sizes here and there. Now that the dust has settled (we think), we are left with 24mm and 26mm as the standard sizes for sedan rubbers. For electric sedans, 24mm has been an ideal choice—they have less weight (and rotating mass) than the wider tires, lower rolling resistance, but they're not so narrow that they lose their side bite unexpectedly. Plus, it seems that all the newer and better compounds are coming out in 24mm, which alone is a reason to go to that size. But there are plenty of popular 26mm tires around for those who won't give them up (like us; sometimes, anyway).

Choices: If you run electric, use 24mm—no question. For our nitro cars, we prefer the wider contact patch of the 26mm tire. They break traction more progressively (which gives us a bit of a warning when we're "on the edge" or "being stupid"), and handle the high cornering forces of a heavy nitro car better. But that doesn't mean that there aren't plenty of good mid-narrow tires suited for nitro racing. In particular, we've seen good success with HPI, Pit Shimizu, and Sorex 24mm tires on our sedans.



At any given moment, all that's connecting your car to the road is a little area known as the contact patch (shown in red).

Contact Patch, Deformation & Rolling Resistance

The contact patch is the portion of the tire that remains in contact with the road. If we have two tires of the same compound, but with different sized contact patches, the one with the contact patch that covers more area will have more traction. There are a few factors that determine the contact patch of a static tire, including tire width, tread pattern, insert shape, and insert compound or air gap; when a tire is rolling, other factors include deformation, tire compound, and whether an inner belt is used.

Deformation is how much the shape of the tire changes during rotation. Usually, the highest amount of deformation takes place just in front of the contact patch, where the rubber bunches up, and just behind the contact patch, where the rubber is stretched. Deformation can also be caused by the "ballooning" effect of a tire at high speeds, and by the side loading of a tire during hard cornering.

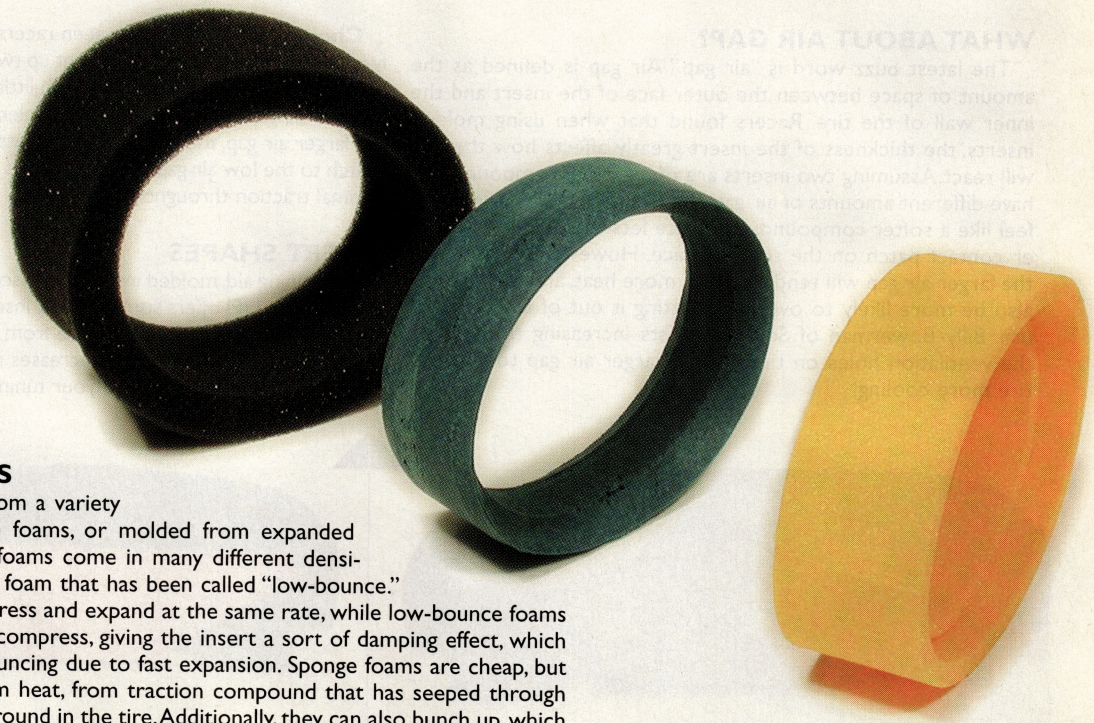
Rolling resistance is the amount of energy required to keep a tire rolling on a given surface. A tire with a lower rolling resistance will want to keep rolling longer, which means that less horsepower is needed to get it moving. The amount of rolling resistance a tire has is related to the contact patch, tread pattern, and compound of a tire. A slick tire will always have a lower rolling resistance than a treaded tire because the treads serve to conform to the irregularities of the track's surface. But a narrower tire will have an even lower rolling resistance, which is useful in the rain racing that goes on in Europe (remember the 21mm super-narrow tires?).

How do you use this knowledge? Just know that, as with life, moderation is the key. Too much of a contact patch, and the car won't want to turn; too little and the slightest tap from another car will cause a spin. Too little tire deformation and the rubber won't grab the road; too much and the tire will wander around and not track straight. Too little rolling resistance and the car will break traction violently, instead of in a controlled manner, when the limits of adhesion are reached; too much rolling resistance and the car will be using more energy pulling the tires off the road than propelling itself forward. Fortunately, most of the guesswork has been done by the manufacturers and their teams—that's their job. But don't go trying a super hard insert with a super soft tire thinking that the effects will balance each other.

Inserts

Since our sedan tires are semi-pneumatic, we need to run inserts placed between the carcass of the tire and the wheel to help the tire keep its shape when supporting the weight of the car. Since molded inserts came on the scene a few years ago, old-fashioned open-cell sponge foam inserts have pretty much become obsolete. There are many benefits to the new molded tire inserts; they are reusable (saving money in the long run), they can be made from many different kinds of foam rubber for different hardnesses, and they can be manufactured in different shapes for tuning. But they do add another layer of complexity to the ever-changing tire game.

OF TRACTION



INSERT MATERIALS

Inserts can be made from a variety of open-cell (sponge-like) foams, or molded from expanded closed-cell foam. Sponge foams come in many different densities, and include a type of foam that has been called "low-bounce." The standard foams compress and expand at the same rate, while low-bounce foams expand slower than they compress, giving the insert a sort of damping effect, which prevents the tire from bouncing due to fast expansion. Sponge foams are cheap, but they can break down from heat, from traction compound that has seeped through the tire, or from moving around in the tire. Additionally, they can also bunch up, which will give the effect of an unbalanced tire.



THE MYSTERIES

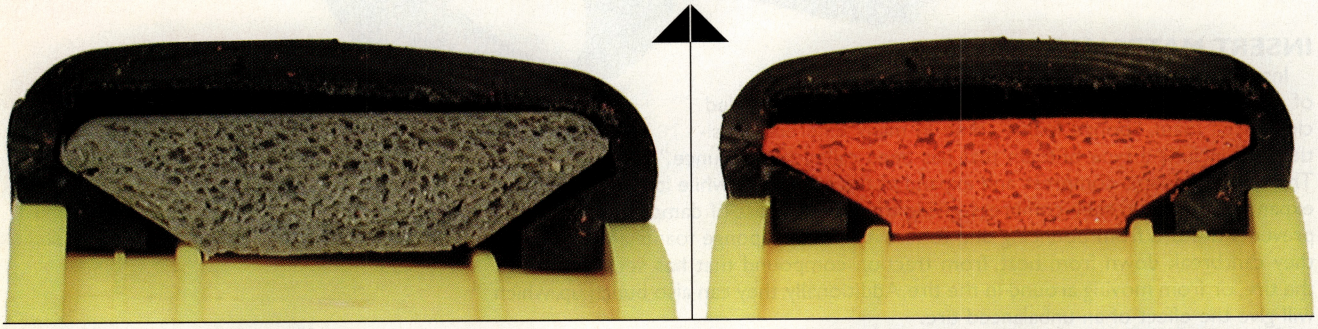
WHAT ABOUT AIR GAP?

The latest buzz word is "air gap." Air gap is defined as the amount of space between the outer face of the insert and the inner wall of the tire. Racers found that when using molded inserts, the thickness of the insert greatly affects how the tire will react. Assuming two inserts are of the same compound, but have different amounts of air gap, the tire with more air gap will feel like a softer compound; the space lets the tire have a larger contact patch on the track surface. However, the tire with the larger air gap will tend to retain more heat, and the tire will also be more likely to overheat, putting it out of the range of use. Billy Bowerman of Sorex suggests increasing the size on the ventilation holes on tires with a larger air gap to give the tire more cooling.

Choices: One thing we've seen racers do successfully, especially in control tire situations, is mount up two sets of tires of a known "good" compound, with one set with little air gap and one set with a larger air gap. When the track is cooler, they'll use the tires with the larger air gap, then, as the track heats up during the day, they'll switch to the low air gap tires. Doing this keeps the car set up with optimal traction throughout the event.

INSERT SHAPES

As a tuning aid, molded inserts can also come in different shapes. For example, HPI offers some of their inserts with a rounded shape to raise the outer edges of the tire from the ground. This decreases the contact patch, but also decreases rolling resistance, if that is what you are looking to do in your tuning exercises.

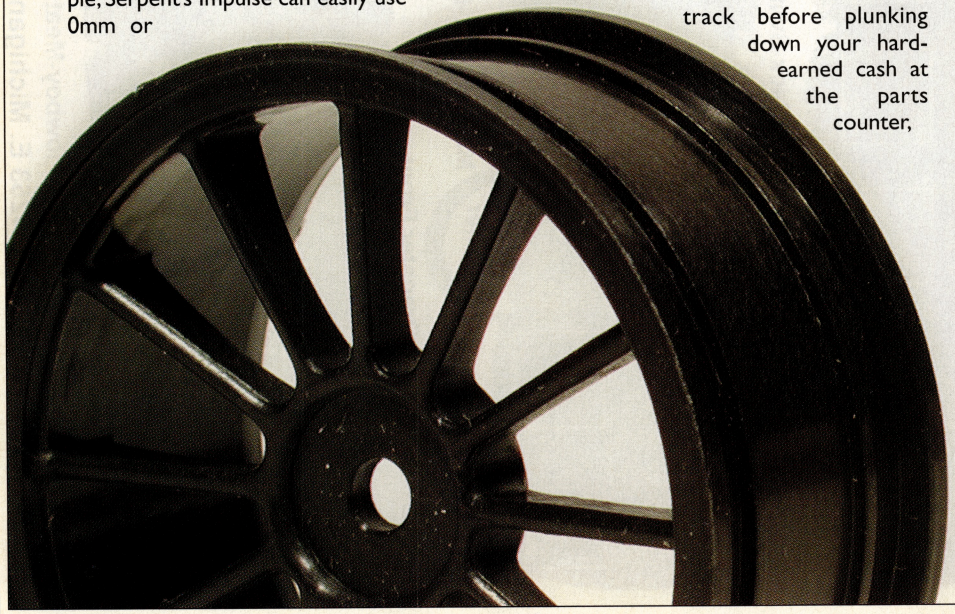


This molded insert fills up almost the entire inner area of the tire. This is a good setup for when it's hot.

This low-profile molded insert creates an air gap between the tire and insert that "fools" the tire into thinking that it has a softer insert.

Wheels

There are many more choices of wheel styles now than we would care to count. It seems that every week manufacturers are releasing new rims to let you shoe your ride in style. But how do you wisely choose a wheel? First, it should match the offset that the car was designed to use. For example, Serpent's Impulse can easily use 0mm or even 3mm offset wheels because of the adjustable track on its pivot ball suspension. But hinge pin cars like the HPI Pro 3 can only use 0mm offset wheels and still fit the tires under a 190mm body. Also, some of the steering blocks or uprights on pivot ball cars won't fit inside some rims. So check some of the other cars at the track before plunking down your hard-earned cash at the parts counter, to make sure your car is compatible with the manufacturer of the wheel you want.



WHEEL WIDTHS

This goes along with the tire width. Got a 24mm tire? Use a 24mm wheel. A 26mm tire? Use a 26mm wheel. We know it sounds simplistic, but it is ever-so-tempting to try to stretch those hot compound 24mm slicks on those shiny new 26mm hoops you got on close-out. The beads won't sit right, the sidewall will be too low, and anyway, you won't find an insert that will fit correctly. Likewise, don't try to squish a too-large tire on a skinny rim. Again, the bead won't fit right, the only insert that will work will leave too much air gap, and the sidewall profile will by so large that it will look like you are running 75-series tires on your Viper (not to mention that the tires will squirm and wander their way down the front straight—but hey, we're more concerned about the looks, right?).

MATERIAL

They've got it all now—nylon composites, Lexan, carbon, ABS, aluminum. Every kind of plastic, with an "other metal" thrown in for good measure, is used to make hoops these days. Here's our take on

OF TRACTION

some of these wheel materials. Nylon composite wheels are one of the two old standards. They are fairly lightweight, come in many, many styles and some can be dyed to your favorite colors. Nylon wheels also come in different blends, so some wheels can be soft while others are very stiff. In general, they are very durable. Lexan and polycarbonate wheels look really cool, but CA glue doesn't seem to stick too well to them. Plus, the glue hazes the good looks of the wheels. ABS plastic wheels are the other old standard; the material is also fairly light and is very stiff. However, the stiffness means that they aren't all that forgiving when smacked against track barriers. And then there's aluminum. These are fine for the display shelf, but you'd have to be independently wealthy or nuts to use them on a track, where they can easily become damaged. Plus, they are heavier than plastic wheels. If you really like the shiny stuff, RPM, Pro-Line, and HPI all have very attractive wheels with chrome or chrome-like finishes.

Choices: Nylon composite and ABS are the way to go in our book. There are more choices of styles and colors than you'll ever know what to do with. But we pretty much tend to find a style we like and stick with it for a while.

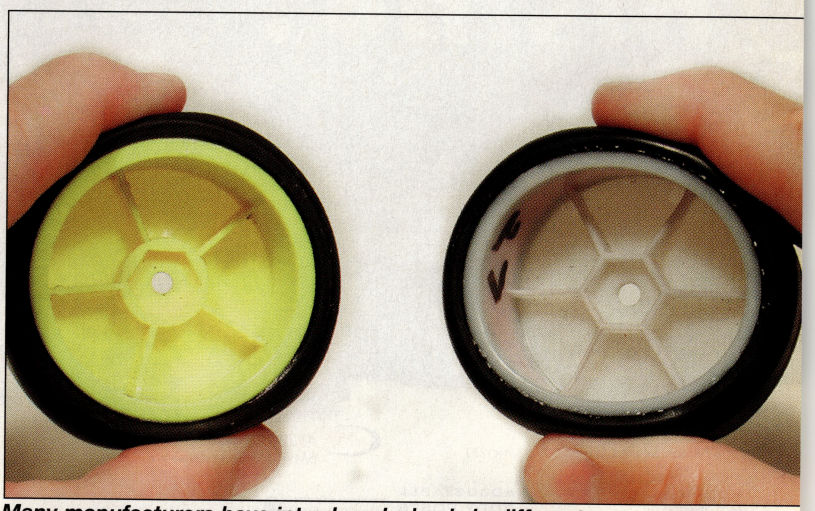
INCH-UPS

Yokomo's Inch-Up wheels have a slightly larger diameter than a standard wheel. This effectively stretches the tire so that it has a lower sidewall profile. Like with real cars, a lower sidewall can make the tire handle more responsively. But doing this also change the insert air gap, and in most cases, the size of the contact patch. In fact, having a second set of Inch-Up wheels mounted up with your favorite tire and insert combination could be the hot ticket for those late afternoon rounds. Yokomo began the Inch-Up concept, but there are now similar wheels offered by other manufacturers.

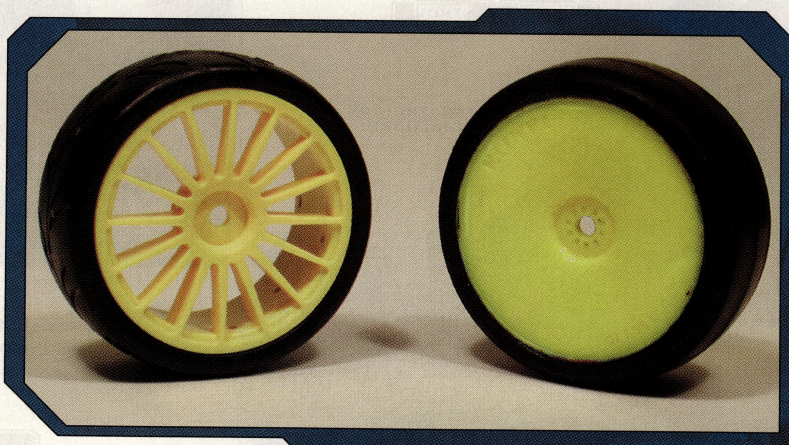
WHEEL STIFFNESS

The stiffness of a wheel can have a large effect on how a tire feels on the track. And the design of the wheel plays a big role in the overall stiffness, as does the material used. We've found that, overall, dish wheels tend to be the stiffest, while low spoke counts tend to flex more. Also, dish wheels, having more support all around the circumference of the wheel, are more durable and less prone to cracking in unfortunate incidents (makes sense, right?). True, they don't have the "style" that spokes or blades have, but style is subjective.

As a tuning aid, some manufacturers, such as Team Orion, are now offering their rims in different stiffness. Their JB Wheels come in three compounds (soft, hard, and extra-hard). Just like tire compounds and inserts, running a soft wheel makes the tire forgiving and gives more traction, but can feel "floaty", while a harder wheel has less traction, but feels more planted when there is traction.



Many manufacturers have introduced wheels in different stiffnesses to help you further tailor traction to conditions.



Choices: This is one reason we tend to stick with a particular wheel design we like. Using different style wheels adds another unknown variable in the tuning process. If you keep as many constants as possible, it will be easier to get dialed in quickly. We think that if you are racing, it is more important to : a) find a wheel that fits your car, b) find a wheel that fits the tires you want to use, and c) find a wheel that has looks that are acceptable to you. Once you meet this criteria, then buy a whole bunch and mount different tires and inserts to them, then practice, practice, practice!

MICRO RS4

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NEW *#633 RTR Micro RS4 with Nissan Skyline GT-R Body (150mm W.B.)*

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1/10 1/18

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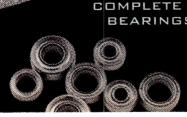

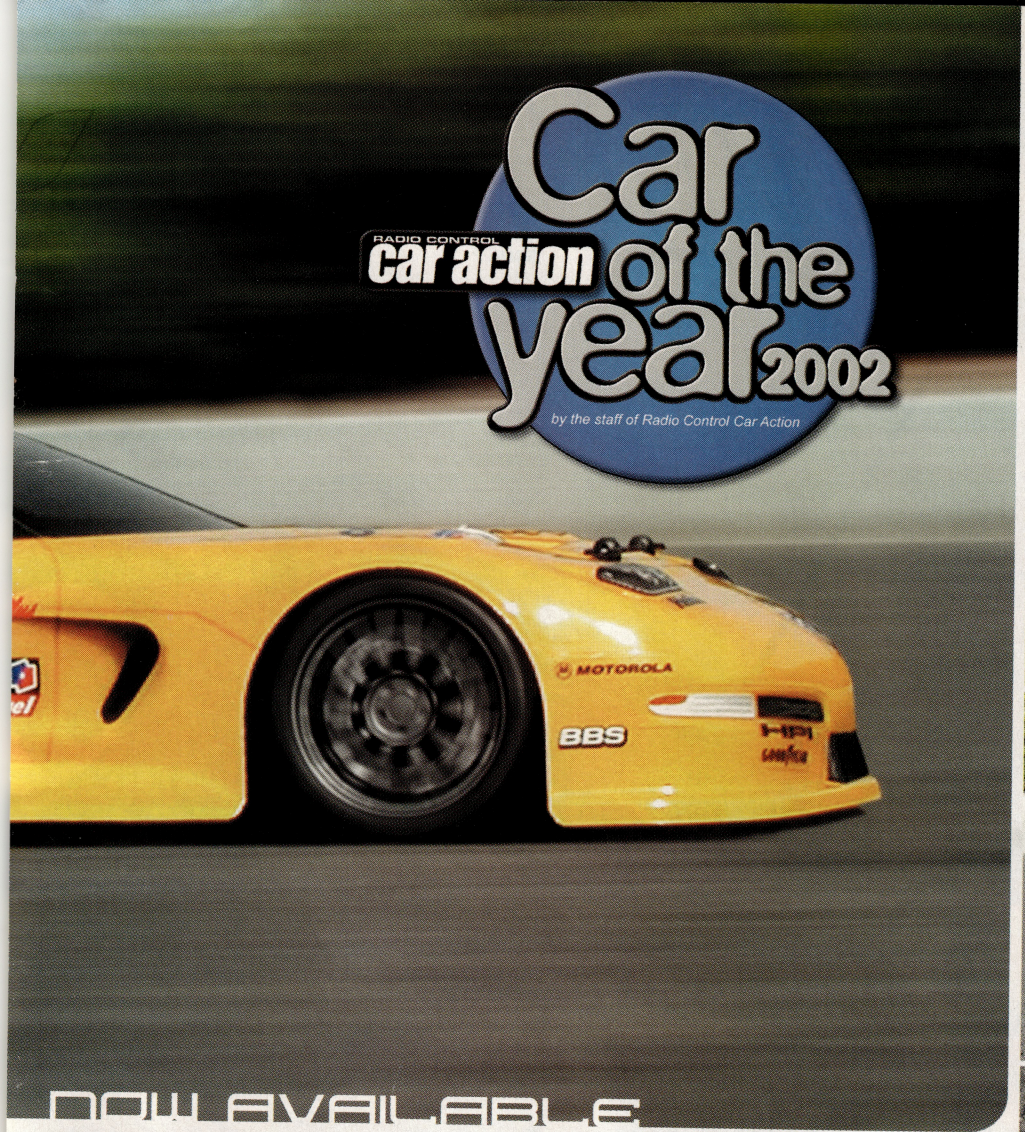
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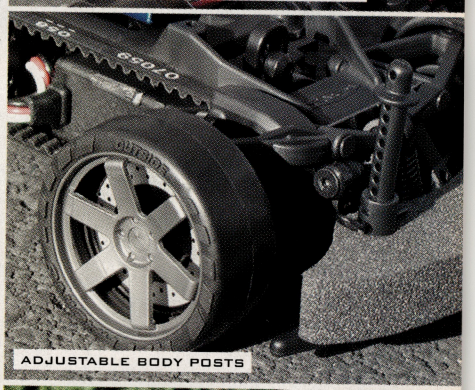
MICRO PRO CONTROL REVERSIBLE ESC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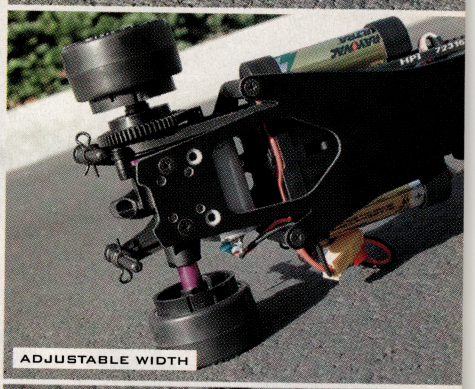
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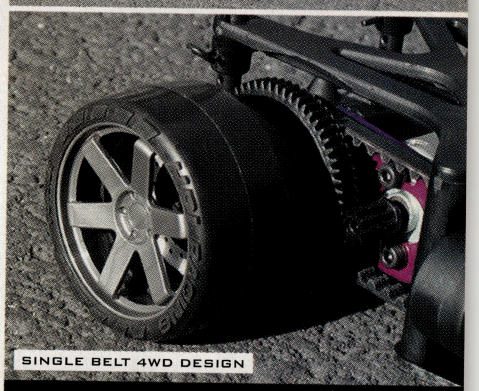
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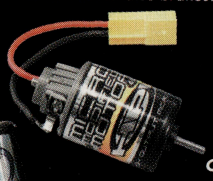

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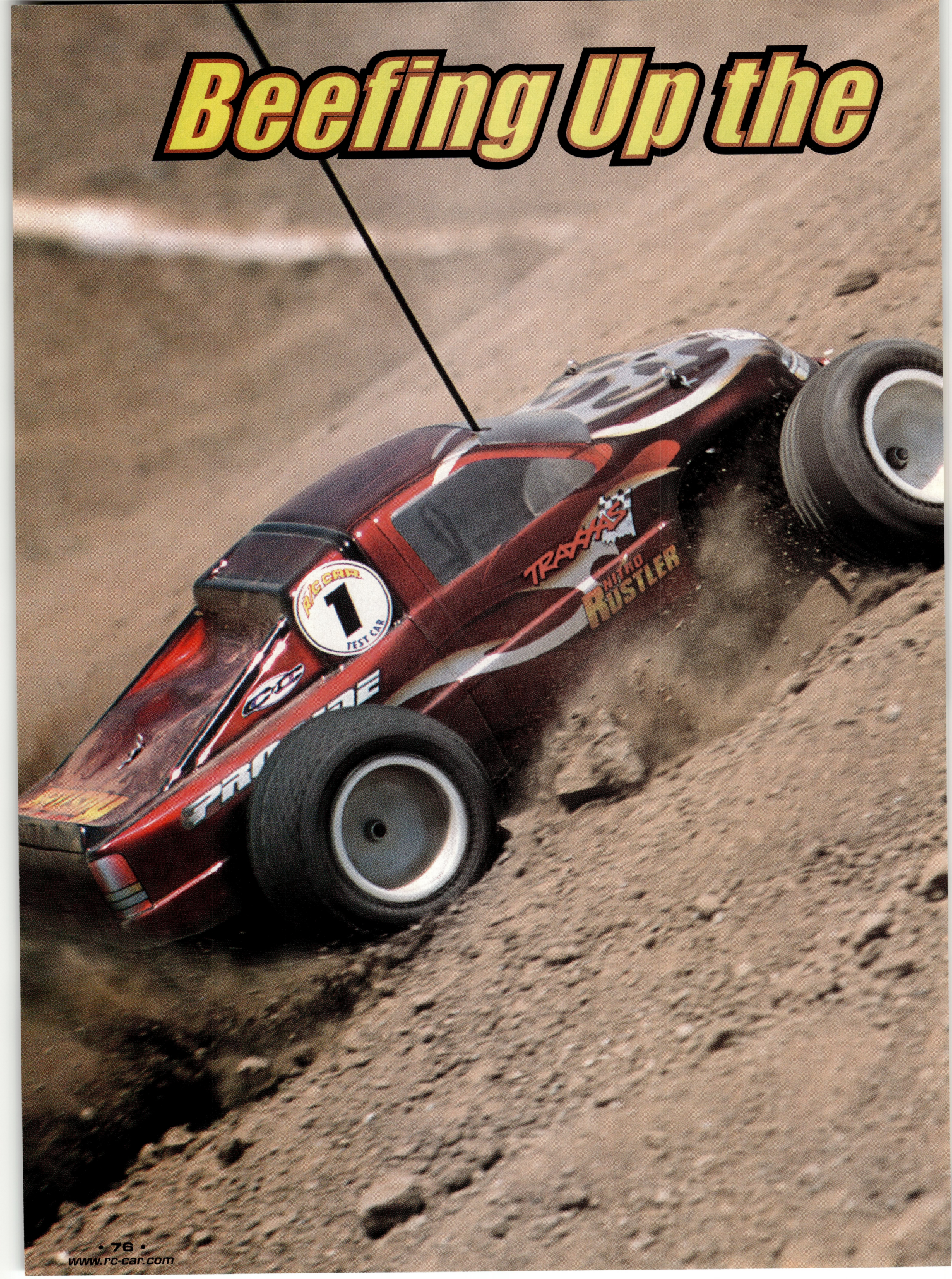
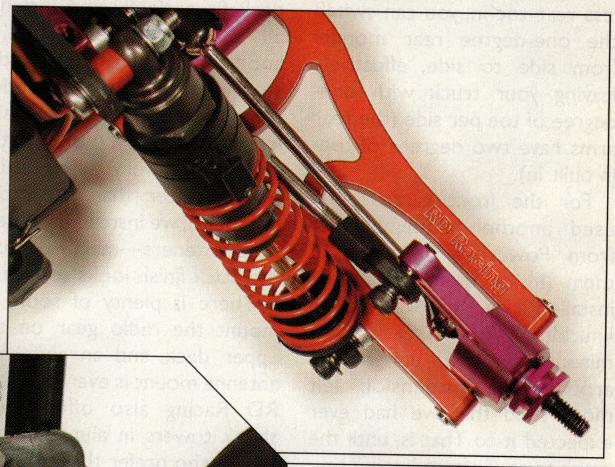
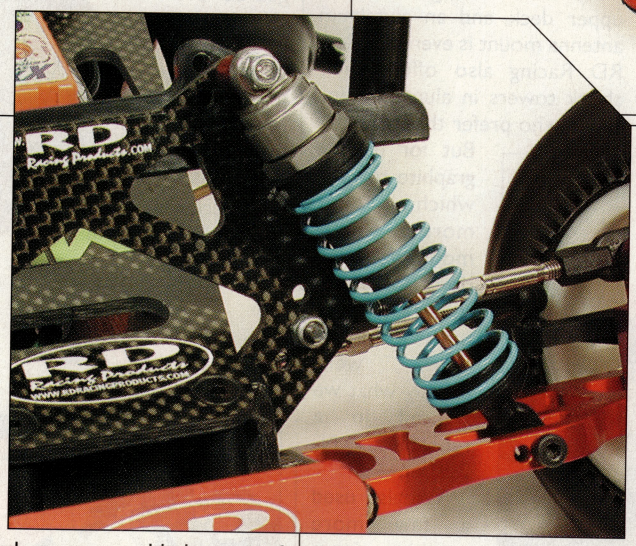
Beefing Up the



Traxxas Nitro Rustler

The Traxxas Nitro Rustler is easily the best selling RTR nitro stadium truck of all time, and even with stiff new competition from Associated's and Losi's RTRs, the Nitro Rustler remains a popular choice for people getting into the world of nitro off-road. As an RTR truck, the Traxxas Nitro Rustler has a lot going for it: a strong .15-size engine (powerful enough for the T-Maxx), an adjustable slipper clutch, a pre-printed and trimmed body, an efficient ball bearing three-gear tranny, and a durable—though flexible—suspension. But as a race truck, the N-Rustler falls a bit short; a lack of ball bearings for the axles, the plastic shock bodies, that same flexible suspension with screw pins instead of hinge pins, bronze Oilite bushings instead of wheel bearings, the restrictive exhaust system—all these are liabilities when entering a club race. (We won't say too much about the legality of using a .15 in a club race, but we will state that we have never seen a stock-engined Nitro Rustler turned away in the sportsman class.) And what if you just want to beef up your N-Rustler and "make it your own"? So, for all of you Traxxas-loyal "Rustler-ers" out there (including you, Spencer Kalliainen), here's what we did to our N-Rustler.





THE PLAN

Originally, our goal was to turn our N-Rustler strictly into a racing machine to go against all the nay sayers at our local track. But as the hop-ups started coming in, we saw that we could easily make the baddest-looking N-Rustler, and still race it in pretty much the same form.

SHOCK WORKS

We first turned our attention to the suspension—in particular, the shocks. If you are just running your truck around the backyard, the stock shocks work just fine. The stock damping works well enough, and extra pre-load spacers and alternate pistons are even included. But we wanted the most durable shocks in our ride, so we threw on a set of Traxxas' Big Bore shocks (long in front, XX-long in rear). Not only are these shocks made from high-quality aluminum, but they're also hard-anodized and Teflon-coated to reduce wear. And once we added a set of Titanium-nitride coated shock shafts, we could confidently say that these shocks are as good as the best shocks that Associated and Losi have to offer. Losi truck springs fit perfectly on the Big Bores, so a wide variety of spring rates are available.

NO MORE BENDING

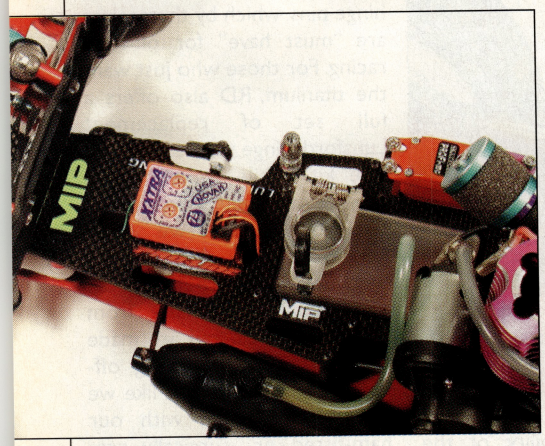
Now that we had more consistent performance from the shocks, we turned our attention to the arms, which are made of a flexible plastic composite. The flexibility of the arms greatly contributes to the "almost unbreakable" nature of the truck, but it's kind of hard to set up a truck for consistent performance when the arms are flopping around. We replaced the stock arms with a set of aluminum ones from RD Racing Products. Like all of their aluminum parts, the arms come in a variety of colors, but we decided to use red ones, just to be different. RD's arms come with Lunsford titanium hinge pins, which by themselves are "must have" for off-road racing. For those who just want the titanium, RD also offers a full set of replacement Lunsford hinge pins as a separate kit. While we're on the subject of titanium, we should also note that we used Lunsford's new Super Duty turnbuckles all around. These new pieces are made from 3.5mm Ti stock, and are made for the most demanding off-road situations. It's not like we would need them with our ham-fisted, er...surgically precise driving skills. We can't help it if other people crash into us!

Replacing the stock arms with aluminum ones also rid the N-Rustler of much slop from the inner mounting point, but now the play from the rear uprights and front spindle carriers was even more noticeable in comparison. The rear uprights were replaced with a purple aluminum set from Powerline Racing Products. While we were working on the

Beefing Up the Traxxas Nitro Rustler

rear pivot points, we went ahead and installed Powerline's aluminum rear A-arm mounts. These have the same one-degree angle as the stock plastic ones. For less rear toe, Hammad Ghuman Racing and RD both offer zero-degree mounts. And if you want even less rear toe-in, you can switch the one-degree rear mounts from side to side, effectively leaving your truck with one-degree of toe per side (the rear arms have two degrees of toe-in built in).

For the front carriers, we used another aluminum set from Powerline. On top of them (inside them, really), we installed a pair of HG steering knuckles. With a set of aluminum arms and uprights all around, the suspension felt more solid that we had ever expected it to. That is, until the graphite stuff started going on.



JUST FOR LOOKS? WE THINK NOT!

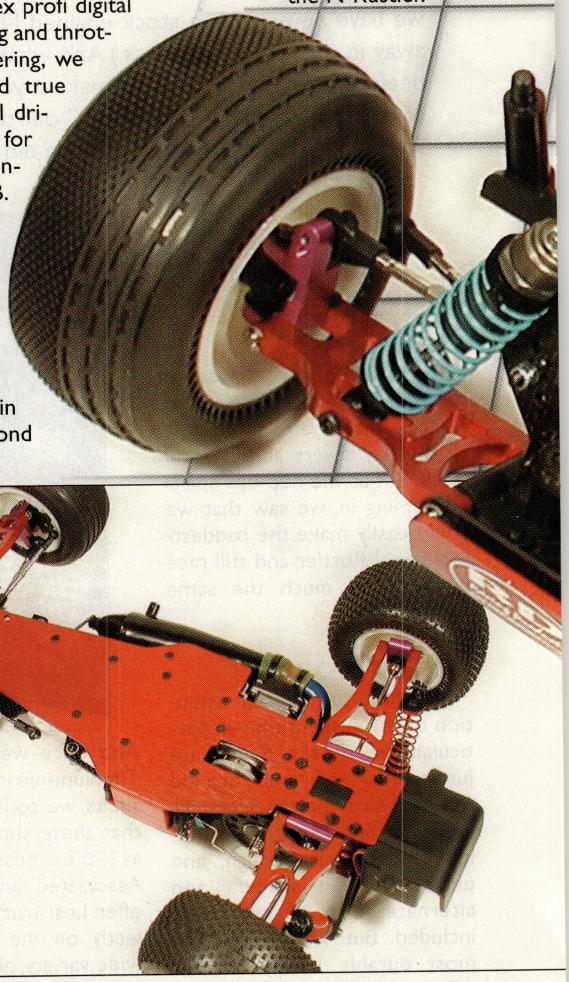
The plastic upper deck works just fine, especially when used with a stiffer aftermarket lower chassis plate (we'll get there eventually—really!). But for the ultimate in stiffness, weight savings, and yes, coolness, a carbon graphite upper deck is the only way to go. Traxxas has had their graphite upper listed in their catalog for a while, but they were still putting the finishing touches on the installation manual as we went to press, so we aren't able to show it to you yet. But RD Racing Products (yes, them again) offers a full upper deck and front and rear shock towers made from heavy-duty 3mm graphite laminate. The upper deck fit perfectly and includes all the hardware (including anodized standoffs for the steering bellcranks) needed along with a fresh set of stainless steel screws. Although the screws are very high quality (much better than the stock fasteners), we instead used hex-head fasteners—mainly because the black finish looks so nice.

There is plenty of room to mount the radio gear on the upper deck, and an aluminum antenna mount is even included. RD Racing also offers their shock towers in aluminum, for those who prefer that material. But for us, the graphite towers, which offer more shock mounting positions for more tuneability than the stock plastic ones, were exactly what we wanted in a raceable N-Rustler.

We also used a few more graphite pieces that Traxxas offers—the front arm brace and the brake disc. The arm brace replaces the fiberglass one that comes standard. Its tolerances are a bit better than the rough-edged stock piece, it is much stiffer, and it definitely looks better. And the brake disc, which has angled cooling slots cut into it, wears much better than the stock plastic disc. More importantly, it works more consistently and with less fade than the stock one.

POWER WITH MORE CONTROL

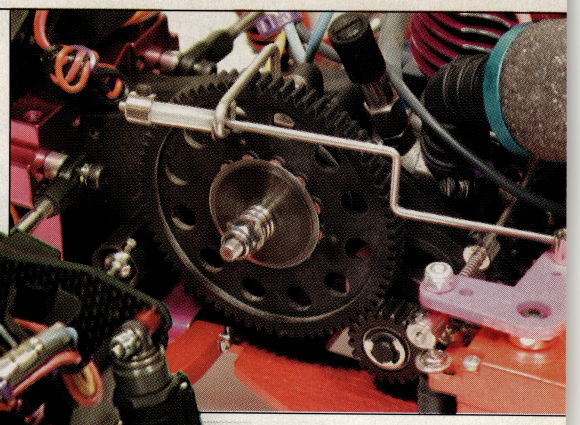
The servos that come with the Nitro Rustler are just fine, especially now that Traxxas updated the kit to include their higher torque steering servo from the T-Maxx. But we wanted to make sure that we added quick response and dead-on centering, as well as lots of torque, to our servos. So we searched through our community toolbox and pulled out a couple of Multiplex profi digital servos for steering and throttle duty. For steering, we used a tried and true profi Speed metal drivetrain servo, and for throttle, a nylon-geared profi BB. We always prefer to use a plastic-geared servo for throttle in our nitro kits to minimize the chance of electrical interference in the critical second channel.



A TOUGH CHASSIS IS A TOUGH DECISION

Now the chassis was feeling more solid. The suspension motion was free, the slop was reduced incredibly, and the towers were stiff enough to let those Big Bores do their jobs. But what about the lower chassis? We had two to choose from: a unique orange one from HG, and a red one from RD Racing. Both pieces are made from 3.2mm T6 aluminum and are many times stiffer than the stock 2mm chassis. It really was a toss-up. So using a very scientific process (eeny-meeny-miney-moe) we ended up using the red-finish RD chassis on the N-Rustler.

It doesn't have the flowing, organic-looking shape of the beautiful HG chassis, but it IS red. And like all of RD's products, it comes with a fresh set of stainless screws.



The next piece we put on was Powerline's Rear Upper Link. This replacement rear bulkhead has the same six camber-link positions as the stock composite piece, but it is much sturdier. Even though, like the stock one, it is held to the chassis by just two screws, it keys nicely in place to the transmission case. Going back to the front of the car, we threw on RD Racing's aluminum front bumper/skid plate. It extends farther back than the stock bumper to provide more protection to the leading edge of the chassis. Then we added some HG aluminum hex hubs so the rear wheels would run truer. These are the same 12mm hex hubs used for HPI's touring cars, as well as others.

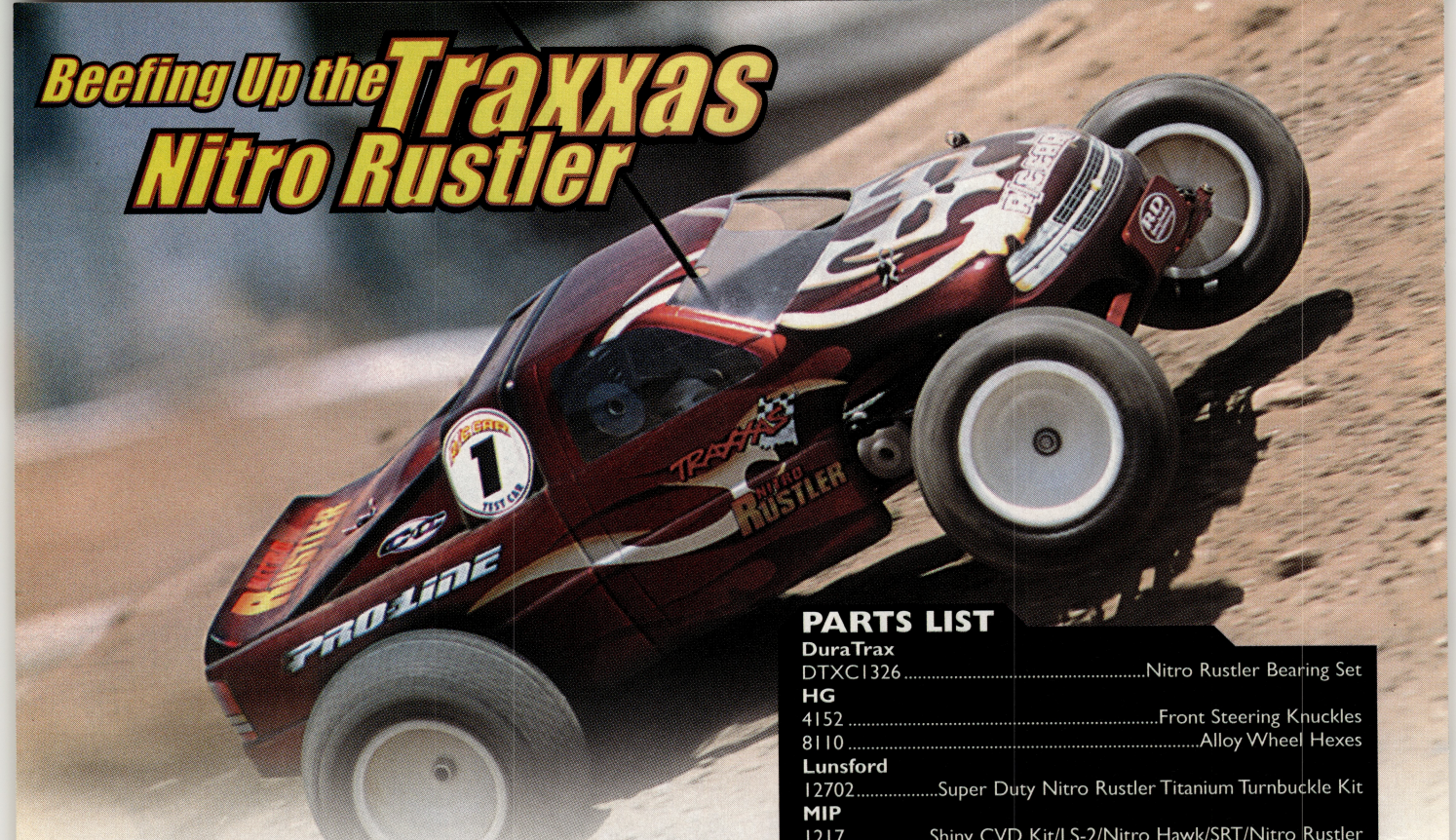
A FREE DRIVETRAIN IS A HAPPY DRIVETRAIN

Next, we focused our attention on the drivetrain. Out of the box, only the transmission is fitted with ball bearings. For us, this just wouldn't do, so we installed a set of DuraTrax Teflon-shielded bearings. Not only did this free up the drivetrain, it also rid the truck of some annoying high-speed wheel wobble. Since most of our off-road trucks are equipped with MIP CVDs, we just had to put these famed parts on our truck. The stock N-Rustler comes with slider shafts with plastic outdrives that are prone to flexing under heavy loads. MIP includes a standard set of hardened outdrives that fasten right onto the stock diff stubs with a couple of setscrews. A few Traxxas Teflon shims are needed to properly set the spacing on the CVDs, but once installed, they perform beautifully. And, of course, they are rebuildable, should they ever need it.

BABY NEEDS SOME NEW SHOES

Since we wore the kit tires out while breaking in the

Beefing Up the Traxxas Nitro Rustler



engine, we had to put some new shoes on our al-clad baby. We turned to Pro-Line Racing's best all-around tire, the Bow-Tie T. We installed these on the rear end, and Pro-Line's new Blade pin /ribbed tire up front. We mounted them to Traxxas dish wheels because they are light and strong enough for racing. But for showing it off, of course we would prefer a chromed rim, such as the stock wheels or Pro-Line Agitators.

FEELING A LITTLE PUNCHY, ARE WE?

Last, but not least, comes the engine. It is "easy to start" (with the EZ-Start, though we'd like to throw one of those Racer's Edge Power Starters in there for less weight), easy to tune, and when broken in properly, has some great power. The only thing that's choking it is the stock exhaust. So we grabbed ourselves a Traxxas blue aluminum exhaust header left over from a tuned pipe buyer's guide long ago, and tried a few pipes to see which one worked the best for our tastes. After trying the usual suspects (AE, Nova, HPI, Traxxas), we settled on an old OFNA single-chamber pipe that had a long divergent cone that worked very nicely with the powerband of the Traxxas engine. And last, but not least, we replaced the stock engine head with a beautiful 12-fin head from Powerline Racing. This new head let us lean out our engine a bit further, giving us even more power (and we needed it to push all that aluminum around). We changed to the 72-tooth spur, but kept the stock clutch shoes and bell, and now the thing has great punch and outstanding top end. In fact, we added six more Rulon pegs to the slipper clutch, just to make sure that we didn't wear it out too fast.

SUMMING IT UP

So here we have one of the trickest Nitro Rustlers around. Does that mean it will win any race we enter it in? Of course not! But it does work a whole lot better than it did before. The steering is more precise, the dampening is more consistent, and we have more tuning options than before. Though they are very tough, the aluminum arms aren't really ideal for racing because of their weight, but they sure look great, especially with RD's laser-etched logo on each piece. If we had our choice, we would use stiff composite arms for racing (if someone would make them), and the aluminum arms for playing around and for show. But we're very happy with our hot performing and hot looking Nitro Rustler.

PARTS LIST

DuraTrax
DTXC1326 ..... Nitro Rustler Bearing Set

HG
4152 ..... Front Steering Knuckles
8110 ..... Alloy Wheel Hexes

Lunsford
12702 ..... Super Duty Nitro Rustler Titanium Turnbuckle Kit

MIP
1217 ..... Shiny CVD Kit/LS-2/Nitro Hawk/SRT/Nitro Rustler

Multiplex
profi Speed ..... Digital Servo
profi BB ..... Digital Servo

Novak
2675 ..... XXtra Synthesized FM Receiver

Powerline Racing Products
TT5014 ..... Rear A-Arm Mounts
TT5003 ..... Front C-Hub Carriers
TT5007 ..... Rear Hub Carriers/Uprights
TT5006 ..... Rear Upper Link
TRX15P ..... Aluminum 12-Fin Cooling Head

RD Racing Products
TPK19-TI ..... Titanium Hinge Pin Kit
TNR04-00 ..... Carbon Fiber Upper Chassis Assembly
TNR02-00 ..... Carbon Fiber Standard Rear Shock Tower
TNR03-00 ..... Carbon Fiber Front Shock Tower
TNR20-02 ..... 3.2mm Lower Chassis
TNR07-02 ..... Rear A-Arms
TNR08-02 ..... Front A-Arms
TNR05-02 ..... Front Bumper / Skid Plate

Traxxas
4884X ..... Carbon Brake Disc
2532X ..... Graphite Tie Bar
2660 ..... Big Bore Shocks (long)
2662 ..... Big Bore Shocks (xx-long)
1664T ..... Ti-Nitride Shock Shafts (long)
2656T ..... Ti-Nitride Shock Shafts (xx-long)
1974 ..... Dish Wheels (front)
1972 ..... Dish Wheels (rear)
4487 ..... Blue Aluminum Exhaust Header

SOURCES

MIP, 830 W. Golden Grove Way, Covina, CA 91722 • phone (626) 339-9007; fax (626) 966-2901
Multiplex USA, 560 Library St., San Fernando, CA 91340 • phone (818) 838-6467; fax (818) 838-3127
Novak Electronics, Inc., 18910 Teller Ave., Irvine, CA 92612 • (949) 833-8873; fax (949) 833-1631
Pro-Line, P.O. Box 456, Beaumont, CA 92223 • (909) 849-9781
RD Racing Products, 19221 E. Baldwin Lane, Greenacres, WA 99016 • phone (509) 270-7223
Traxxas, 12150 Shiloh Rd., Dallas, TX 75228 • phone (972) 613-3300; fax (972) 613-3599

XXX-NT sport

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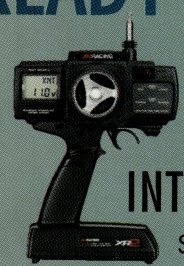

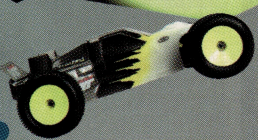

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Let those other guys tinker with their toys. The XXX-NT Sport takes Ready-to-Run to a whole new level.

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Three cool custom painted schemes: Grape, Aqua or Graphite.



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HORIZON HOBBY

Terra Crusher Tips

Caring for Tamiya's mega-monster

By Brian Skinner



So you got yourself a Terra Crusher. Now what? R/C Car has the answer. We have seen a lot of posts on truck-related websites, and we've been asked questions about what's going on with the beast from Tamiya. To find out how the TC will hold up, we put one out in the field to do some real world testing. We also want to pass along some tips we've learned during the process.

ESSENTIAL INFO ON THE TRANNY

Now let's get to the truck! As we all know, this is an RTR (ready to run), you pull it out and it's ready to go. It's very important that you read the instructions for this truck; it has a very sophisticated transmission that works differently than the gearboxes of its competitors, and it must broken in if it is to work properly. Tamiya provides detailed instructions on how to perform the break-in - and you should follow them closely - but we have additional information that you might find helpful.

• When you first run the TC, DO NOT go fast! And gently roll the throttle on! What this does is it allow the tranny's internal clutch shoes (the ones for reverse) wear in. If you hit the throttle hard right off the bat, you will glaze the shoes and then they will always slip - that is until you take it apart and clean them. And we do not want to do that. Be patient, and get 5-6 tanks through the truck before you even go play! By the way, the tranny will still slip for a while, even when broken in, but from what I have seen, this is normal.

• The tranny is a lot different than what you may be used to! After putting time on it, I would say Tamiya's FRAT (Forward and Reverse Automatic Transmission) is more like the automatic transmission in a full-sized car. When you drive your "big" car and step on the gas, it will over-rev a little before moving. Or, if you really mash the pedal, the engine will rev high and then downshift. That's what the Terra Crusher tranny feels like. I took a clue from the 1/8-scale buggy guys and started to roll the throttle on instead of stabbing at the trigger. I found this to work best for the TC. Besides, you get much more control of your truck and won't wreck so much. Also, the TC will sound and act much more like a real truck when you drive it!

IT'S BUILT WELL, BUT DON'T TAKE CHANCES

The Terra Crusher is built very well! You don't need to constantly check all of your bolts; I have not had one thing come loose or fall off! I still recommend you do a visual inspection each time you go out, but so far it the truck is staying tight.

Once you get some track time on it, you will need to adjust the throttle linkage. As with all things that move, the linkage will go through a seating process, and will come out of adjustment. My test truck, and also my friend's truck, needed to be adjusted around the same time, so it is normal to see readjustment needed after about 1-2 hours of use. The symptoms of misadjusted linkage will be slower throttle response, and your brakes will go away and you will go straight into reverse.

Again, go to your manual and follow the instructions on how to reset your linkages. What the manual does not tell you, but I recommend, is to put some oil on the linkage pivot points inside the box where the servo sits. All that monkey motion going on inside the box gets a little sticky from the fine dust that gets in there.

TWO MORE TIPS

Save yourself a headache and move the fuel line and pressure lines. The stock routing will cause a cut or melted line. I rerouted mine up through the center of the truck. And while you're at it, install an in-line fuel filter; you'll thank me later!

As with all starters that use a one-way bearing (both electric- and pull-starters), they will slip eventually. I used this idea on my, um...other brand-name truck, and had no problem with the starter for over a year! Take the starter apart and drill a hole in the center of the plastic cover where the bearing sits. Then, screw a fuel nipple into the hole you just made. Run a hose out to the back of the truck where you can easily use motor cleaner to dissolve the oil that gets on the starter shaft. Just stick that red tube in the hose and give it a little squirt! No more slipping bearing - until the next time that is!

CONCLUSION

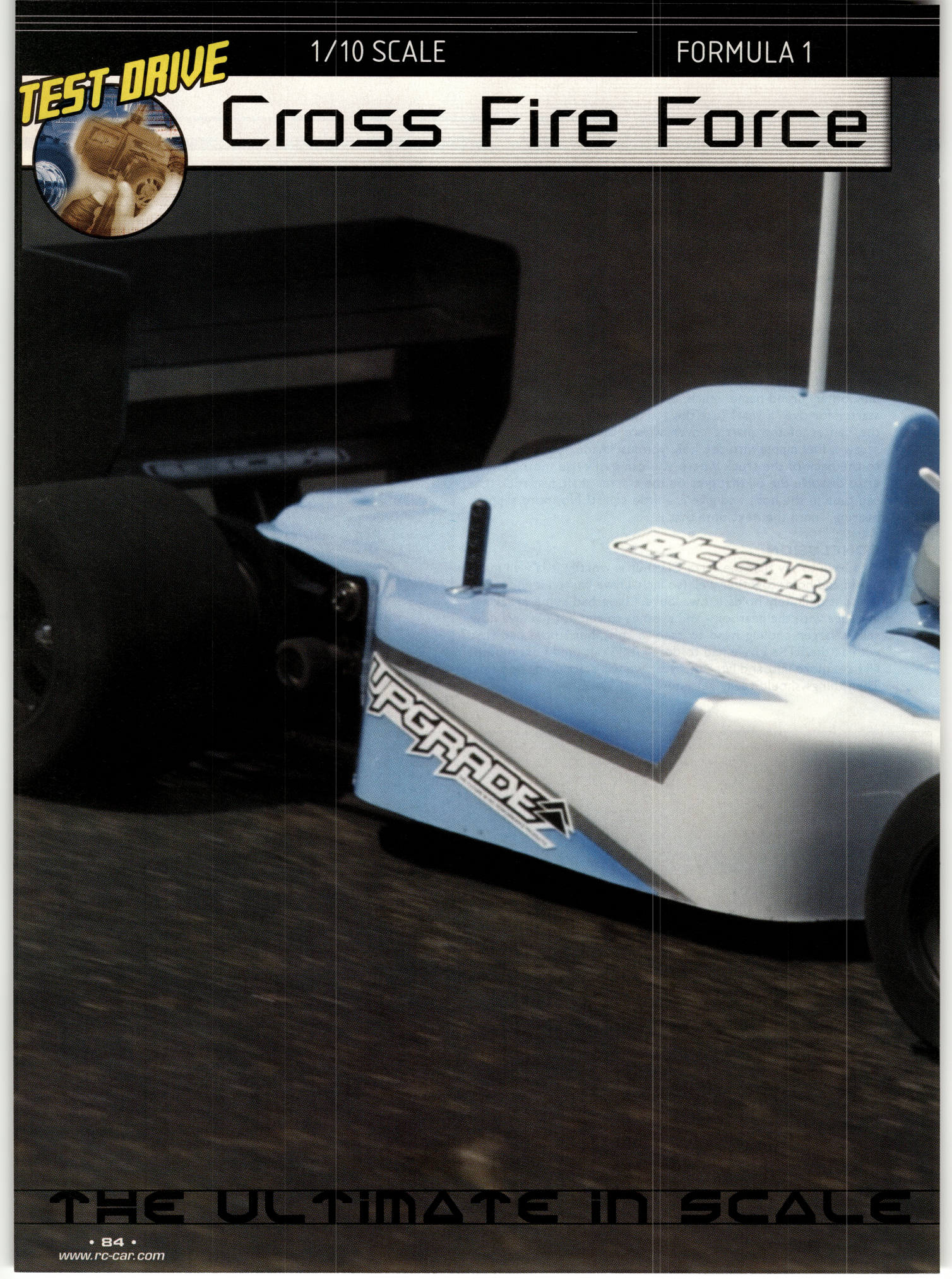
I have to say that the Terra Crusher is worthy. It is well mannered and holds together well (so far!). I have bashed it and raced it and it definitely holds it own. Sure, I have had some breaking-in issues with the gearbox - and it tends to run hot (Tamiya now sells a larger cooling head to resolve this), but I have had that with all the RTRs I have had to deal with! Wait until next month: I'll have more info, and later this year, we will start doing hop-ups. Then things should really get interesting!



Breathe right: Terra Crushers run hot, so be sure to cut plenty of ventilation openings in the body.



Cross Fire Force



THE ULTIMATE IN SCALE

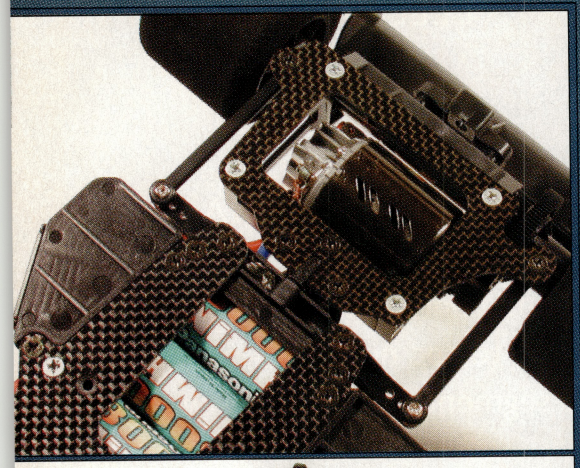
While it's true that the F1 category has never really taken off here in America, its smallish fan base is fiercely loyal. In Japan, however, F1 was at one time the most popular type of R/C racing, and the number of car kits and accessory items was indeed staggering. This is why we continue to see new kits - almost all from Tamiya - despite the comparatively tiny size of the segment. For this, however, we are grateful, as are the other F1 fanatics.

One of the most intriguing F1 kits comes, ironically, not from Tamiya, but rather from Cross - one of the premiere Japanese aftermarket accessory firms. The Fire Force slots into the scale F1 category created by Tamiya. In other words, the car is an accurate scale representation of a real F1 racer. In its overall layout, the FF resembles Tamiya's F103 series. However, what made us stand up and take notice of the FF was its very clever engineering and the performance capability that is promised by Cross' attention to detail.

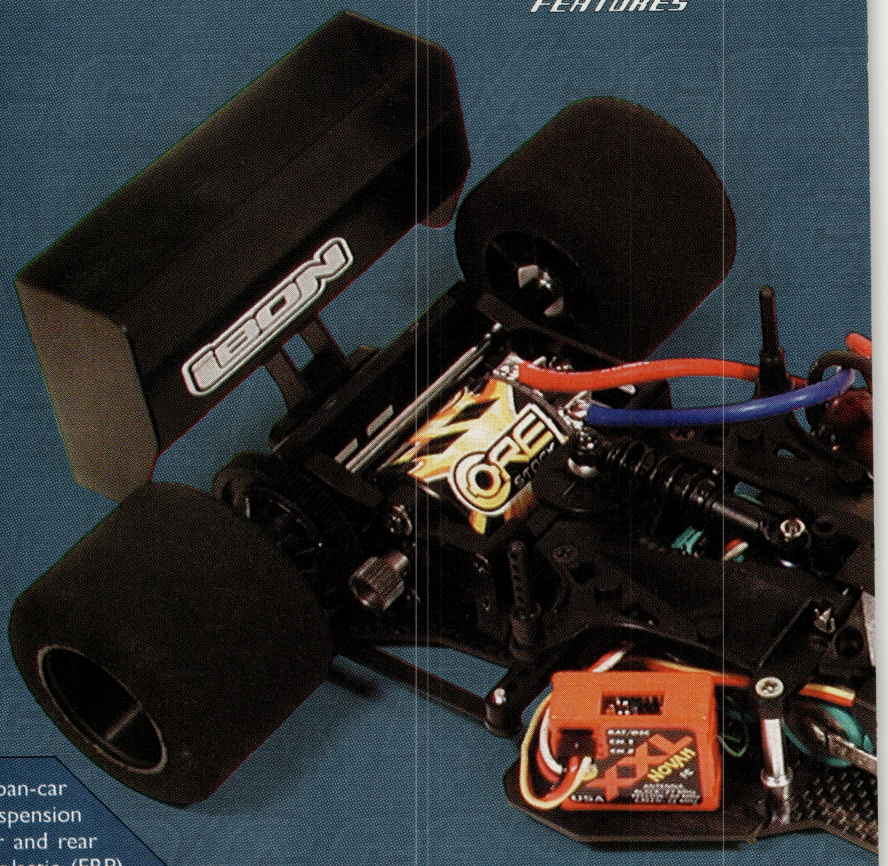
F1 PERFORMANCE

OUTSTANDING FEATURES

OUTSTANDING FEATURES





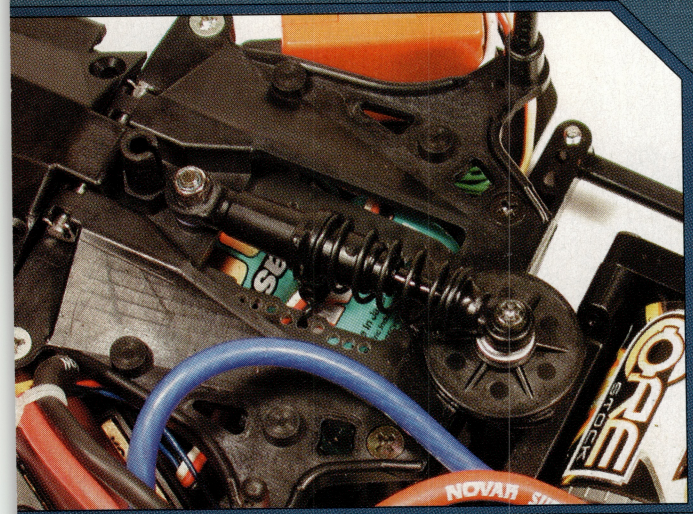


VERSATILE CHASSIS

Like the Tamiya F1 series, the FF is basically a pan-car design in that its chassis is a flat plate, and its rear suspension is supplied by a trailing "pod" that holds the motor and rear axle. The FF's chassis is a plate of fiber-reinforced plastic (FRP), however we swapped the stock chassis for Cross' optional graphite chassis for a reduction in weight and an increase in stiffness.

The FF can accommodate a battery pack running down the middle of the chassis, or across the chassis. If you choose to run the pack down the middle to center the car's weight and improve its steering (as we did), be prepared to invest in some micro electronics, as only the smallest receiver and speed controls will fit. When the pack is mounted across the chassis, there's more room for running gear. A plastic tunnel braces the middle section of the chassis, and doubles as a battery hold-down for in-line packs. It's held by just three body-clips, and it's hinged to allow for easy pack changes.

TEST EQUIPMENT
Hitec HS-225MG servo
KO Propo VFS-2000 ESC
Team Orion Core stock motor
Novak XXL FM receiver
Deans Ultra battery plugs



SOPHISICATED SUSPENSION

The rear of the chassis serves as the rear suspension, and as mentioned, it's a typical "pod" assembly. But Cross has developed a really cool way of attaching the pod to the main chassis by using a center ball-and-socket joint that allows the pod to move freely in all directions. A pair of lateral links keep the pod from moving from side-to-side, and they can be installed in one of three positions to angle the rear axle slightly during cornering to increase steering response. Fore and aft damping is controlled by a spring and friction-damper, while side-to-side control comes from an innovative pair of plates that are tied together by a spring. Installing the spring to one of nine possible pairs of holes provides varying degrees of roll control.

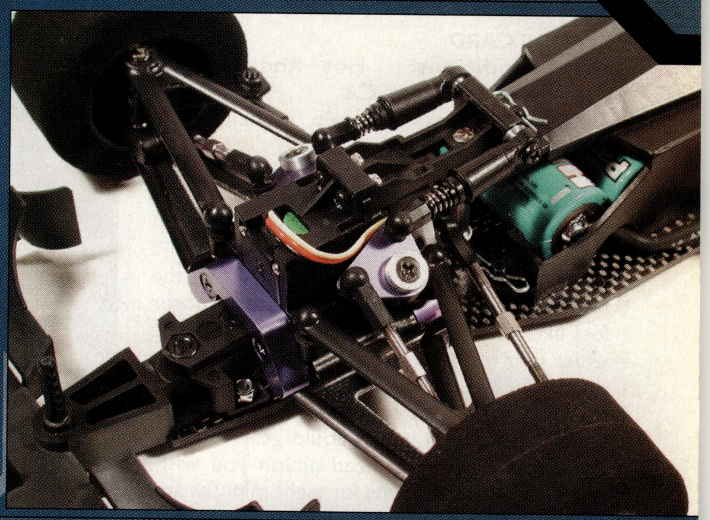
Through the use of several optional inserts, the rear-pod plates provide as many as seven different axle height that allow you to alter the rear ride-height or to compensate for various tire heights. We replaced the kit's plastic plates with optional aluminum plates from Cross.

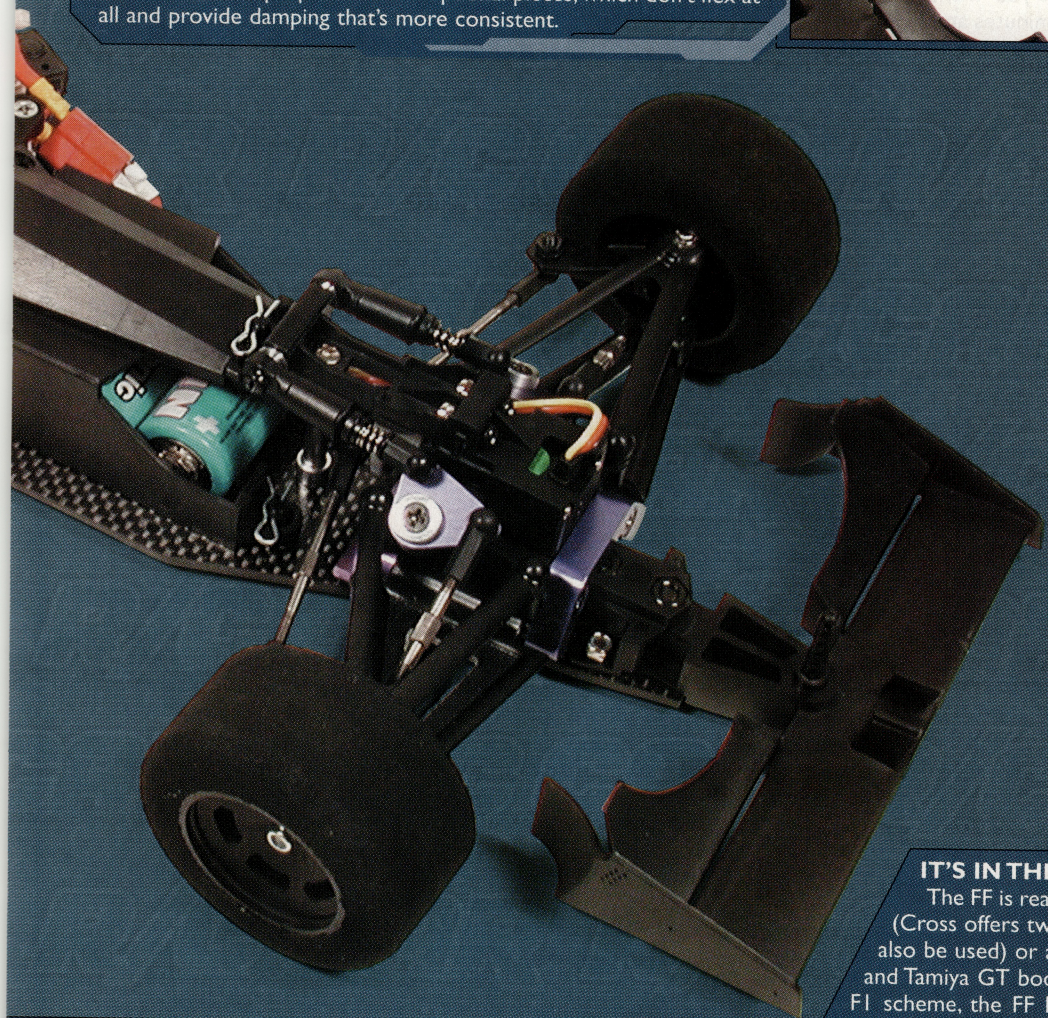
Cross Fire Force

REAL WISHBONES

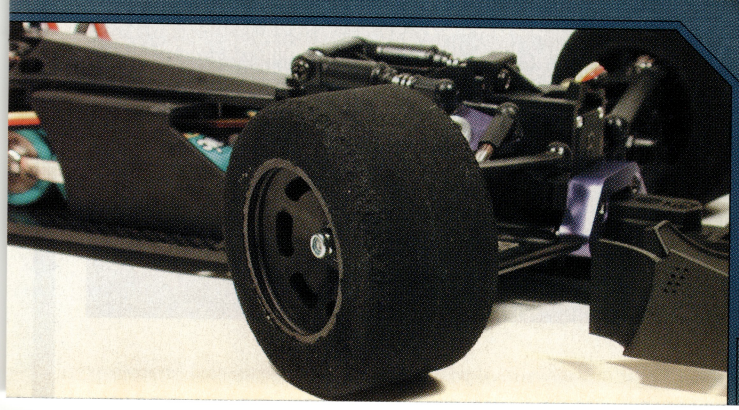
And while the front suspension may look like that of any of Tamiya's F1 chassis (previous to the F201), it most certainly is not. The FF has true double-wishbones with functioning inboard shocks. For extra strength, the lower wishbones are molded around a triangular fiberglass plate that gives them much-needed support without spoiling the scale looks of the system. And again, in true F1 fashion, the shocks are actuated by pushrods that operate triangular cams. The shocks might be plastic friction-style with coil-springs, but the action of the front suspension feels very good.

And because we just couldn't keep the FF stock (it's all the fault of Schumacher USA - the U.S. importer of Cross - for sending us a batch of cool hop-ups!), we replaced several of the stock plastic parts with Cross' optional purple-anodized aluminum parts. First are the mounts for the lower wishbones, which are much stronger than the stock plastic pieces, and have setscrews to adjust the amount of the suspension's down travel. We also replaced the stock plastic shock cams with purple-anodized optional pieces, which don't flex at all and provide damping that's more consistent.





OPTION PARTS	
CFP-1	Carbon main chassis
CFP-2	Carbon rear chassis
CFP-15	Bearing set
CFP-17	Aluminum cam set
CFP-23	Titanium turnbuckle set
CFP-52F	Aluminum front suspension holder
CFP-71	F1-type body (A)
CFP-72	GT-type body (T-type)
CFP-120	Aluminum motor-mount set
TF-101MK	High-grip foam tire on wheel, medium (front)
TF-202K	High-grip foam tire on wheel, medium (rear)



IT'S IN THE DETAILS

The FF is ready to accept either an F1-style body (Cross offers two types, while Tamiya F1 bodies can also be used) or a GT body (again, Cross offers two, and Tamiya GT bodies will also fit). When choosing an F1 scheme, the FF kit includes a nicely molded set of wings. The front wing is dual-plane with plenty of F1-realism, while the rear wing is also dual-plane, and has large side dams. Both wings are molded out of a flexible black plastic that will definitely prevent them from being damaged by even the most severe crashes.

Also included in the kit are a set of grooved, semi-pneumatic rubber tires that are dead-ringers for the ones found on the F1 circuit. Cross also provides a set of black mesh wheels that further the scale appearance. Because we would be racing the FF against a slew of Corally F1s, which ran on foams, we fitted our test car with a set of Cross pre-mounted and trued F1 foam tires and wheels (these will also fit all Tamiya F1s except the new F201).

Cross Fire Force



REPORT CARD

Test conditions: Hot Rod Hobbies Raceway, Santa Clarita, CA

Test conditions: high-grip asphalt road-course. Smooth surface.

Acceleration and speed: A+

Hey, nothing converts horsepower into neck-snapping acceleration better than a direct-drive car, so are you surprised that the Fire Force makes a competition stock motor feel like a 10-turn mod? Of course not! The wider rear meats lay down the power without drama; they just hook up and push the rest of the car forward. Top speed is likewise impressive; it's almost as if you could gear the Fire Force with whatever sized pinion you wish, and it still goes fast, runs for eight minutes and doesn't overheat!

Low-speed cornering: B+

The Fire Force is a relatively narrow car with a comparatively long wheelbase, so it's not exactly going to carve out donuts on anyone's lawn. However, its effective suspension geometry and the grip afforded by the optional foam tires allows the car to negotiate the tighter stuff without pushing out to the weeds. Mid-speed turns cause a bit of push, but this isn't something that can't be fixed with a little throttle. Stiffening the rear roll resistance bumps up the nimbleness in the tight turns, but you won't like the overall handling of the car on other parts of the track.

High-speed cornering: B

Drama-less is how we'd best describe the Fire Force on the quicker portions of the track. It neither pushes nor hooks, but you'll find that you won't be able to hold the car flat-out through the sweepers when using the stock setup. Stickier front tires, or perhaps less sticky rear tires, would correct this. Entering straights from tight turns is surgically precise, and the car transitions through fast S-sections with remarkable poise.

Braking: C+

To be fair, you don't really need to use brakes when you have a direct-drive, lightweight car such as the Fire Force; you only really need to turn the front wheels to make even the tightest turn. If the car is balanced correctly, it will take car of the speed-scrubbing for you. But in the event that you are faced with a Goober heading straight for you at speed, you'll be able to grab some brakes and the Fire Force will slow - just don't try this when cornering, or your driver figure will get an eyeful of whichever cars are, or were, on his tail!

SPECS

Price:	$399.99 retail
Length:	14.5 in./368mm
Width:	7.7 in./196mm
Wheelbase:	10.23 in./260mm
Track (f/r):	6/7 in./170mm
Weight:	3.75 lb.
Chassis:	Purple-anodized aluminum plate
Suspension:	Four-wheel ind. w/upper link
Drivetrain:	Belt/gear driven 4WD
Diff(s):	Bevel gear (f/r)
Damping:	Composite oil-filled shocks
Bearings:	Ball bearings/bronze oilite bushings
Wheels:	White nylon mesh
Tires:	V-groove radial w/one-piece foam insert

Final Score

Highs The Fire Force is like the ultimate high-performance scale F1 chassis. Its scale is identical to that of the Tamiya F1 cars - and those bodies will also fit the Cross - yet its chassis is so unique. We love the car's realistic double-wishbone suspension and its inboard shocks. Even the way in which the rear pod is suspended and damped is totally unique.

Lows The stock suspension has some slop that limits the consistency of the car's handling. If you are going to add any options, make sure that you use the aluminum front shock cantilevers as we did; this takes out a lot of play.

The verdict:

The verdict Granted, the F1 class in the U.S. has never been that popular, but the people to do chose to participate are intensely loyal and car as much about the scale looks of their cars as they do the performance. In this vein, the Fire Force is the ultimate combination of both.

SOURCES

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

Deans, 7628 Jackson St., Paramount, CA 90723 • phone (562) 634-9401; fax (562) 634-9403

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

KO Propo USA, Inc., 1602 S. Western Ave, Suite 308, Gardena, CA 90247 • (310) 532-9355; fax (310) 532-9354

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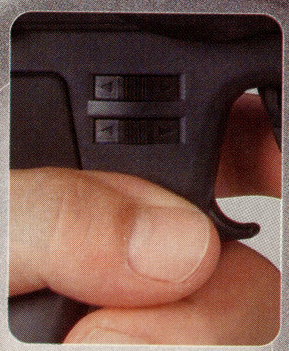
Here's how it works. First, it makes computer control affordable. Second, it offers an amazing array of features for the money. And third, it makes each and every feature easy to use.

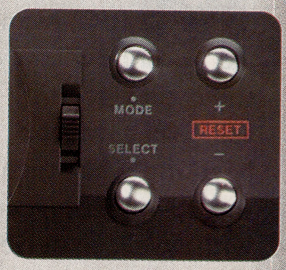
Four buttons and clear instructions are all you need to use or adjust any of the 3PDF's wide range of programmable features, from digital trims and ATV on steering and throttle to servo reversing, 2-channel exponential, 3-model memory and the function-selectable 3rd channel. Every adjustment is made with digital accuracy—and confirmed in black and white on a big, easy-to-read, 2-line LCD.

But the 3PDF is easy to use in other ways, too. There's the transmitter battery alarm that helps you monitor power level just by listening. Two ways to tailor throttle ATL to your driving style. There's a battery box for the receiver, a built-in recharging jack for optional transmitter NiCd use— and a padded hand grip that makes it all easy to hold as you race to the top.

For the location of the Futaba hobby dealer nearest you, please call 1-800-682-8948 and mention code number 2934V.



Digital thumb switches enable you to vary steering rate and throttle ATL as you drive, to meet changing conditions. Changes are confirmed with sound cues, so your eyes can stay on the action.



3rd channel convenience and choice! Select ON/OFF or proportional operation with the switch; program for starter activation, fuel mixture adjustment or shifting gears with the buttons.



Narrow-band FM technology in the transmitter and R123F receiver give the 3PDF the power to punch through radio clutter at crowded events.

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Budget Modified

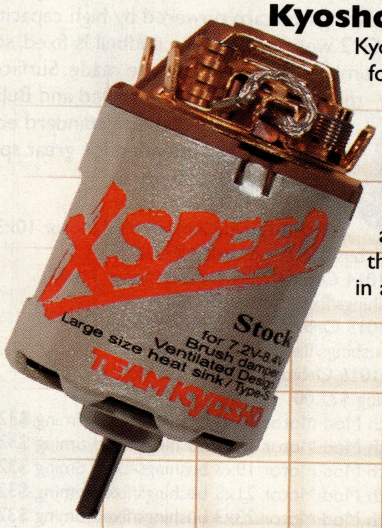


The cheapest speed around

Most newcomers to R/C want to know how they can make their cars go fast. They usually ask what motor company is best and what turn of motor is the lowest they can get away with. Well, experienced racers like speed, too but cringe at the price of most hand-wound modified motors. At most tracks the stock racing classes are generally better filled because of the significant difference in the price of the motors. This month we decided to help those of our readers out there who want to go fast but don't want to lose their wallet at the same time. We have a machine-wound modified motors guide that will help you find the low cost motors and help you decide which one works for your particular application. Take a look at some of these machine-wound motors that in many cases perform like their more expensive hand-wound kin.

Motor Guide

Kyosho



Kyosho's line of Mad Science modified motors come in two different series. The first series is for on and off-road cars. Each turn of motor receives its own unique name and is identified by either its name or the amount of turns. The second series, "Magnetic Mayhem Motors," is designed specifically for monster trucks. The Mayhem motors have a much larger armature at 28.7mm as opposed to other modifieds that have a much smaller 18.7mm armature. The increased armature size is single wound and works to crank up initial torque that larger monster trucks need. All of Kyosho's motors contain bushings and require that the supplied capacitors be installed. For ultimate savings, Kyosho offers their Xspeed line of bushing modified motors that won't damage the pocketbook and come in a multiple number of turns.



70671 Magnetic Mayhem 22X1 $22.50
70672 Magnetic Mayhem Rev 22X1 $22.50
70561 Terminal Velocity 11X2 $26.99
70562 Atom Smasher 12X2 $26.99
70564 Krypton Krystal 14X2 $26.99
70566 Endo Plasma 16X2 $26.99
70567 Atomic Force 17X2 $26.99

XSPEED SERIES

70901-10T Xspeed 10X3 $34.75
70901-12T Xspeed 12X3 $34.75
70901-15T Xspeed 15X3 $34.75
70902-11W Xspeed 11X2 $23.99
70902-12W Xspeed 12X2 $23.99
70902-13W Xspeed 13X2 $23.99
70902-14W Xspeed 14X2 $23.99
70902-15W Xspeed 15X2 $23.99
70902-16W Xspeed 16X2 $23.99
70902-17W Xspeed 17X2 $23.99
70902-18W Xspeed 18X2 $23.99
70902-19W Xspeed 19X2 $23.99
70902-23S Xspeed 23X1 $23.99



Integy Jett Series

Integy's machine-wound modified motors have dual ball bearings and powerful 8.0 wet magnets. The ball bearings help make these motors reach a very high rpm and increase their efficiency. The motors have been diamond trued and the armatures have been perfectly balanced. The brush hoods and soldering tabs are gold plated which is an upgrade from steel. The motors are available from 10 turns all the way through 17 turns. They come double or triple wound for added feel for those of you who could feel a difference.

J1002M Integy 10X2 $29.95
J1003M Integy 10X3 $29.95
J1102M Integy 11X2 $29.95
J1103M Integy 11X3 $29.95
J1202M Integy 12X2 $29.95
J1203M Integy 12X3 $29.95
J1302M Integy 13X2 $29.95
J1303M Integy 13X3 $29.95
J1402M Integy 14X2 $29.95
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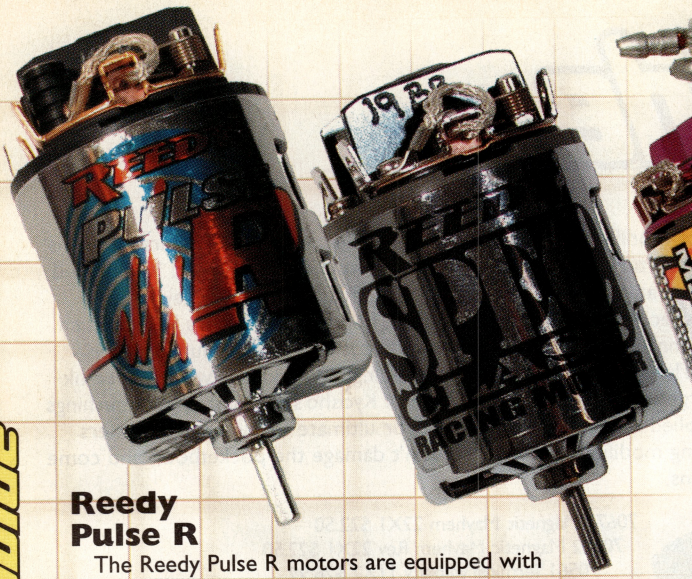
J1703M Integy 17X3 $29.95

DuraTrax Photon 20-Turn

This 20-turn modified motor is housed in a sealed can. The motor has dual bushings and comes with pre-installed capacitors. The 20-turn motor is single wind, which adds extra punch for trucks and other off-road vehicles. DuraTrax offers this motor as a direct replacement for the DuraTrax Evader stadium truck. This motor is a great choice for someone seeking a little more power than that of a stock motor.



DTXC3300 Photon 20X1 $16.99



Reedy Pulse R

The Reedy Pulse R motors are equipped with dual bushings and 5.2zM high temperature magnets. The motors have adjustable timing, a glass-filled composite endbell and Reedy's signature brush-vibration damping system. All of the Pulse R motors are machine-wound with vented 1.4mm cans for increased cooling. These motors are known for higher rpm and are great for touring cars. They carry the Reedy name, which is significant because it is only on a handful of quality products. Reedy also offers a machine-wound 19-turn motor that was designed especially for spec class racing. The motor's can is the same as the Pulse R but the spec 19-turn comes with dual ball bearings.

501 Pulse R 14X2 $38.00
502 Pulse R 13X2 $38.00
503 Pulse R 12X2 $38.00
504 Pulse R 11X2 $38.00
505 Pulse R 10X2 $38.00
506 Pulse R 9X2 $38.00
509 Spec Class 19X2 $50.00



Orion Orbital 2 Mach Modifieds

Orion's line of Orbital 2 Mach Modifieds are machine-wound motors with drill balanced armatures. The armatures sit on quality dual bushings and are powered by high capacity G12 wet magnets. The endbell is fixed, so no timing adjustments can be made. Surface mount capacitors are installed and Bullet-style connectors come as standard equipment. A motor intended for great speed at an economical price.

21013 Orbital 2 Mach Mod Motor 10x3 bushings/fixed timing $32.00
21014 Orbital 2 Mach Mod Motor 11x3 bushings/fixed timing $32.00
21015 Orbital 2 Mach Mod Motor 12x3 bushings/fixed timing $32.00
21016 Orbital 2 Mach Mod Motor 13x3 bushings/fixed timing $32.00
21017 Orbital 2 Mach Mod Motor 14x3 bushings/fixed timing $32.00
21018 Orbital 2 Mach Mod Motor 17x3 bushings/fixed timing $32.00
21019 Orbital 2 Mach Mod Motor 19x3 bushings/fixed timing $32.00
21020 Orbital 2 Mach Mod Motor 21x3 bushings/fixed timing $32.00
21021 Orbital 2 Mach Mod Motor 23x3 bushings/fixed timing $32.00



Orion Pilot Modifieds

The Pilot motors are low cost motors for those who are looking to save every dollar. The motors feature dual bushings, a sealed endbell with fixed timing, a drilled and balanced armature and interchangeable brushes. Like the Orbital Mach series, the Pilot motors come with pre-soldered capacitors and include Bullet-style connectors. These motors bring more bang for your buck.

25000 Pilot 11x2 bushings/fixed timing $20.00
25001 Pilot 13x2 bushings/fixed timing $20.00
25002 Pilot 15x2 bushings/fixed timing $20.00
25003 Pilot 17x2 bushings/fixed timing $20.00
25004 Pilot 19x2 bushings/fixed timing $20.00
25005 Pilot 21x2 bushings/fixed timing $20.00
25006 Pilot 23x1 bushings/fixed timing $20.00
25007 Pilot 27x1 bushings/fixed timing $20.00



Team Orion Rush

The Rush motors closely resemble Orion's Pilot series of motors but are supported by dual ball bearings. Instead of a fixed endbell the Rush motors come with removable endbell that can be moved to adjust timing. The endbell also makes routine cleaning and maintenance much easier. The armatures are drill balanced for optimum efficiency. Long lasting brushes and bullet connectors come standard with any of the various Rush motors.

25100 Rush 11 turn 2 winds ball bearing/adjustable timing $24.99
25101 Rush 13 turn 2 winds ball bearing/adjustable timing $24.99
25102 Rush 15 turn 2 winds ball bearing/adjustable timing $24.99
25103Rush 17 turn 2 winds ball bearing/adjustable timing $24.99
25104 Rush 19 turn 2 winds ball bearing/adjustable timing $24.99
25105 Rush 21 turn 2 winds ball bearing/adjustable timing $24.99
25106 Rush 23 turn 1 wind ball bearing/adjustable timing $24.99
25107 Rush 27turn 1 wind ball bearing/adjustable timing $24.99



Orion Havok Modifieds

Orion's Havok motors are a new addition to their growing line of budget modified motors. The Havok motors are similarly designed after the popular Pilot motors. These motors are machine-wound, have fixed timing, a drilled and balanced armature, and come with interchangeable brushes. The only difference between the Havoc motors and the Pilot series is that the Havoc motors come with dual ball bearings. The dual ball bearings decrease drag and increase efficiency that results in a slightly better motor at a slightly higher price.

25010 Havok 11X2 ball bearings/fixed timing $23.00
25011 Havok 13X2 ball bearings/fixed timing $23.00
25012 Havok 15X2 ball bearings/fixed timing $23.00
25013 Havok 17X2 ball bearings/fixed timing $23.00
25014 Havok 19X2 ball bearings/fixed timing $23.00
25015 Havok 21X2 ball bearings/fixed timing $23.00
25016 Havok 23X1 ball bearings/fixed timing $23.00
25017 Havok 27X1 ball bearings/fixed timing $23.00



Orion Orbital 2 Pro-BB

Orion's Orbital 2 Pro-BB motors are top notch machine-wound motors that are a cost savings compared to hand-wound motors. The Pro motors closely resemble Orion's line of Core modifieds that are their race-proven hand-wound line. These motors have quality dual ball bearings for less resistance and a better overall performing motor. Timing is adjustable for those seeking a different feel or performance characteristics. The powerful G12 magnets come standard. The armature features thicker webbing and balanced trued stacks for better low end torque. The factory installed brushes should last 10-30 runs and feature brush dampers for increased longevity. Surrounding the race type armature is a high air flow motor can for cooling.

22013 Orbital 2 Pro BB 10x3 ball bearings/adjustable timing $49.99
22014 Orbital 2 Pro BB 11x3 ball bearings/adjustable timing $49.99
22015 Orbital 2 Pro BB 12x3 ball bearings/adjustable timing $49.99
22016 Orbital 2 Pro BB 13x3 ball bearings/adjustable timing $49.99
22017 Orbital 2 Pro BB 14x3 ball bearings/adjustable timing $49.99
22018 Orbital 2 Pro BB 17x3 ball bearings/adjustable timing $49.99
22019 Orbital 2 Pro BB 19x3 ball bearings/adjustable timing $49.99



Peak Thunderbolt

The Thunderbolt motors are machine-wound and come with dual low friction bushings. Thunderbolt motors have a fixed endbell so timing adjustments cannot be made. Peak's long wearing brushes are installed, so racers won't have to worry about routine maintenance every time out to the track. Low tension performance springs are standard and prevent excessive commutator wear. Bullet-style connectors come pre-soldered; so it's plug and play!

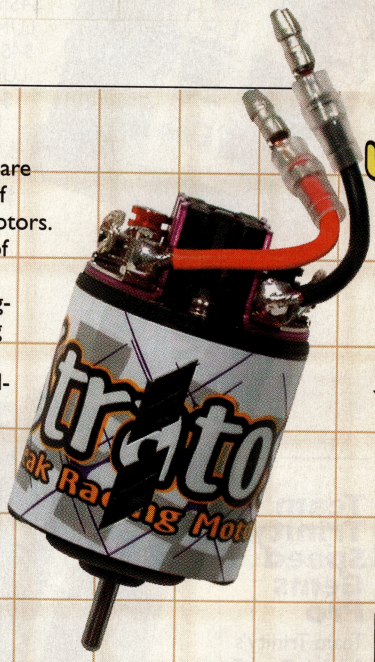
Pek1002 Thunderbolt 10X3 $31.99
Pek1003 Thunderbolt 11X3 $31.99
Pek1004Thunderbolt 12X3 $31.99
Pek1005 Thunderbolt 13X3 $31.99
Pek1006 Thunderbolt 14X3 $31.99
Pek1008 Thunderbolt 17X3 $31.99
Pek1010 Thunderbolt 19X3 $31.99
Pek1012 Thunderbolt 21X3 $31.99
Pek1014 Thunderbolt 23X3 $31.99



Peak Jaguar

These motors are similar to the Panther line of motors but feature dual ball bearings and a removable endbell that allows for adjustable timing. The Jaguar motors are like all of the budget modified motors featured in that they are machine-wound. They come with pre-installed Bullet connectors for fast installation. These motors are a good value considering their features.

Pek1220 Jaguar 11X2 $24.99
Pek1222 Jaguar 13X2 $24.99
Pek1224 Jaguar 15X2 $24.99
Pek1226 Jaguar 17X2 $24.99
Pek1228 Jaguar 19X2 $24.99
Pek1230 Jaguar 21X2 $24.99
Pek1232 Jaguar 23X1 $24.99
Pek1234 Jaguar 27X1 $24.99



Peak Stratos

The Peak Stratos motors are Peak's most capable series of machine-wound modified motors. They share all the features of Peak's Carrera hand-wound motors. The strong G12 magnets, removable endbell, long wear brushes, and performance springs make this budget modified motor one of the best around. The Bullet connectors come soldered for those who are looking to get this hot motor in their cars in a hurry.

Pek1103 Stratos 10X3 $49.99
Pek1104 Stratos 11X3 $49.99
Pek1106 Stratos 12X3 $49.99
Pek1107 Stratos 13X3 $49.99
Pek1108 Stratos 14X3 $49.99
Pek1110 Stratos 17X3 $49.99
Pek1112 Stratos 19X3 $49.99



Peak Panther

Peak's Panther motors are designed to give good power for a fraction of the cost of most other motors. The machine-wound armatures are balanced and the brushes are replaceable. The sealed endbell does not offer any timing adjustments and should not be removed. The motor makes a great replacement for Mabuchi style motors that come with many of today's popular kits.

Pek1202 Panther 11X2 $20.99
Pek1204 Panther 13X2 $20.99
Pek1206Panther 15X2 $20.99
Pek1208 Panther 17X2 $20.99
Pek1210 Panther 19X2 $20.99
Pek1212 Panther 21X2 $20.99
Pek1214 Panther 23X1 $20.99
Pek1216 Panther 27X1 $20.99

Budget Modified Motor Guide

Team Luna Explosion

Team Luna motors are some of the top budget modifieds around. The motors feature a titanium can with large vents for extra cooling. Capacitors are pre-installed, for those who cringe at soldering the small pieces. The armatures are machine-wound but are tuned by master motor tuner Mr. Ishizuka of Japan. The brush hoods are gold plated for improved efficiency and clean solder joints. The durable brushes ensure long commutator life and low maintenance. A good choice for hand-wound performance.



LUNAMWM7D Explosion 7X2 $45.99
LUNAMWM8D Explosion 8X2 $45.99
LUNAMWM8T Explosion 8X3$45.99
LUNAMWM9D Explosion 9X2 $45.99
LUNAMWM9T Explosion 9X3 $45.99
LUNAMWM10S Explosion 10X1 $45.99
LUNAMWM10D Explosion 10X2 $45.99
LUNAMWM10T Explosion 10X3 $45.99
LUNAMWM11D Explosion 11X2 $45.99
LUNAMWM12D Explosion 12X2 $45.99
LUNAMWM13D Explosion 13X2 $45.99



Fantom Motors

Fantom's line of machine-wound motors contains dual ball bearings. The machined armatures are diamond trued and re-balanced for added power and efficiency. The armature is also perfectly shimmed for exceptional precision. These motors feature a brush damping system as well as brush heatsinks that are more commonly seen on high dollar hand-wound motors. The Fantom motor's magnets are re-zapped, which helps create more power. Each motor is dyno-tuned at the Fantom factory to achieve maximum performance, but as they have adjustable timing and removable hoods, the motors can be further tuned at the track.

F423 Fantom Team Edition 19 turn single wind $49.99
F427-9 Fantom Team Edition 9 turn double wound $49.99
F429-11 Fantom Team Edition 11 turn double wound $49.99
F431-13 Fantom Team Edition 13 turn double wound $49.99

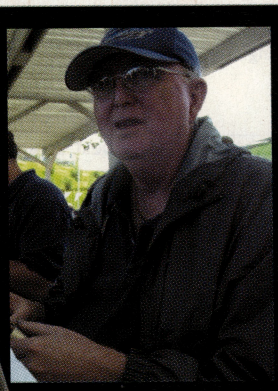
Team Trinity Speed Gems Pro

Team Trinity's Speed Gem Pro motors come with all the bells and whistles. The motors feature dual ball bearings and a removable endbell. The endbell allows for timing adjustments and easy access to the armature. The stand-up style brushes, along with racing springs, have been factory tuned to achieve the best possible performance. The front of the can has a number of openings for increased cooling to ensure long motor life. For close to hand wound performance these motors are right there.



9250 Speed Gems Pro 9X2 $49.99
9251 Speed Gems Pro 11X2 $49.99
9252 Speed Gems Pro 13X2 $49.99
9253 Speed Gems Pro 15X2 $49.99
9254 Speed Gems Pro 17X2 $49.99

The Differences between hand-wound and machine-wound modifieds with Mike Reedy



World champion motor designer Mike Reedy knows a thing or two about what makes a motor suited to a particular application. We asked Mike to explain some of the differences between hand-wound modified motors and the less expensive machine-wound mills that are featured in this guide. "The obvious difference between the two is the price," says Mike, "a machine wound motor is considerably cheaper because there is not any labor involved in building the armatures. Hand wound armatures are built by skilled technicians who follow much closer tolerances. The added labor costs and a more expensive epoxy that is used on hand wound armatures drives the price up substantially higher than that of machine wound motors" We then asked the knowledgeable motor guru what the benefits of a hand wound motor are, since all of the top pro drivers will only use them. "At large races where every 100rpm counts and heat resistance is important, a hand wound motor will be able to reach higher numbers with better efficiency and with less possibility of overheating. Hand wound motors are generally better balanced and can hold more wire because the motor builder can space the wire much more effectively. More wire will produce greater top end. When lower seven-, eight- and nine-turn motors are used, the hand wound motor's epoxy will hold the armature together better. Some machine wound motors will come apart under high loads when they get too hot. Pro drivers also use them because they are blueprinted to certain specifications - and they get them free," chuckles Reedy.

Would club racers benefit from a hand wound motor? "Most club racers would not know the difference between a machine wound and hand wound motor with the same amount of turns, says Reedy, "The differences are minimal, and are not as drastic as one might think. Some of the machine wound modifieds today are well built and produce some really good power." Sounds like an endorsement to us!

"SMART MOVE, DUDE!"



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DTXM1055

AUTO SPORT FORWARD W/BRAKE

Buy an IntelliSpeed ESC, and your friends will actually mean it when they say it.

The forward-only Auto Sport is your most affordable move, yet handles motors down to 20 turns just like a more expensive ESC. You get traction control, too – and set-up is easy. Turn on your radio and the Auto Sport, throttle up, throttle down...and you're done.

Setting up any of the three reversible IntelliSpeeds isn't much harder. If you can push a button, you can enjoy reverse and ABS braking (or lock them out), or program a time for traction control and reverse delay.

And if you're 'way serious about competition, meet it head-on with the forward-only 8T Pro Racing ESC. Touch a button, and you can customize settings for current limits, operating frequency, turbo and quick start, minimum and maximum brake limits and traction control. Add in the FET servo power lead, solder posts for motor and battery leads, optional Auto-Brake and a 6V/3A BEC, and you have one hot contender for a cool 1.5 oz. in weight.

It's time to make your move – to DuraTrax IntelliSpeeds. For more information or the location of the dealer nearest you, please visit www.duratrax.com or call 1-800-682-8948 and mention code number 2947F.

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16T MILD-MODIFIED REVERSIBLE

DTXM1065



12T MODIFIED REVERSIBLE

DTXM1070



8T RACING REVERSIBLE

DTXM1075



8T PRO RACING FORWARD

DTXM1080

FUNCTION	AUTO SPORT	16T MILD-MODIFIED	12T MODIFIED	8T RACING	8T PRO RACING
BRAKE	Yes	Optional ABS	Optional ABS	Optional ABS	Optional Auto-brake
REVERSE DELAY & LOCKOUT	n/a	Yes	Yes	Yes	n/a
TRACTION CONTROL	Yes	Programmable	Programmable	Programmable	Programmable
CONT./PEAK AMPS	128/440	192/660	232/800	420/1410	1200/4700
FREQUENCY	1kHz	1kHz	1kHz	1kHz	244-15,620 Hz
FEWEST MOTOR TURNS	20	16	12	8	8

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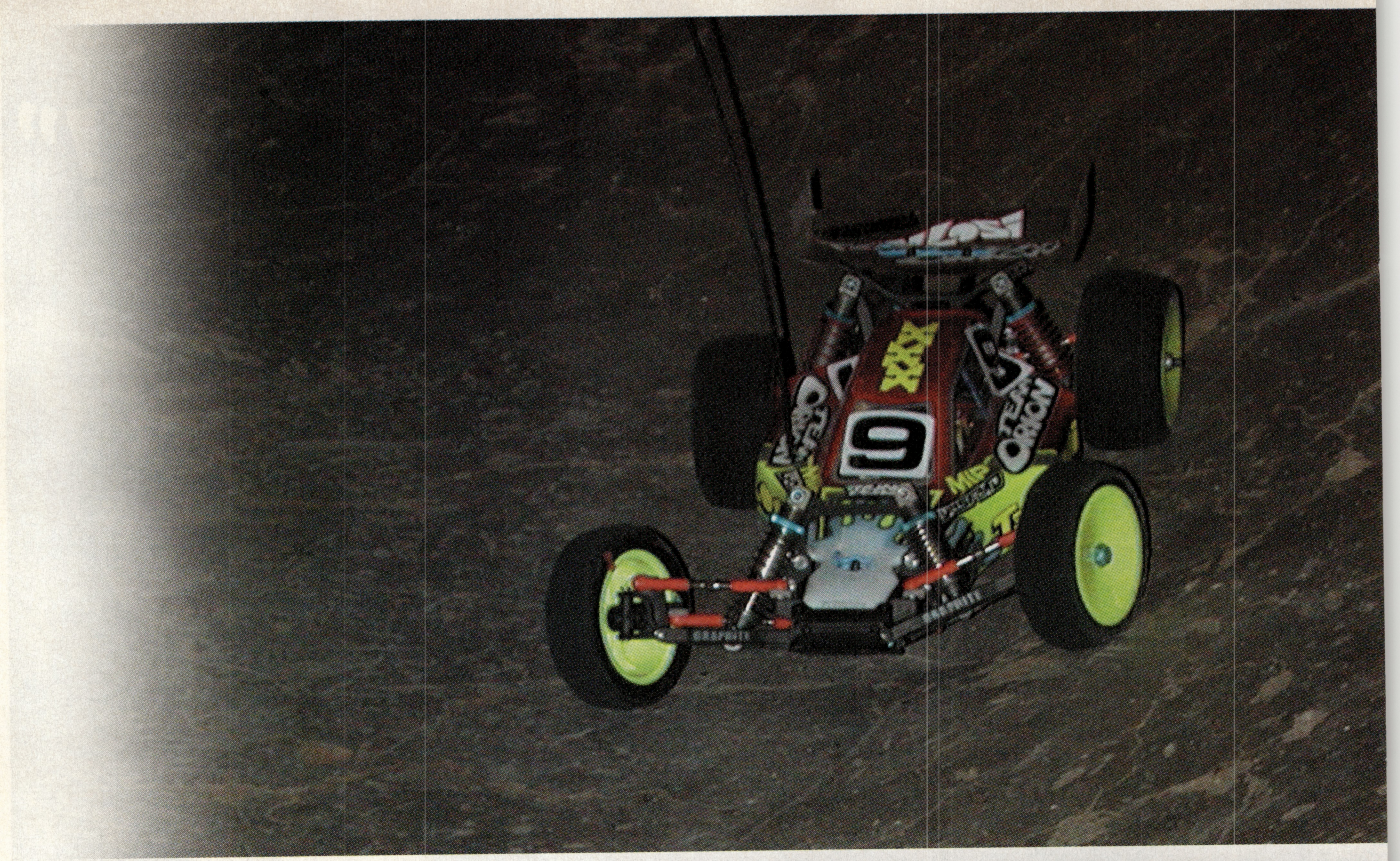




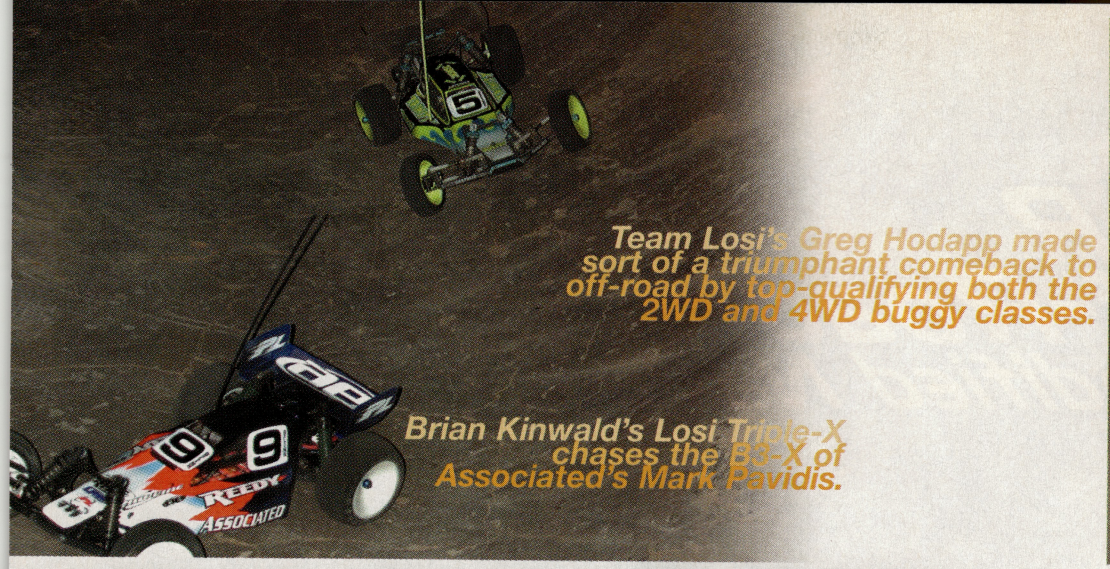
....With two of the three classes going down to the last set of mains, this year's ROAR Modified Nationals was one of the most exciting in years....

The 2002 ROAR





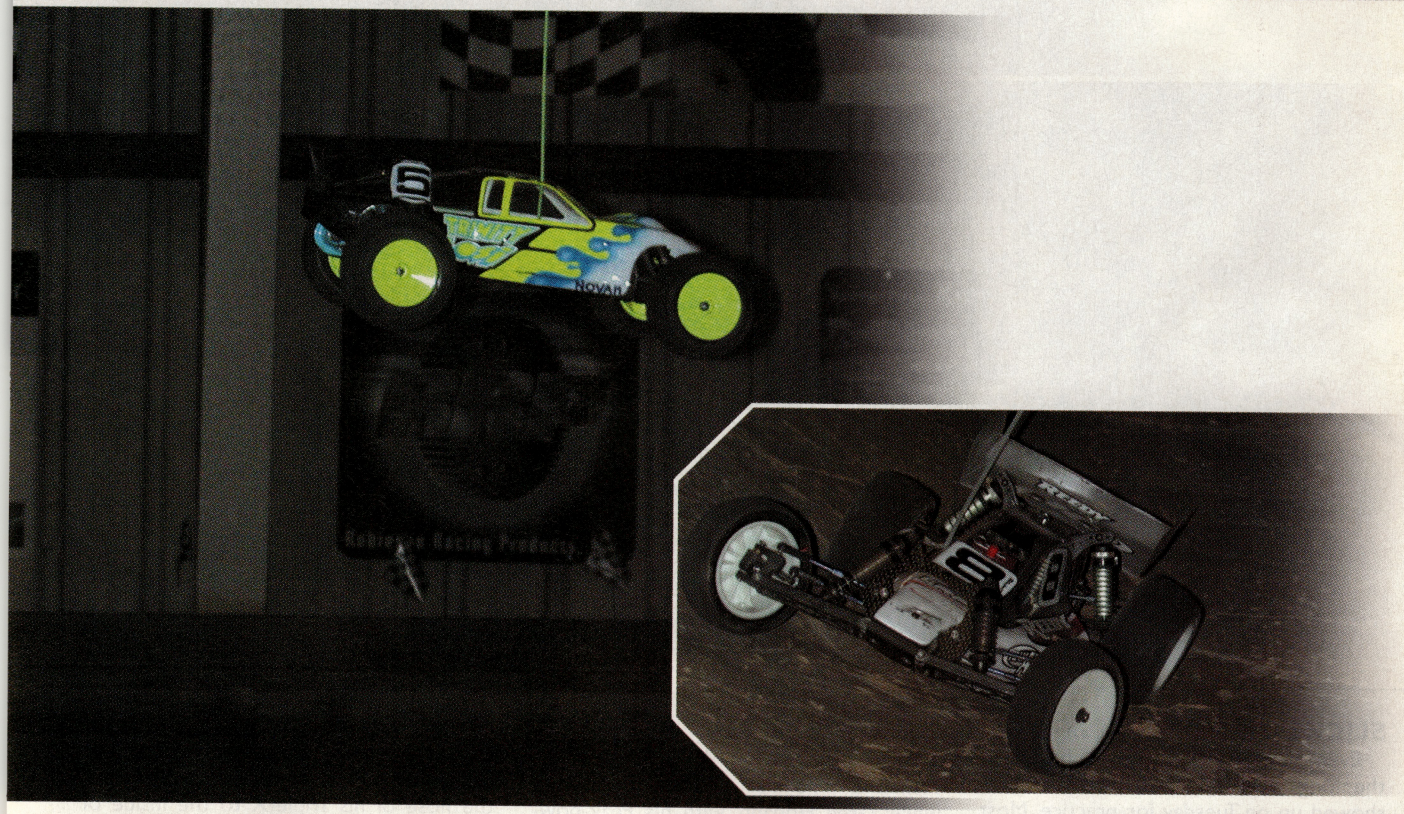
Same Day Signs, one of the event's sponsors, supplied each racer with his own pit towel (with the ROAR Nats logo), event t-shirt, racers' i.d. badge and key fob (also with nats logo). Judging by Same Day's hoisted and stretched Excursion, these guys take their R/C quite seriously.



Team Losi's Greg Hodapp made sort of a triumphant comeback to off-road by top-qualifying both the 2WD and 4WD buggy classes.

Brian Kinwald's Losi Triple-X chases the B3-X of Associated's Mark Pavidis.





Off-Road Modified Nats

Losi's streak continues

The folks from K&M Raceway in New Caney, Texas, hosted the 2002 ROAR Off Road Modified Nationals. K&M is no stranger to hosting national events. In 1997, they held the NORRCA Nationals, where Brian Kinwald swept all three classes. This year's track was extremely fast with elevation changes into the turns, a huge triple jump and even a banked turn just before you swept into the straight. For the second year in a row, the nationals had a "spec" tire for all classes. At this year's nationals, the tires were Team Losi Red Taper Pin on the rear of all three classes, while up front, the 2WDs used Losi Red compound Xtra wide bodies, the trucks used Red 8 Ribs, and the 4WD buggies used Red Taper Pin.

ROAR Off-Road Modified Nats



SLICKS OR NO SLICKS?

Even though the race was to held over the long weekend, most of the racers showed up on Tuesday for practice. Most racers expected to be on slicks as they were for the nationals in 1997. But due to the weather conditions, the first day and a half were on treaded tires. Wednesday afternoon, Peak Performance's Rick Hohwart went out on the track with slicks and instantly picked up a second per lap. The word spread like wildfire through the pits, and from then on it was straight slicks. You had to be careful, though, as this track had a very fine line for the slicks, but if you were off the line by three inches, it was into the marbles and guaranteed 360s!

QUALIFYING

Qualifying saw some new faces and some old faces taking up the pole positions. Team Losi's 17-year-old Dave Montgomery took the pole in Modified Truck with his Orion-powered Losi Triple-XT. Taking the pole in 2WD and 4WD was someone who hasn't been there in a while; Greg Hodapp, with his Peak-powered Losi Triple-X and Prototype Triple-X4. Coming off a great IFMAR world championship, Greg was on fire during qualifying. With the top 10 in each class very close, there was sure to be some exciting A-mains.

THE FIRST A-MAINS

2WD: TQ Greg Hodapp led the field to a relatively clean start, but as he approached the triple, Greg did not carry enough speed and nose-dived into the third jump. This allowed Brian Kinwald to take the lead with Mark Pavidis in second and Brian Dunbar in third. Pavidis managed to put some pressure on Brian for a couple laps, but little by little, Kinwald started to stretch it out. At about the two and a half minute mark, eighth qualifier and current 2WD World Champion Matt Francis moved into third and began to challenge Pavidis for several laps. Francis tried to put the nose of his Triple-X to the inside of Pavidis' B3X several times before coming onto the straight and tangling them both up into the pipe. As the marshal cleared the carnage, Francis got the best of it and moved into second while Pavidis was now in third. With ten seconds to go, Hodapp made the aggressive inside pass on Pavidis over the triples and moved into third. Crossing the line first was Kinwald, followed by Francis and Hodapp.

Modified truck: Top Qualifier Dave Montgomery, Brian Kinwald and Greg Hodapp got away with a clean start as the rest of the field tangled up in the first turn. Hodapp began to put pressure on Kinwald, which let Montgomery pull away with a small lead. After a couple of laps, Hodapp bobbled and this freed up Kinwald to go after Montgomery. At the halfway point, Montgomery cased the triple and in



Newly crowned World Champion Matt Francis couldn't quite pull a repeat performance by winning the nats.

turn spun out in front of Kinwald. Rather than push his way through, Kinwald waited for the marshal, which put Montgomery out in front. Kinwald was putting extreme pressure on Montgomery by driving just inches off his rear bumper. Montgomery began to drive defensively which slowed them both down and allowed Hodapp to move up on them. With a minute to go, Montgomery got loose coming up to the triple and couldn't clear it as Kinwald flew past him to take the lead. With ten seconds to go, Montgomery bobbled again over the tough triple jump and allowed Hodapp to finish in second behind Kinwald.

4WD: TQ Greg Hodapp obviously remembered his rough start in 2WD as he easily cleared the triple. However, he managed to bobble on the next double and let Kinwald, Rick Hohwart, Todd Hodge and Adam Drake get by. Hodge then broke on the next lap and the let Drake move into third. Other than Hohwart trying the dive-bomb last turn "desperation" pass on Kinwald, the three drivers maintained their respective positions until the end of the race.

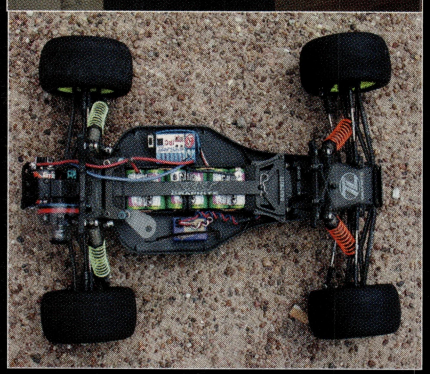
SECOND ROUND OF A-MAINS

2WD: At the start, Pavidis made a charge to the inside of Kinwald going into the first turn. Kinwald, not wanting to chance it, wisely gave Pavidis some room. On the second lap, Hodapp broke loose after the dreaded triple jump and gave the lead to Pavidis. Meanwhile, fourth qualifier Phillip Atondo made a nice move on Hodapp to take over second. About two minutes into the race, Hodapp again bobbled over the triple and caused a huge pileup that eventually bumped Kinwald back to a seventh-place position. With a minute to go, Atondo crashed and let Ryan Cavalieri and Brian Dunbar get ahead of him. With less than two laps to go, Hodapp, who was about to be lapped by the lone B3X of Pavidis, crashed over the triple again, but this time he took Pavidis with him. Mark was lucky to get away with the lead, finishing just ahead of Dunbar and Cavalieri. It would now take the third A-main to decide a winner.

Truck: Knowing that he had to win this main to keep his hopes alive for a national title, Montgomery led a clean start with Kinwald and Hodapp right behind him. For about two minutes, Kinwald looked inside and outside, hoping to make a clean pass on Montgomery. A slight tap on Kinwald's rear bumper allowed Hodapp to get by. With Hodapp and Kinwald battling it out for second, Montgomery stretched out his lead to over four seconds. On the last lap, Dave bobbled and did a "rail slide" on the pipe for a good six feet before saving it and getting back on line ahead of Hodapp and Kinwald. As with the 2WD class, the overall winner would be decided in the third and final main.

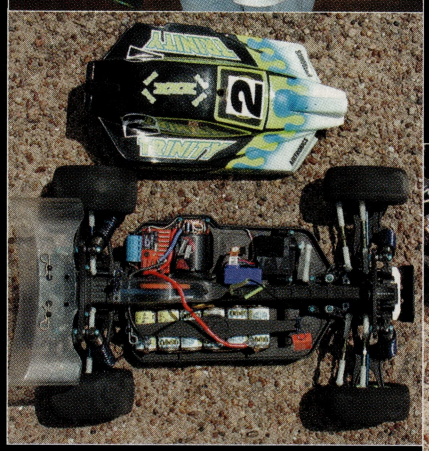
ROAR Off-Road Modified Nats



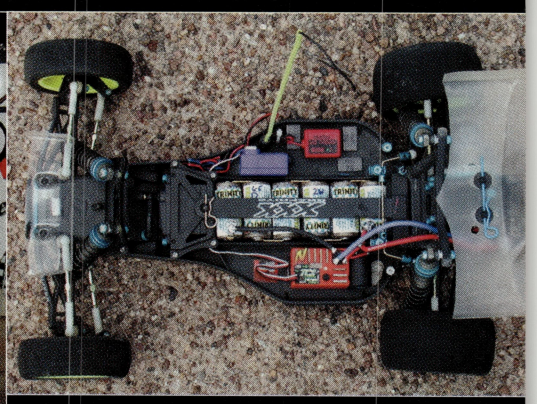


Team Losi driver Dave Montgomery captured the gold in the Modified Truck class with his Team Orion powered Losi Triple-XT. Dave also used LRP electronics and Team Losi tires.

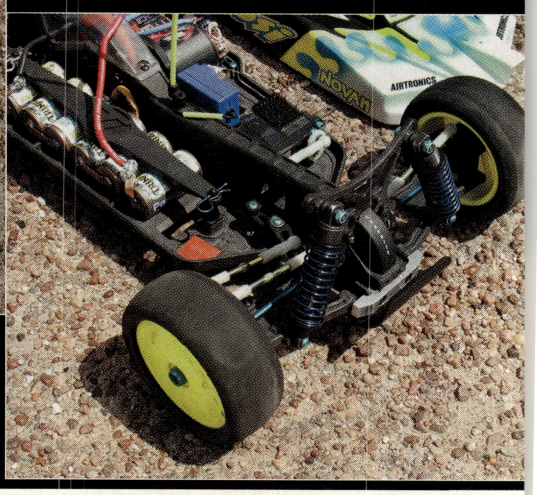




Brian Kinwald's winning Losi XXX-4 prototype. Officially, Losi isn't sure if they'll produce a production version of the car, but if you look closely, you'll see that the front arms are molded pieces.



Brian Kinwald's winning Losi Triple-X 2WD buggy used Trinity power and Airtronics/Novak electronics. The front wing is used to add steering on high-speed turns, and is available from Losi.



4WD: From start to finish, Hodapp and Kinwald battled it out. Greg, trying to keep his national hopes alive, drove a hard race, but ultimately Kinwald would prevail, and lock up another national title.

THIRD ROUND OF A-MAINS

2WD: Remembering what worked for him in the second main, Pavidis made another successful hard-charging pass on Kinwald in the first turn. Once again, Kinwald gave him the space, not wanting to tangle so early in the race. Hodapp lead a four-car train that consisted of Pavidis, Kinwald and Francis. Pavidis made a clean inside pass on Hodapp, who was forced to run just outside the groove. With less traction out there for the slicks, this allowed Kinwald to also get by for second place. On the next lap, Kinwald tried a deep inside pass on Pavidis, but this allowed the hard-charging Francis to get by Kinwald. For the next minute, Francis put all kinds of pressure on Pavidis, until Mark made a slight mistake off of the triple which forced him into the dust and allowed Francis to pass for the lead. Pavidis then traction-rolled at the end of the sweeper and proceeded to get stuck on a pipe, ending his chances of winning a title. It was now between Kinwald and, as it turned out, Dunbar, who would be racing for the title. On the next lap, Francis bobbled and Kinwald got by for the lead. With 15 seconds to go, Kinwald got a little wide around the 180 before the finish line, and as he tried to cut back in front of Hodapp, he caught Hodapp's inside tire and flipped over. This allowed Hodapp, Dunbar and Francis to get by. With five seconds to go, Francis bobbled over the triple and let Kinwald by to finish third behind Dunbar and winner Hodapp. A third place finish was enough for Brian Kinwald to claim an astounding ninth 2WD national title in the last 11 ROAR Nationals and his second title for the weekend.

Truck: With Kinwald trying to pull off the three-peat, Montgomery knew he would have to run a perfect race. At the start, it was Montgomery leading Kinwald, Hodapp and Team Associated's Scott Brown. The race was fairly clean, as the only change in the first two minutes would come when Jason Corl got by Brown for fourth. Montgomery and Kinwald would trade fast laps with each other, preventing Kinwald from closing the gap. With a minute to go, Montgomery had stretched out a straight-away lead and ran the flawless race he needed to help him win his first national.

CONCLUSION

Congratulations go out to Brian Kinwald and Dave Montgomery for their great drives in their respective classes. With two of the three classes going down to the last set of mains, this year's ROAR Modified Nationals was one of the most exciting in years. With the nicely decorated facility, and expertly run race, I doubt that this will be the last national for the crew at K&M Raceway.





MODIFIED BUGGY	MODIFIED TRUCK	4WD MODIFIED
1. Brian Kinwald (Losi/Trinity)	1. Dave Montgomery (Losi/Orion)	1. Brian Kinwald (Losi/Trinity)
2. Brian Dunbar (Losi/Orion)	2. Brian Kinwald (Losi/Trinity) TQ	2. Rick Hohwart (Losi/Peak)
3. Greg Hodapp (Losi/Peak) TQ	3. Greg Hodapp (Losi/Peak)	3. Greg Hodapp (Losi/Peak) TQ
4. Mark Pavidis (AE/Reedy)	4. Matt Francis (Losi/Trinity)	4. Adam Drake (Losi/Trinity)
5. Matt Francis (Losi/Trinity)	5. Scott Brown (AE/Reedy)	5. Jason Corl (Losi/Orion)
6. Ryan Cavalieri (Losi/Orion)	6. Jason Corl (Losi/Orion)	6. Rob Schaffer (Losi/Peak)
7. Rick Hohwart (Losi/Peak)	7. Todd Hodge (Losi/Trinity)	7. Ryan Cavalieri (Losi/Orion)
8. Phillip Atondo (Losi/Peak)	8. Adam Drake (Losi/Trinity)	8. Brian Dunbar (Losi/Orion)
9. Eric Willardson (Losi/Peak)	9. Billy Easton (AE/Reedy)	9. Todd Hodge (Losi/Trinity)
10. Dave Montgomery (Losi/Orion)	10. Brian Dunbar (Losi/Orion)	10. Jimmy Babcock (Losi/Orion)

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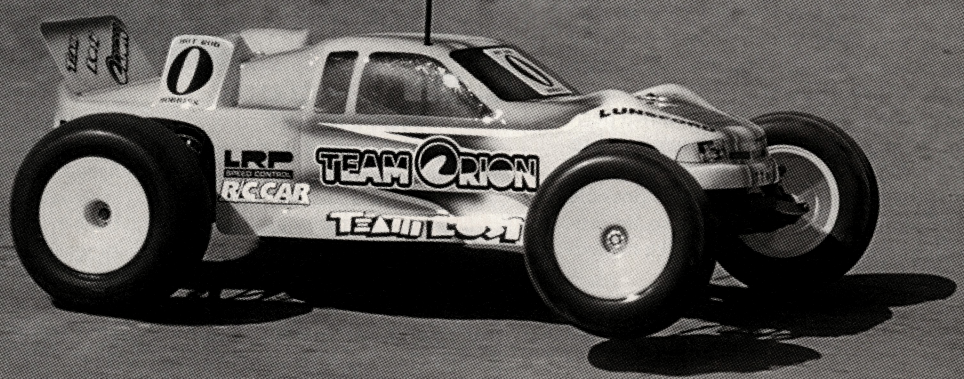

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5 Essential Practice Tips

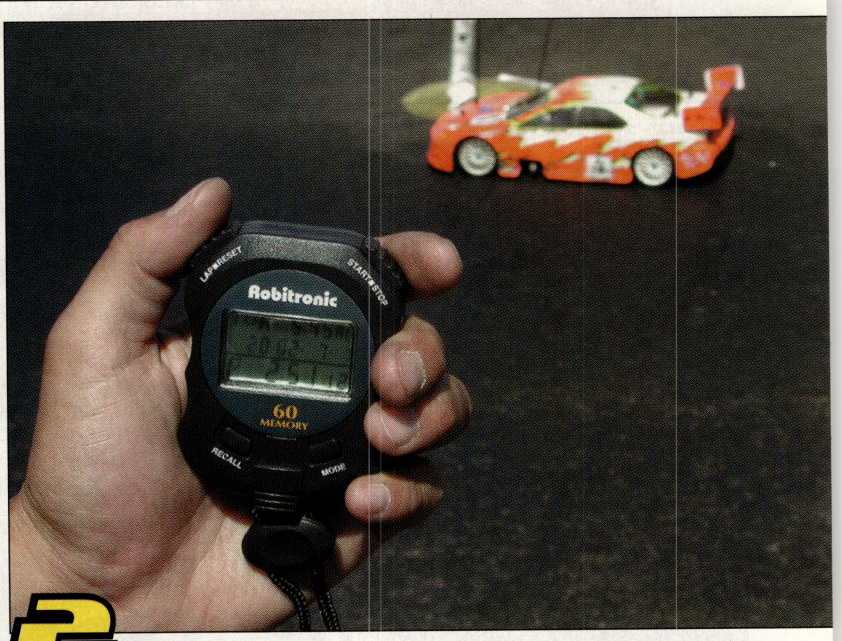
Make the most of your track time



Time is in short supply nowadays, so when you do get the chance to make it to the track for a little practice, why not make the most of the session? Here are five tips that will make your practice time more beneficial, and ensure that you aren't just wasting your time.

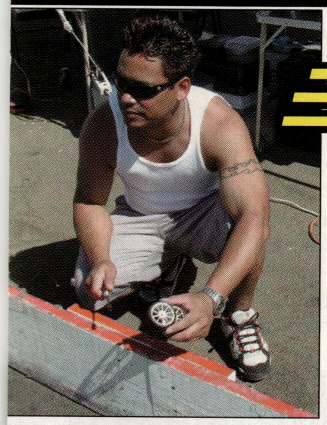
1 STAND WHERE YOU ARE

When it's time to race, where are you going to be? Probably on the drivers' stand, right? You certainly won't be standing somewhere out on the track, so don't be that guy who tries to drive the course from some remote corner, while at the same time blocking others from seeing their cars! Always make a habit of driving your car from the stand, even if this means that you'll have to hop down periodically to marshal your own car. Also, it's good to form a habit of driving from several positions on the stand—left, right and center. It's not always possible to snag your favorite spot on the stand, so be prepared by getting comfortable with the track regardless of your vantage point on the stand.



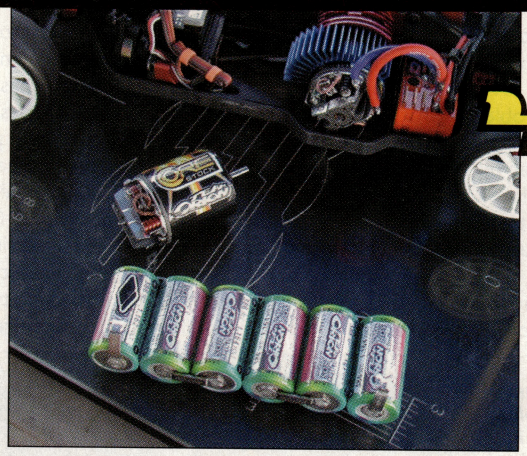
2 THE CLOCK NEVER LIES

Forget how good your car feels. Don't lull yourself into a false sense of speed just because your car is easy to drive. The only thing you should be concerned with is the amount of time it takes to complete a lap. There have been many times that we have thought ourselves dialed-in at practice, only to have reality come crashing down on our heads when we looked at the post-race printouts to learn that we were one second per-lap off the pace. There are several ways to time your laps during practice. You can ask a friend to use his wristwatch or a stopwatch, or if your radio has a built-in timing function, use its lap-timer mode. The problem with using radio timers is that we have found them to be difficult to trigger with any degree of accuracy. When the difference between being on or off the pace can be as little as a half second, there's not much room for inaccuracy.



3 EMPLOY A PIT CREW

The A-main is no time to try out a new type of tire; leave the experimentation to practice. The best way to find out which tire combination works best is to have several types of tire and inserts available to try. If you own just one or two sets of tires, ask a friend if you can try some of his. If they work, buy yourself a set—at least you'll know that you didn't waste your money. To eliminate the effects of changing weather and/or track conditions, get a friend to stand trackside with several tire choices in hand. Do a few laps, then pull over and ask your friend to install a new set of tires. This type of back-to-back testing is the best way to feel exactly how one type of tire is different from another.



4 AVOID USING YOUR BEST STUFF

We know this must sound counter-productive—you will want to drive the course at race speed during practice to gauge your progress—but resist the temptation to strap in that brand new motor or ultra-matched pack; save that stuff for when it counts. We usually try to have an "A" and "B" set of running gear so that we don't wear out our good motor or over-tax our best pack during practice. If you have a lot of old packs—even ones from several years ago—consider having them re-matched and assembling them into practice packs. We have several old Sanyo 2000 mAh packs that we use for practice (and sometimes for racing), and we have no trouble making the time during a five-minute sedan-stock run.

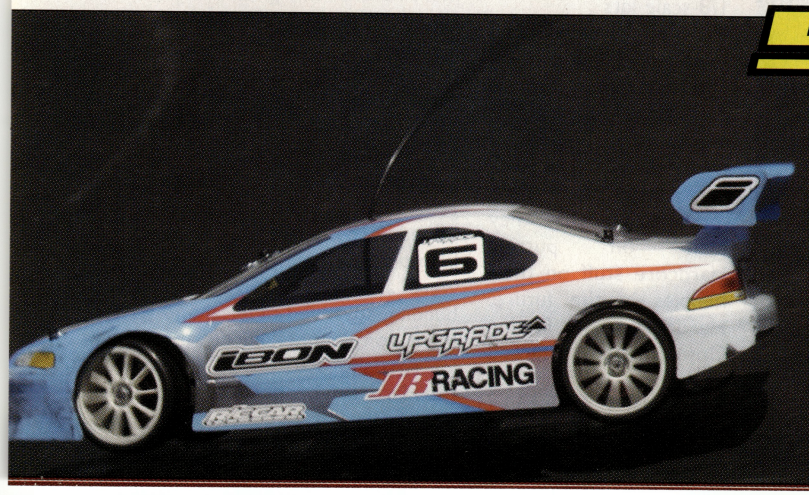
WHEN ACCURACY COUNTS

If you're serious about your racing, then lap times take on even more meaning. The clock tells you not only how fast you are, but also how each change to the car's suspension and other settings affect its ability to get around the track quickly. In this case, there's nothing more useful as a training tool than Team Orion's Pro LCS's personal lap-counting system that you can use anytime.



The LCS works pretty much like a computerized automatic scoring system, in that a transponder is installed in the car. The base unit is placed trackside, and each time the car passes, an infra red signal from the transponder triggers the lap timer. The Pro LCS can be set to begin timing when the car passes for the first time, or it can be set to countdown to the start of a race.

For just under $200, the Pro LCS might seem exorbitant for some, but serious racers will find it essential to getting up to speed—even before the start of the first qualifier. At our local track, practice days find the side of the track crowded with Pro LCS units. And not just experts; we've seen quite a few beginning and sportsman racers using the LCS. They know the importance of having goals.



5 DON'T OVER-EXTEND YOURSELF

The most common mistake made by electric racers during practice is running their cars until their battery dumps. Bad idea! If you're geared to get the most speed and acceleration out of your car during a four or five-minute timed race, you risk overheating and possibly damaging your motor or ESC if you drive much more past the length of your race. You can try to keep things cooler by gearing down (switching to a smaller pinion, for example), but then your car will be that much slower on the straights—pretty useless for practice. Instead, use a stopwatch or have a friend time you with a wristwatch so that you'll know when you've past the four or five minute mark (depending on the length of the races you attend).

GARAGE BUSINESSES

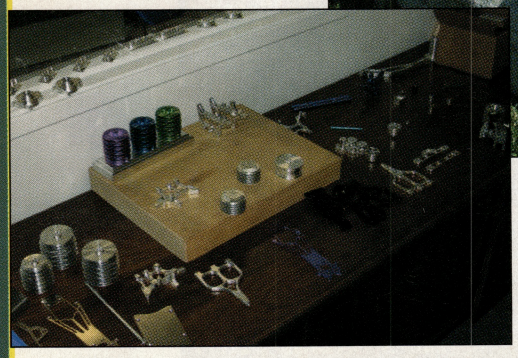
R/C entertpreneurs live their dream!

As is common in the full-size car industry, as soon as a "factory" releases an R/C car or truck, you can count on a number of aftermarket companies to make replacement and hop-up parts for those cars soon after. But there are plenty of obstacles the aftermarket company has to avoid when vying for the consumer's hobby dollar. One problem is that, due to development and overhead costs, they have to be selective in what cars they support. Also, since there is a lot of competition in the industry, their parts have to stand out from the crowded marketplace, either by their design or by their quality or by their price. And then they have to have some distribution structure in place to support their orders. And so on, and so on. Again, as with full-sized racecars, many of these aftermarket guys started out as hobbyists in their garages or basements (or their parents' basements). But taking it to the next level—turning your hobby into an actual business—is something many dream of, but very few are able to do.

Here are a few of the few who have done just that. The three companies profiled here are still very small, with employee headcounts ranging from one to just a handful to over two dozen. But they prove that with good ideas, some hard work, and a little bit of luck thrown in for good measure, they are doing what others dream about.



Just a sampling of the kits that Hardcore supports.





Hardcore Racing Components

President: Aaron Harris
Location: Valencia, California
Number of employees: 25

Specialties: Titanium and aluminum parts and chassis for 1/18 through 1/8-scale kits

Profile: If you take ten modified T-Maxx owners and ask them whose parts they have on their trucks, probably six of them will answer "Hardcore," with three more saying that they plan on putting Hardcore stuff on their Maxxes in the future. Hardcore Racing Components started back in 1999 when Aaron Harris, who had a previous life as a high-end weapons designer for law enforcement and government, decided to apply his expertise with exotic materials and advanced machining technologies to the R/C car industry. "I had been playing with my cars in front of my machine shop for a couple months when it hit me: I have all this great stuff, titanium, aluminum alloy, carbon graphite - government quality materials—that I could be using to make parts for R/C cars." His first designs were for HPI's Nitro RS4—all in Titanium (Aaron's first car was featured here in *R/C CAR* magazine). Soon, he abandoned the government contract industry and joined forces with Lloyd Snyder and Damon Cardone, who at the time were also involved in designing and building advanced medical and government components, effectively combining two shops to design and produce the Hardcore production. "I do the ini-



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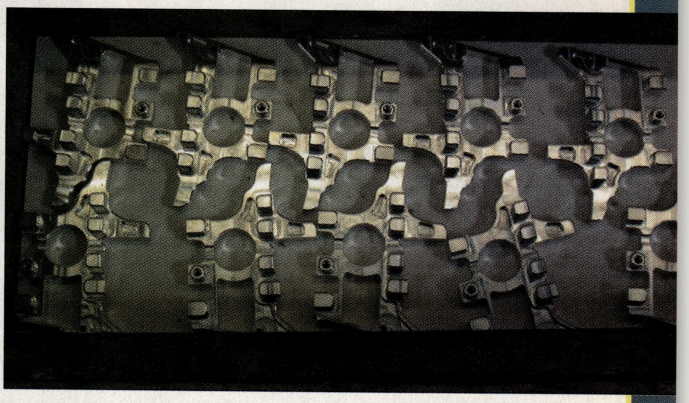
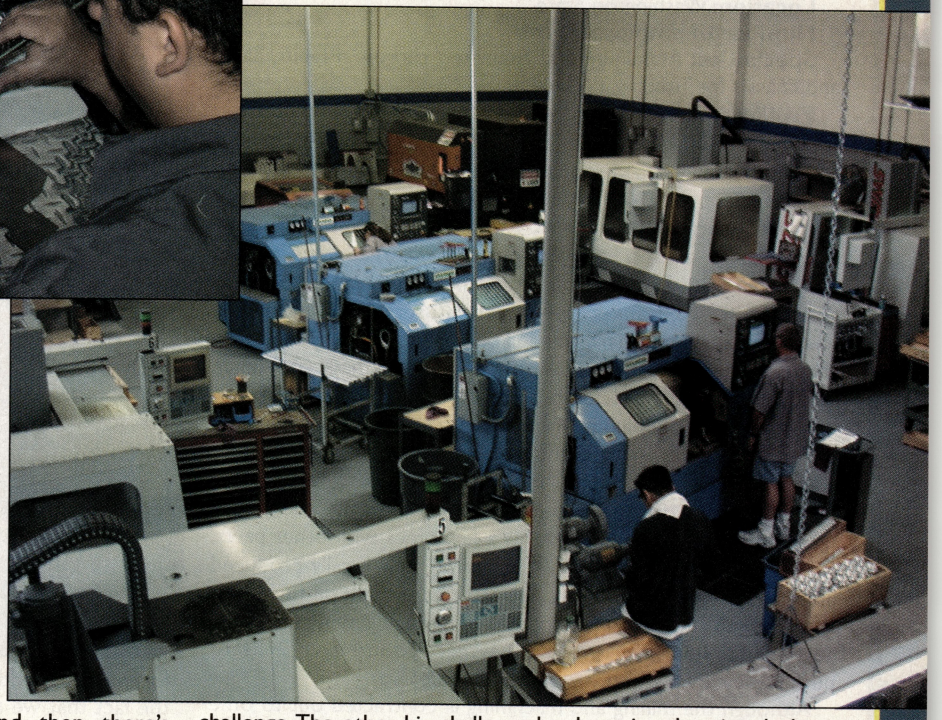


T-MAXX bulkheads fresh from the machine.



Aaron checks out a new titanium T-MAXX Mutant chassis.



tial CAD design work, then hand it off to Lloyd, who handles machining production. He then incorporates any additional design changes, as needed, before we test then go to production. Damon handles all of the business dealings - distribution, sales, marketing, advertising, and such."

Last year was a banner year for Hardcore, with T-Maxx, Kyosho MP-7.5, and GS Storm parts sales going through the roof. And now with Horizon as their exclusive U.S. distributor, things can only get better. Hardcore has many new products in development, including support for the Tamiya Terra Crusher, the GS Vision touring car, Associated's Nitro TC3, and Traxxas' as-of-yet unnamed new truck. And then there's Hardcore's own Mutant Maxx kit (featured elsewhere in this issue), which is a hybrid of T-Maxx parts and Hardcore parts. "It's somewhere between a 1/8-scale buggy and a monster truck," Aaron intimates.

There have been some obstacles to Hardcore's success. This is to be expected when you make all of your products in-house (Hardcore has several million dollars' worth of state-of-the-art CNC machinery, ranging from milling, lathing and advanced optical cutting methods). "Our manufacturing process is a day-to-day obstacle. It's really hard to make the parts we do, especially out of these exotic materials. Just working with the materials is a daily challenge. The other big challenge has been in educating dealers, distributors, and the buying public that you have to 'pay for quality.' It isn't cheap to make the stuff we do, but we feel that the quality of our work wholly justifies the price tag we put on it. And then there's keeping up with changes in the industry, the new cars and such. We want to do it all."

Hardcore's goals attest to that "do it all" attitude. They want to be "the only hop-up name on any shop's walls." But even with the manufacturing business, and supporting a team of 11 or so drivers, the Hardcore guys are still very enthusiastic about the hobby—and you can hear it in Aaron's voice when he talks about any of Hardcore's new products.



RD Racing Products

Owners: Roy Pitchlynn and Darren Davis
Location: Washington State
Number of employees: two
Specialties: Aluminum and laminated carbon graphite parts and chassis for Traxxas 2WD kits.

Profile: RD's story is the kind we love to hear about. Darren (the "D" in RD) broke his back in a motocross accident, and in the quest to fill his downtime with a new hobby, picked up Traxxas Sport nitro kit. Darren ended up dragging his buddy and business associate Roy (the "R") into R/C cars with him (they both manage an anodizing business). Roy already has lots of experience with R/C boat racing, but being new to cars, he also ended up with a Traxxas kit—a Nitro Rustler. After breaking a few parts, notably a hard-to-replace Stinger rear shock tower, they decided to produce their own parts. Roy had experience with computer-assisted design, so he laid out the tower design to be produced in aluminum by a local shop. They had a minimum order to fulfill, so to recoup the costs of the small production run, they were able to sell the remaining parts to their racing buddies. Soon, word got around of the quality of the goods they were designing. After they did this a few times with other parts, Roy and Darren realized the demand for their locally-produced aftermarket Traxxas parts, and started to sell them on the popular eBay website. After a few months of managing multiple on-line auctions for hours every night, they decided in March 2001 to put up their own website with on-line sales.

Although the milling and machining is contracted out to other local businesses, Roy and Darren carefully control the anodizing, since that is their area of expertise. And it shows, judging by the quality of the finish on their parts. Darren tells us, "We're still very small, so trading services for goods can still go a long way. But we are at the point where we are ready to purchase our own machinery so we can bring everything in-house and bring production costs down further. That will allow us to start looking for a distributor and getting our parts out there. Right now, with the exception of a few shops around the country that sell our parts, most of our sales are on-line direct, with customers coming by either word of mouth or by referrals from website message forums." Roy adds, "The scary part about having a distributor is the fact that we might be put in the situation where we have to produce, say, one thousand parts at a time to fulfill an order. But we will have the in-house control of production, so I think we can do it."



The quality of their designs is right up there with the "big guys" and the finish on the anodized parts is second to none, due to their extensive expertise in the field. And with the feedback they have received from racers in the local Spokane, Washington, area and from their on-line message forums, Roy and Darren are just about ready to start expanding their product line to include support for OFNA and GS 1/8-scale buggies, and HPI's Nitro MT and Nitro Rush kits. ***RD Racing Products, (509) 270-7223***

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Delay After Discharge	1 to 60minutes
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Charge Capacity mAh	Yes
Discharge Capacity mAh	Yes
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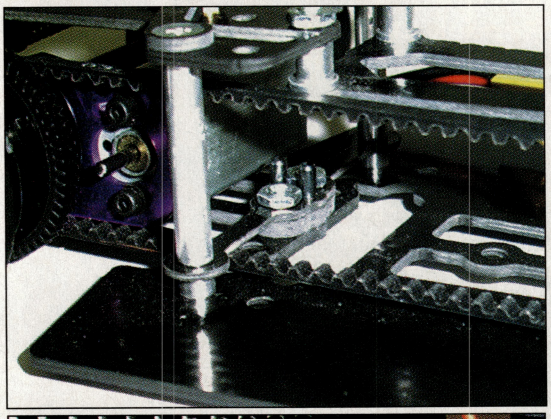
GARAGE BUSINESSES

Penguin r/c

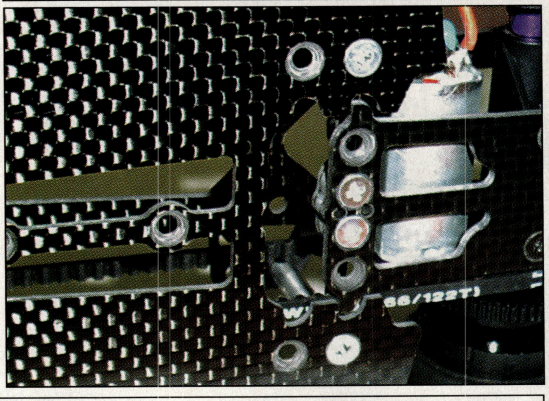
Owner: Brion Sohn
Location: Southern California
Number of employees: one
Specialties: Laminated carbon graphite parts and chassis for electric and nitro touring cars.



Profile: Brion Sohn was an active local Southern California racer, and a very active participant on the *rec.models.rc.land* Internet newsgroup for many years. He was especially active on discussions that turned to Yokomo touring cars and the theories and practices of on-road roll center. After trying to find a replacement for a broken graphite chassis from his Yokomo YR-4, and finding an outrageous price tag from the distributor, he set out to make his own part. With a college background in automotive design, he already had the digital tools to design a chassis, and ended up fabricating the part in his garage armed only with his template, a Dremel tool, and a respirator mask. He successfully raced his design, and designed more parts for his cars. After he finished his education, Brion came to the point where he had to make a career decision. "It was either trying to find work for a car company, do graphic design, or sell R/C car parts."



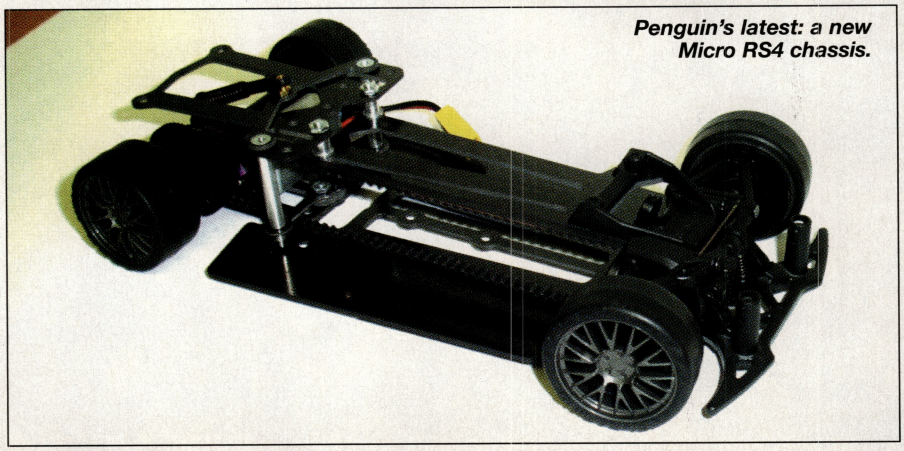
Brion founded Penguin r/c in 1997 with his first parts for his favorite Yokomo car. As HPI's success grew, Penguin expanded into support for the RS4 line of touring cars, developing new battery mounting systems, an innovative adjustable upper deck, and roll center options for the car. However, his big success came with the Yokomo's MR-4 line of cars, starting with his full carbon replacement chassis kit. Now he has expanded to support some Mugen, Serpent, Traxxas, Associated, Losi, and Tamiya cars and trucks.



Penguin's philosophy is pretty simple: produce the best performing parts at the lowest possible price—which isn't always easy to do. Brion says, "There are so many things to consider when designing a car. For example, if I extend the width of a chassis piece a few millimeters, it may benefit two percent of my customers, but the increased width might mean that I can make, say, 20 percent fewer parts per sheet of carbon stock. This would increase what the customer has to pay for it, which is something I don't really want to do. But listening to my customers is very important.

"Of course, I have my testers around the country for the initial designs, but if they point out a glaring error or have an extremely worthwhile suggestion, I will make a running change to the part. The same goes with recalls, of which I've had a few. Fortunately, I do 95 percent of everything in-house, so I have pretty much absolute control over the whole process."

Keeping everything in-house is one of the keys to establishing a price point Brion and his customers are comfortable with. Creative and efficient use of the stock materials, as well as finding local suppliers for these materials, is also important. "Someone once said that if you can't find something between San Francisco and San Diego, it probably doesn't exist," Brion says. And since he does the machine work himself, he doesn't have to keep a lot of stock on hand, and nothing will ever go out of production.



Penguin's latest: a new Micro RS4 chassis.

What's in store for the future? "To keep making a living doing what I love. About half of my sales are through HRP Distributing, and the other half are direct, so I keep pretty good contact with my customers. I'm pretty comfortable with the way things are working, but you always have to be in tune with the trends to find out what the next big thing will be, so I'm always looking for my next releases. But eventually, I'd like to design my own car some day."

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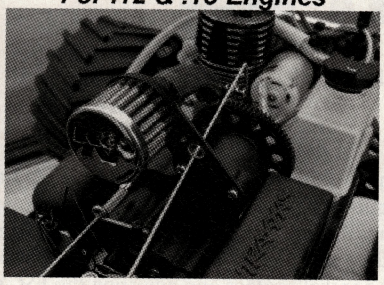

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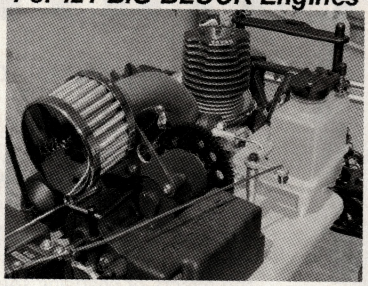

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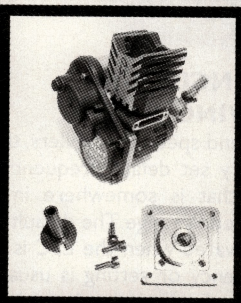

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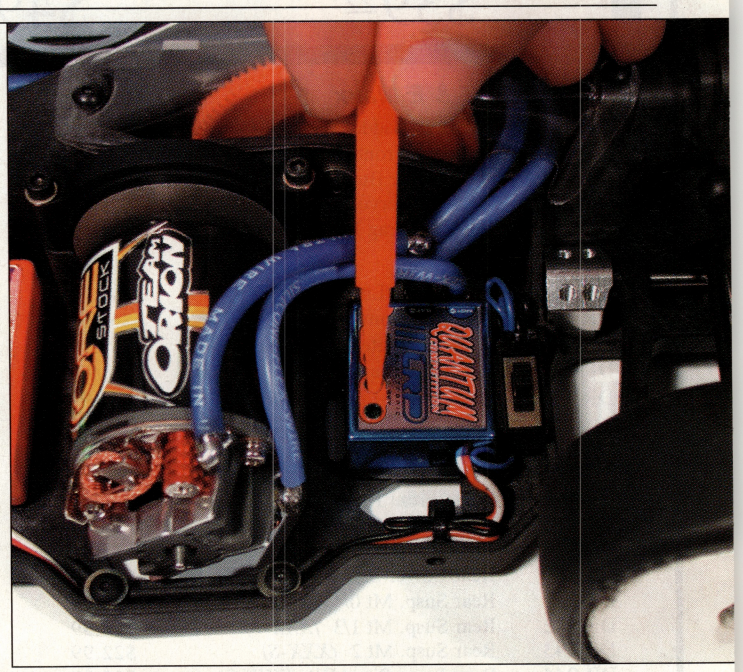
tyree phillips

Simple ESC Programming

The advantages of custom profiles



Tyree Phillips of Novak Racing Electronics has been very helpful when we have had questions regarding radios, receivers, speed controllers or anything R/C for that matter. This knowledgeable, long-time racer took some time this month to help us out by explaining the effects of changing speed control profiles and adjusting the ESC's frequency. And these tips aren't just for Novak's products; they can be applied to any ESC that offers similar programmable features. Let's hear how Tyree and other fast drivers utilize their speedos as a tuning tool.



ESC FREQUENCIES EFFECT DRIVING "FEEL"

On most high-end speed controllers, there is usually a factory set default frequency or "punch" setting that is somewhere in the middle of that speedo's range. The default setting is usually activated when the ESC is first set up. This frequency or setting is usually a good starting point for most tracks and conditions. But as racers, we want every possible advantage we can give ourselves, so settling for a factory programmed speedo is like setting for old tires when new ones offer better traction.



So, what does changing the frequency setting and altering the speedo's punch profile do, you ask? "Well, in general, a higher frequency near the top of the speedo's range will provide smoother throttle response and not have as much punch during initial throttle pull," says Tyree. "In contrast, a lower frequency will provide more punch during initial acceleration and provide a more aggressive feel." The added punch provided by a lower frequency is great for tracks that have good bite and for experienced racers who like abrupt, hard-hitting acceleration. If you're a less experienced driver or are running on a slippery track, you may prefer a higher frequency close to the top of the ESC's range. The feel of the throttle will be smoother and overall control will be more manageable.



In some ESC models, such as LRP's Quantum, a punch value gives similar effects to changing the frequency as in Novak's line of Cyclone speedos. Increasing the punch value is similar to decreasing the frequency value in the Novak controllers. Changing frequencies and punch profiles should be a tool *R/C Car* readers use to accommodate different tracks, varying levels of traction, different motors and, of course, adapting a car to certain driving styles.



Novak's Cyclone series was one of the pioneering programmable ESCs.

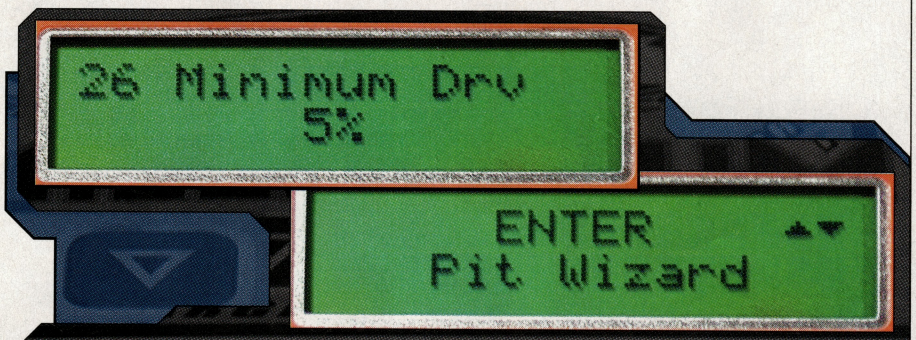
STOCK MOTORS

All forms of racing seek extra traction, faster cornering speed, a stronger top-end, better acceleration and of course any advantage possible over the competition. In the stock classes, whether it is on or off-road, a motor's performance and a car's acceleration are more crucial than in any other form of racing. "A lower-than-standard frequency is desirable for most forms of stock racing where there is ample traction," says Tyree, "I will also run a higher percentage of minimum drive when racing a 27-turn stock motor." Minimum drive is the amount of the ESC's initial forward drive, in a percentage of total throttle travel. For example: a minimum drive value of five percent means that when you move the trigger from neutral to forward, the ESC will start spinning the motor at five percent of full throttle. Lowering the frequency and increasing the minimum drive will help a stock vehicle in high bite traction conditions, but should not be considered a cure-all solution. Different surfaces, track lengths and, once again, your driving preference, should all be considered. So experiment with these suggestions and put to use the knowledge you are now acquiring.

MODIFIED MOTORS

Most top modified drivers like a car that is smooth yet fast and driveable. "Running a higher frequency or decreasing the speedo's punch will mellow out the power of low-turn modified motors, making them easier to drive without sacrificing top speed," says Tyree. In modified racing, extra power can be found by changing gearing or by running a lower-turn motor. Tyree states, "The feel of a modified car should be important because power should be controllable. Finding a frequency that is smooth, and running a lower minimum drive percentage are essential and should not be overlooked."

In on-road racing, many drivers use front one-ways, which limits the amount of drag brake one can have. Too much brake with a front one-way will cause the rear end to come around, scrubbing precious time and much needed corner speed. "If two differentials are used, then adding a little drag brake by increasing the drag brake frequency and increasing the drag brake value will be helpful when trying to slow down for turns and maintain corner speed" states Phillips. With a front one-way, little or no drag brakes is preferable.



PROGRAMMING TIPS

Depending upon what ESC you own, a higher punch value or a lower drive frequency will increase acceleration response.

- A lower punch value or a higher frequency will give smoother throttle response and help on low-bite slippery surfaces.
- The minimum drive frequency should be used to set the sensitivity of the initial throttle response. On high-bite tracks, a higher minimum drive will be an advantage.
- Even expert drivers overlook the tuning possibilities of today's high-end speed controllers. It is in the racer's interest to read the owner's manual and experiment with the speed controller's settings.

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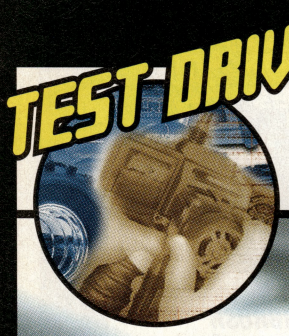
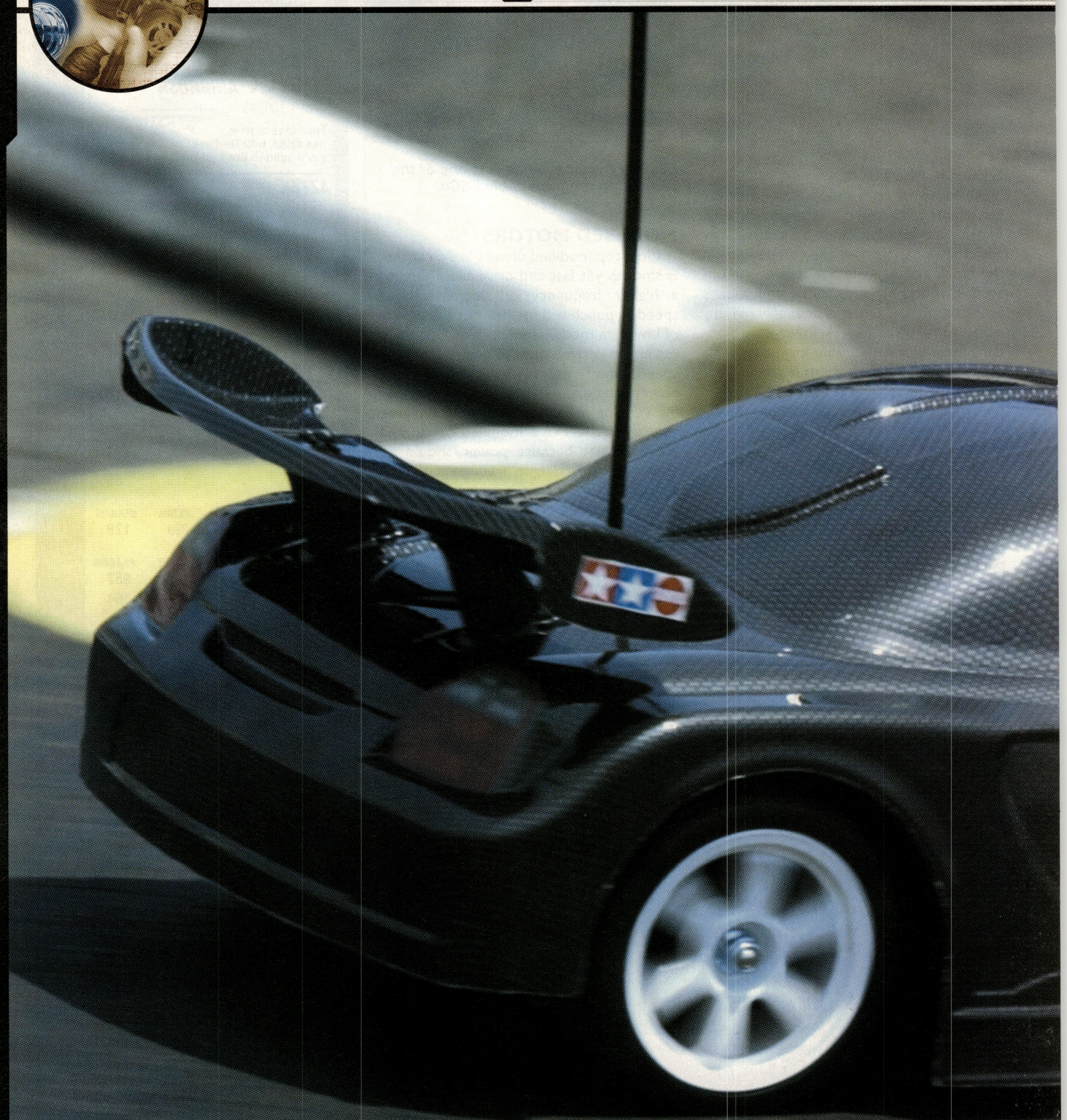


Tamiya TA04-SS



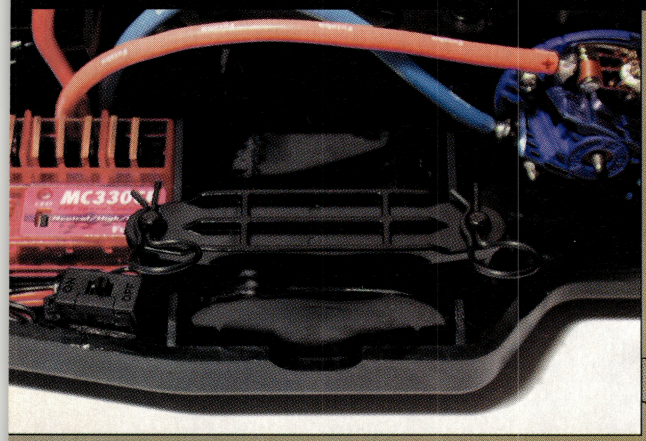
THAT'S MISTER SHORTY

Toyota MR-S

Tamiya has always been the leader in R/C scale realism. From Humvees to realistic looking battle-ready tanks to detailed motorcycles, Tamiya has got your fancy. Recently, Tamiya's line of on-road cars has been inspired by the growing popularity of souped-up Japanese racers. Their latest sedan, the TA04-SS MR-S, is a scaled-down version of Toyota's full-sized MR-S racer, which has had great success in the Japanese GT Championship Racing Series. This new racer from Tamiya comes with an all-new version of the popular belt-driven 4WD TA04 chassis, which has a wheelbase that's 10mm shorter than normal. With a shortened wheelbase, Tamiya sought a car that could turn sharper and improve upon the agility of the previous platform. The authentic realism is present in the pre-printed "carbon-look" body and its exaggerated wing, but we will have to see if the internal refinements make its full-sized father proud.

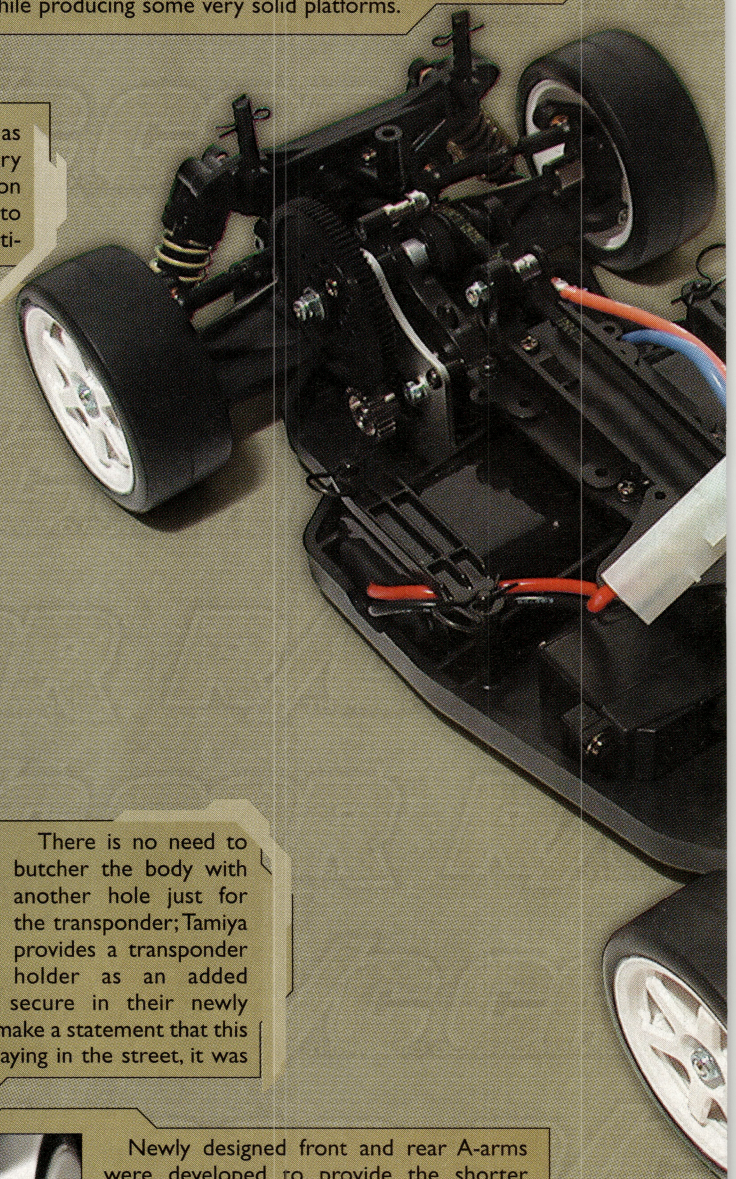


TO YOU, BUB!



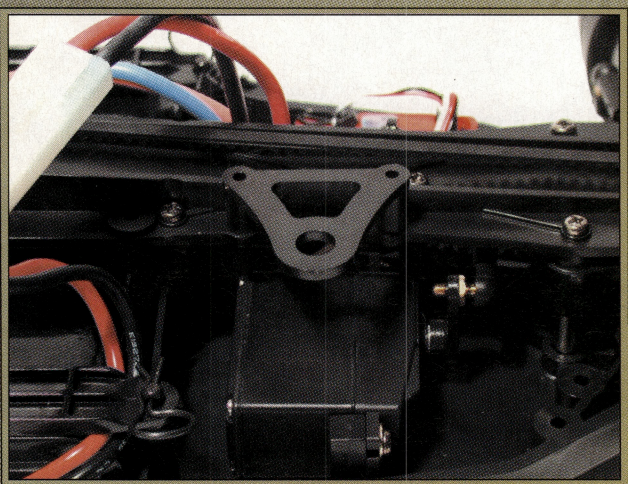
The dual deck chassis is made from a very strong polycarbonate-ABS resin. The lower deck is a traditional tub design, while the top deck runs the entire length of the chassis to serve as a backbone-type stiffener. The lower tub has plenty of space, so finding room for electronics is fairly easy. When completed, the TA04-SS chassis is surprisingly rigid, which is important to the suspension geometry and its effectiveness. The stiff chassis is very valuable on high bite tracks that require a car that transitions quickly. The underside is countersunk, so all the screws seat flush without any chance of scraping. Although other materials such as graphite may be more desirable, Tamiya has mastered the use of this high-grade plastic while producing some very solid platforms.

The battery slot accommodates both stick packs as well as matched packs that have the cells soldered side-by-side. Battery retainers on either side can be removed for easy installation and removal of any pack. Since battery placement is crucial to a car's balance, the TA04-SS's centrally located battery slot optimizes the weight of the battery perfectly.

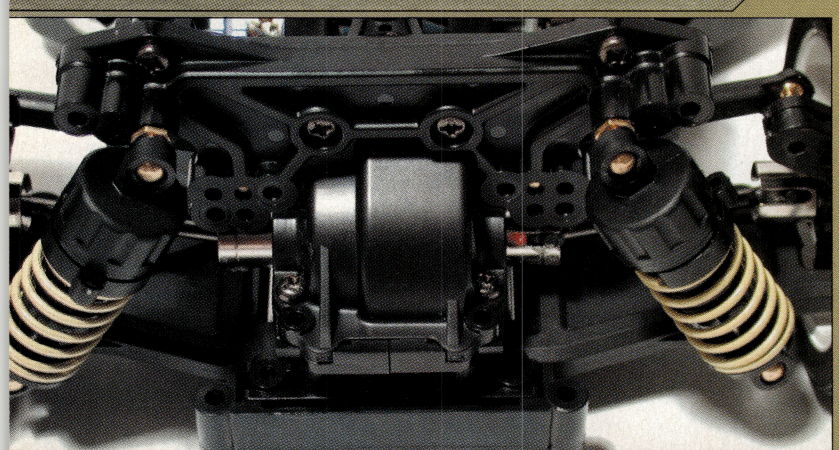


OUTSTANDING FEATURES

OUTSTANDING FEATURES

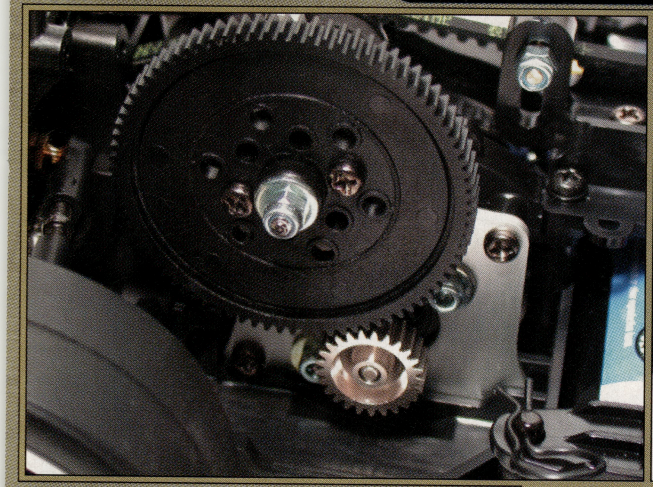


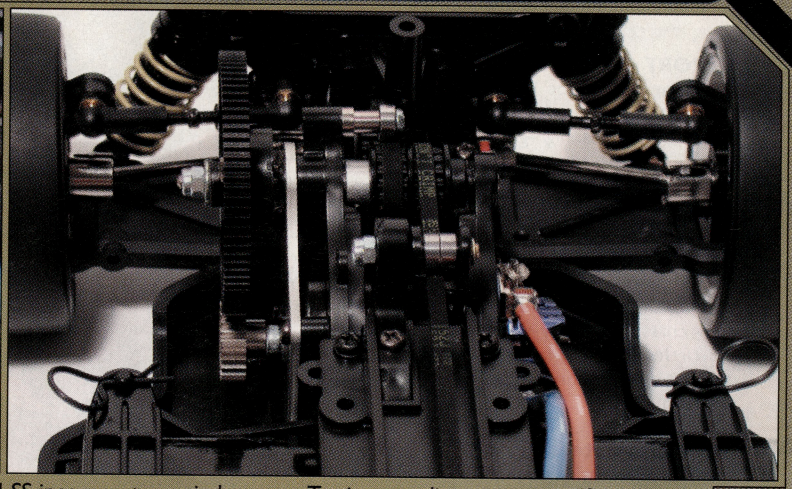
There is no need to butcher the body with another hole just for the transponder; Tamiya provides a transponder holder as an added bonus. They obviously felt secure in their newly designed chassis and seem to make a statement that this car is not just for looks or playing in the street, it was also developed for racing.



Newly designed front and rear A-arms were developed to provide the shorter wheelbase. The rear arms are completely solid plastic, which makes them very hard to break, even for novice drivers. The front arms receive additional material near the inner hinge pins to make these high stress areas more resilient. The four shock bodies are made of plastic and are oil filled. Medium-stiffness gold shock springs are used at all four corners and are well-matched with the stock oil to provide a good starting point for most tracks. Tamiya provides numerous shock spacers so that the ride height and reaction of the suspension can be adjusting in a matter of seconds.

Tamiya TA04-SS

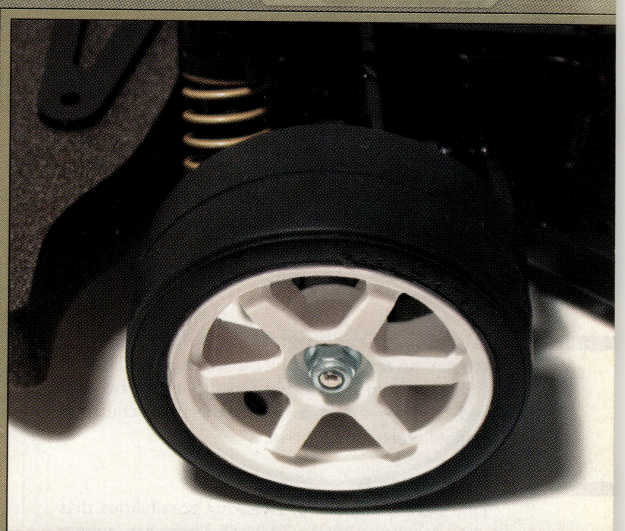




The TA04-SS incorporates an industry-standard two-belt drivetrain. The longer front belt has a tensioner to take out some of the belt's play as it stretches with use. The rear belt is guided by a single metal-shielded bearing to prevent any side-to-side movement that would be inefficient and waste valuable power. Both the front and rear have beveled gear differentials that are pretty quiet and smooth operating. As an added bonus, Tamiya supplies a metric 48-pitch, 83-tooth spur gear and a 25-tooth pinion for initial stock gearing.

The kit comes with a complete set of 24 ball bearings. These not only make everything spin more smoothly, but they also increase the drivetrain's efficiency. Kits that supply ball bearings are usually top notch, and this kit is no exception. The ball bearings also give the steering bellcranks a silky smooth plain to rotate on.





The kit-provided tires come with soft foam inserts that need to be glued. The inserts come in four strips and should only be glued together with rubber cement. CA glue will work, but causes a firm bead that hurts the tires' performance. The tires themselves are medium-compound slicks, which are commonly seen on most Tamiya on-road sedans. The high sidewalls are substantially stiff and prevent the tires from folding under during hard cornering. The one-piece rims are 26mm in width and come in a handsome six-spoke design. Although simple, these wheels are effective and very durable.

BUILDING & SETUP

The TA04-SS went together as smooth as any kit we have ever put together. The pieces fit extremely well without any sort of tweaking. Our only advice is that if the Phillips head screw lengths are a little confusing, just compare them to the pictures on the left side of every page of the instruction manual.

Tamiya supplies the TA04-SS kit with their 540 stock motor and a manual speed control. Both are great items for a novice to start out with but we opted to replace the motor and speed control with ones that are more suitable for racing. This decision was made so we can give the TA04-SS a fair evaluation compared to other sedans in its category.

Tamiya TA04-SS



REPORT CARD

Test location: Hot Rod Hobbies raceway, Santa Clarita, CA

Test conditions: high-grip permanent asphalt road-course. Smooth surface.

Low-speed steering: A

The TA04-SS, with its shorter wheelbase, makes tight turns seem like sweeping turns. The car will turn on a dime with the slightest amount of servo throw. Tamiya was hoping to gain steering with their new chassis, and they were successful. This car can do circles in a very small area. With the right tires, this car will dice through tight-twisties with the best of them.

High-speed steering: B

With the stock tires, we had to go easy in most of the high-speed turns. The car would break loose if it was pushed at all. Steering was good, but traction was not. As soon as we took a sweeper too fast, the car's rear end came around like a water skier who passes the towboat when the whip is cracked. In all fairness, the car could be good in high-speed sections with the right tires.

Acceleration and top speed: B

Instead of using the kit provided 540 motor (anemic at best), we opted for a race-tuned Reedy MVP stock motor. The gear diffs are a little heavy, but their "directness" (there's nothing to slip) made the acceleration feel brisk. Top speed with the MVP was on par with that of more expensive racing sedans, but a gearing change would be in order to maximize the rpms of the competition stocker we used.

Tires: D

The stock tires are one of the first things that need to be replaced if you plan on racing - or even just running - the TA04-SS. On the day we tested, the track's surface temperature was about 130 degrees. Most tires provide some sort of traction in hot conditions, but these tires made the car feel as if it were being driven on ice.

Straight-line Tracking: A

We had no tracking problems whatsoever. The car was able to hold its line without having to be corrected. The long straightaway and the short chutes in the infield were fun to drive.

Adjustability B

There are a number of tweaking possibilities that can be obtained with the TA04-SS. There are quite a few shock anchoring holes both top and bottom for adjusting suspension. Front and rear camber linkages can be moved for unlimited tuning abilities. Toe, ride height and the front belts tension can all be changed in a matter of seconds. With the racer in mind, Tamiya provides a wide variety of adjustments that make tuning easy.

Durability A

The tough plastic tub chassis held its own during the altercations it had with Hot Rod Hobbies retaining wall. Nothing broke which is a very good thing. The car seemed unharmed as if much more punishment could have been dished out. The TA04-SS will endure most curb-smacking abuse that any beginner would put it through.

SPECS

Price:	$164.99
Length:	404mm
Width:	189mm
Wheelbase:	247mm
Track (f/r):	6/7 in./170mm
Weight fully equipped:	1,630g.
Overall height:	117mm
Chassis type:	Resin type double deck
Chassis material:	upper deck/Polycarbonate; lower deck/ABS resin
Suspension (front and rear):	double wishbone
Drivetrain:	belt driven midship full-time 4WD
Steering tie rods:	divided in three segments
Dampers (f/r):	CVA Mini II dampers
Ball Bearings:	Full ball bearings (24 in all)

Final Score

Highs: Tamiya's TA04-SS is well-designed kit that went together effortlessly. The fit and finish of the car was excellent. The newly designed chassis and its shorter wheelbase have accomplished what Tamiya had in mind - better steering, great cornering and a car that is oodles of fun to drive. The kit provided MR-S bodies (carbon fiber pictured, and additional clear body) look great and add to the sedan's realism. Although we did not use the provided manual speedo or the 540 motor, most newcomers will be grateful these items are included and they can save their money for future investments.

Lows: The stock tires are very poor and should not considered for racing applications. The antenna placement should be redesigned and mounted elsewhere on the chassis: it is too close to the moving parts of the drivetrain.

The verdict: For someone looking to get into the hobby and possibly start racing, this car would be a great choice. Its ability to be adjusted will carry a novice driver through the sportsman ranks. Tamiya produces quality products that sell because of their realism and long-term durability. Tamiya's long list of '04 hop-ups will also fit this new chassis.

SOURCES

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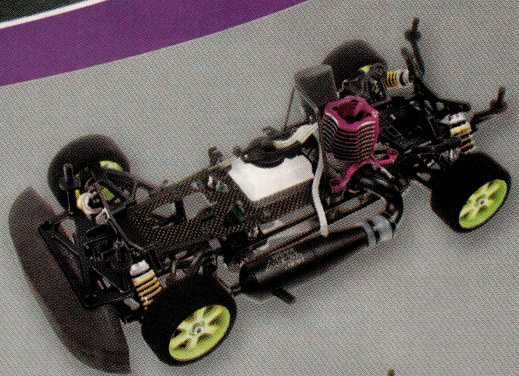

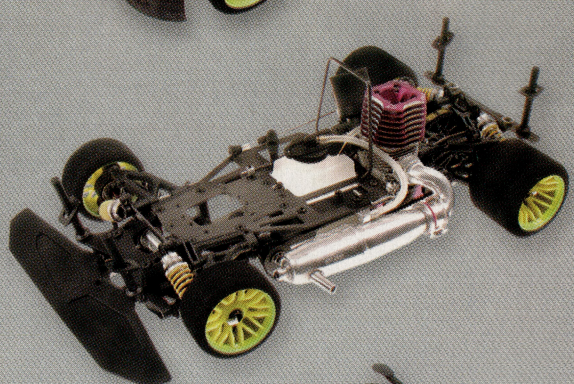

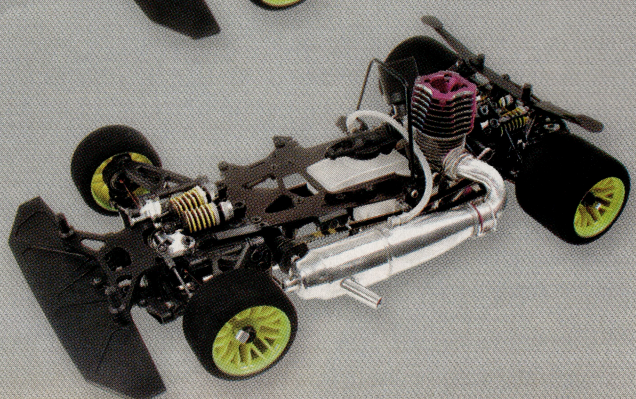

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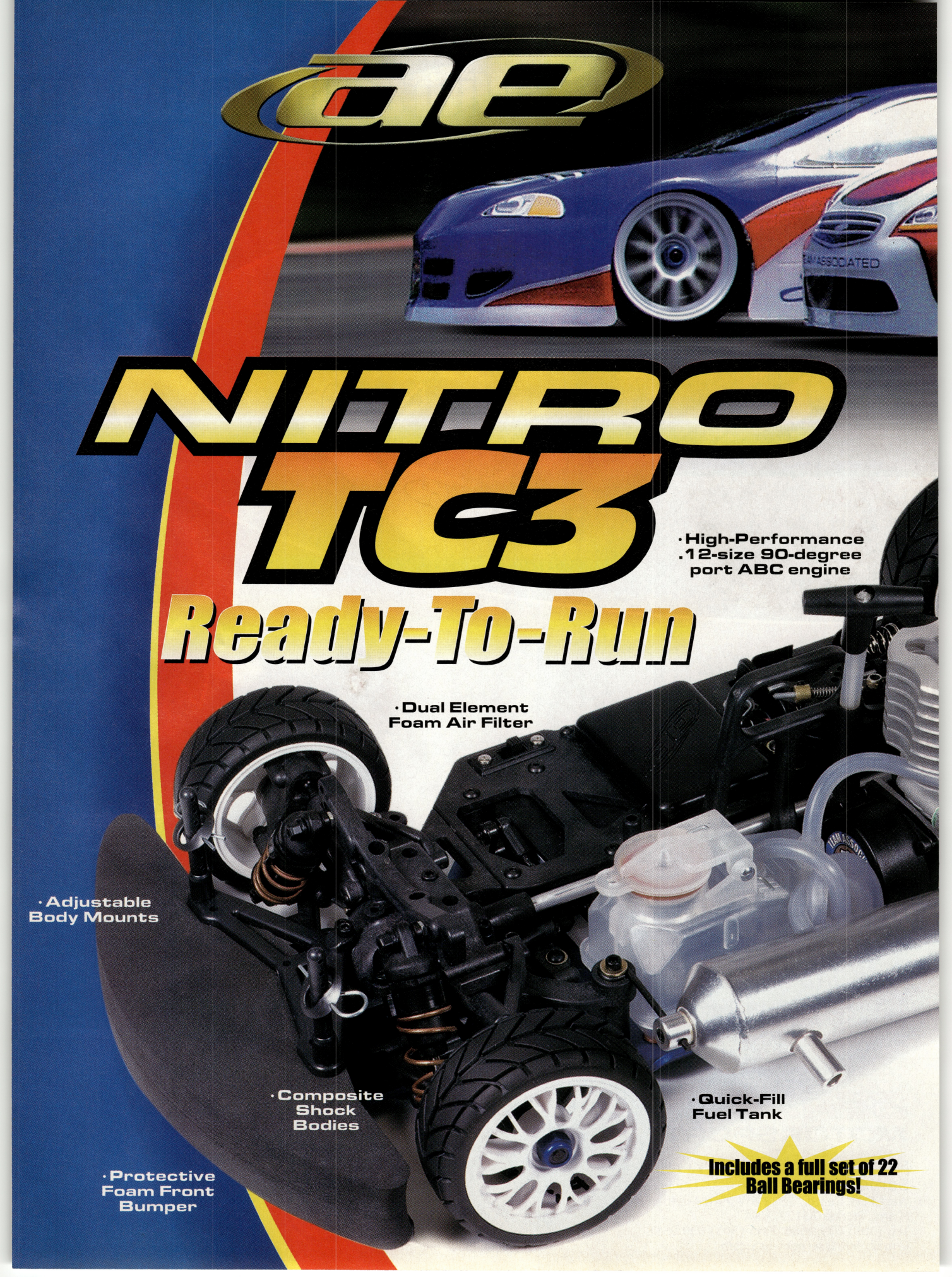
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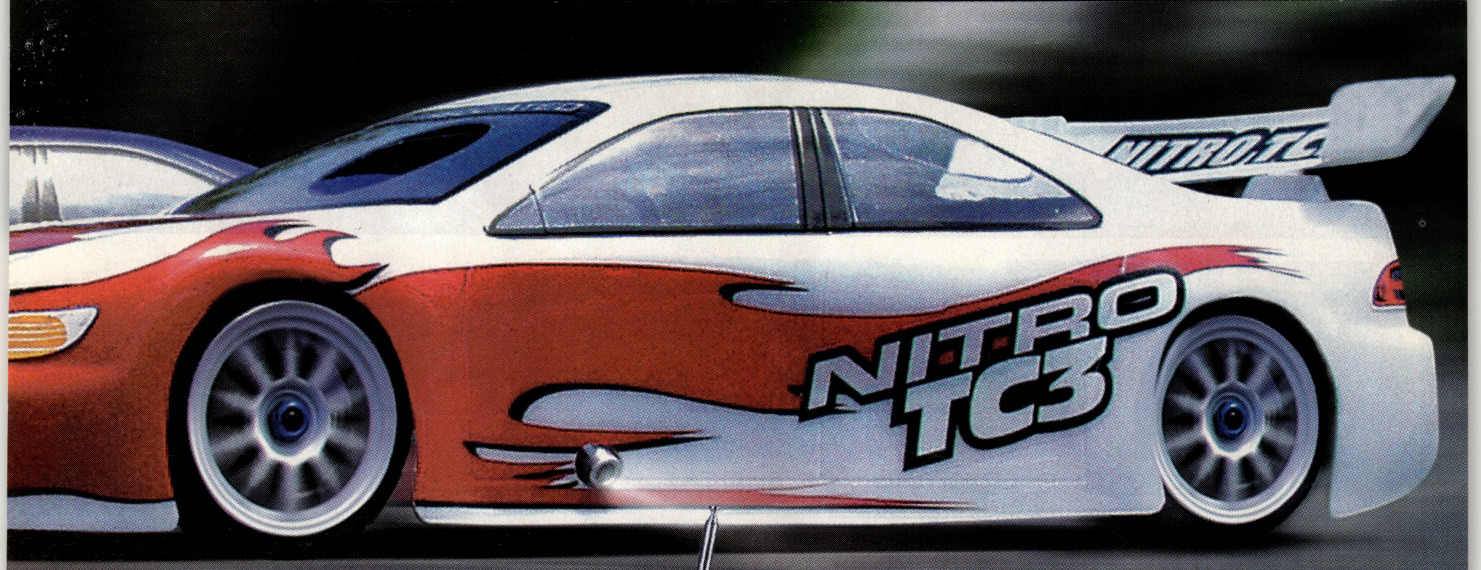

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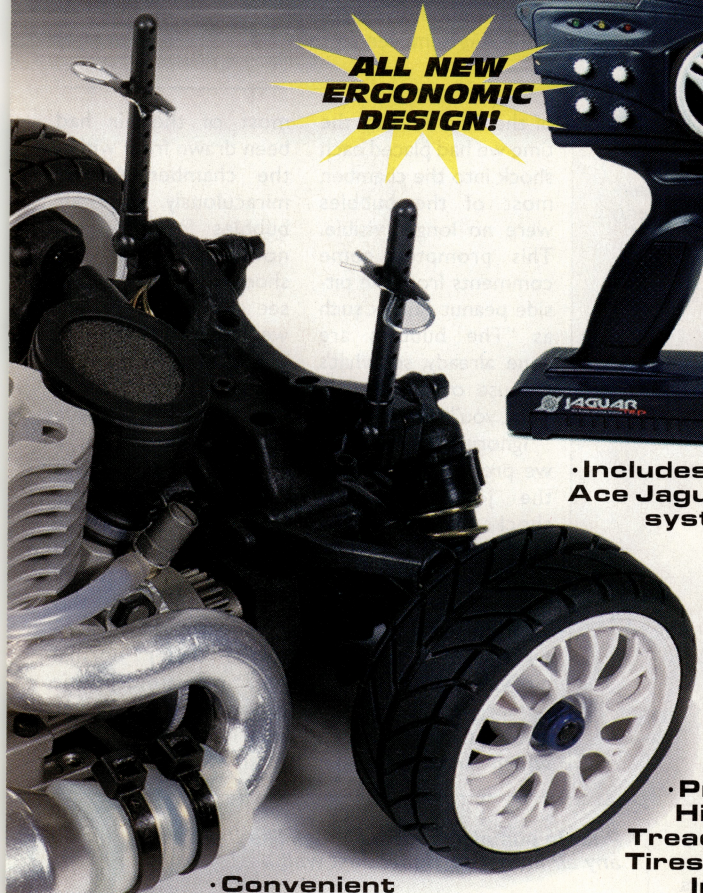

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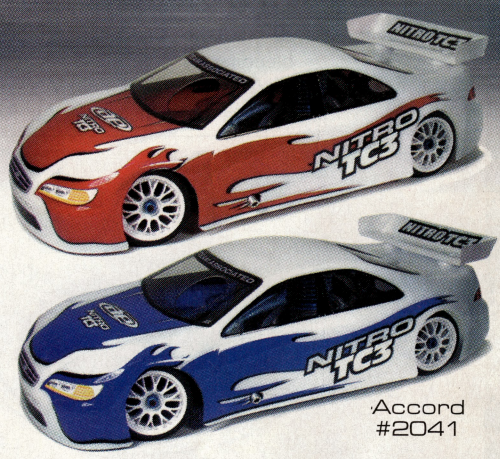

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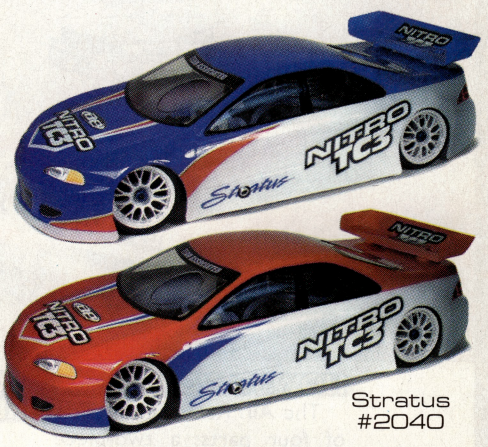

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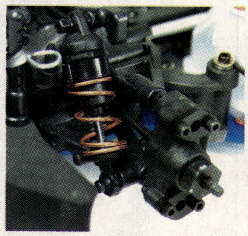
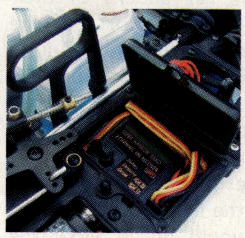


Pivot-ball type suspension with easily adjustable caster, camber, and toe-in. Interchangeable front and rear hub carriers.



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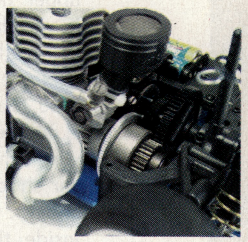

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RiDE Air Remover

Decompression chamber for shocks

As its name would imply, RiDE's Air Remover is supposed to help speed up the process of shock refilling and bleeding by creating a vacuum that sucks the air from the shock fluid. We were a little apprehensive about using the Air Remover in public (after all, this thing does resemble a certain "gadget" from the first Austin Powers movie), but we decided to give it a chance to prove itself trackside. Once the sophomoric giggling had subsided, we put the Air Remover to the test.



The Air Remover consists of a vacuum chamber and a small hand pump. "Honestly baby, it's not mine!"

HOW IT WORKS

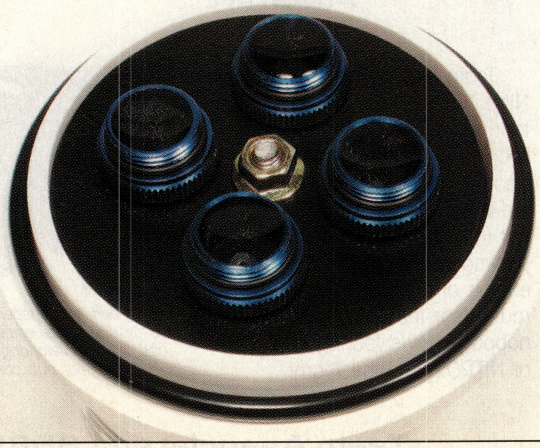
The Air Remover consists of four parts: a two-piece plastic container serves as the main chamber. The clear upper dome is sealed to the lower plastic bowl by a rubber O-ring. Inside the chamber is a fixture that has four holes to hold four shocks. The fixture is double-sided, so it can work with anything from touring car shocks to 1/8-scale buggy shocks. Once the shocks are inside the chamber, a hand-pump is used to extract the air. In space, no one can hear you scream.

BUT DOES IT REALLY HELP?

Skeptics became believers as the Air Remover was put into service. We drained four touring car shocks of their fluid, then performed the standard refilling procedure. Pumping the shock up and down a few times to remove trapped air from beneath the piston created a million tiny bubbles that became suspended in the fluid. Normally, what you would do is allow the open shocks to sit for a few minutes to allow the bubbles to work their way to the top of the fluid. And by the time we had placed each shock into the chamber, most of the bubbles were no longer visible. This prompted some comments from the pit-side peanut gallery, such as "The bubbles are gone already, so what's the use of that thing?" Wait, you'll see.

Ignoring the taunts, we proceeded to finish the job. Once the shocks were safely inside the chamber, we placed the clear dome atop the lower bowl, then placed the air pump over the dome's air valve. After a few pumps, the resistance grew steadily greater, which indicated that most of the air had been drawn from within the chamber. Almost miraculously, large air bubbles formed from nowhere within the shock fluid. We couldn't see any air before, but we sure could now! Like nitrogen coming out of solution from a diver's saturated tissue (or like the fizz of a shaken soda bottle when opened), the much lower pressure of the chamber had sucked every last bit of air from the fluid—this could not have happened under normal 14.7 psi atmospheric pressure, no matter how long it was allowed to sit.

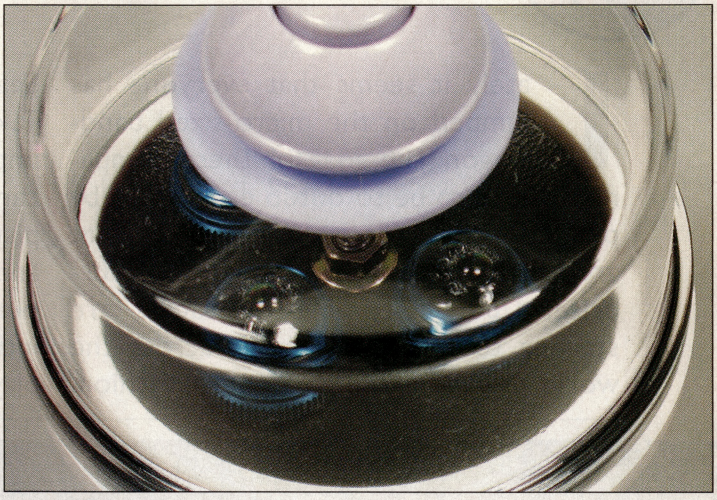
Prior to pumping: it doesn't look like there's any air in this oil, right? Just wait...



GIZMO OR NECESSITY?

The Air Remover really amazed us. It was kind of like the first time your grade-school science teacher showed you how to make a battery from a potato. Everyone who had witnessed the formation of the new air bubbles under vacuum had become instantly sold on the viability of the Air Remover. Not only does it expedite the process of proper shock filling, but it removes more trapped air than would otherwise be possible (unless of course you bleed your shocks atop the Andes).

When filling and bleeding shocks, the idea is to have only enough air inside the allow the shock's shaft to completely enter the shock body. With standard emulsion shocks (shocks that are designed to have the air and fluid mix into a foam), the Air Remover will ensure that the air space doesn't grow substantially as more of the trapped air inside the fluid comes out. With bladder-type shocks, where the air and fluid are kept in separate areas, the Air Remover makes even more sense, as it will prevent any reduction in damping caused by microscopic air bubbles that would otherwise remain following a standard refill.



In the vacuum, microscopic air bubbles trapped in the shock fluid are released.

SOURCES

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TEST DRIVE

Takara Digi-Q

Lately it seems that everyone has jumped on the micro-sized bandwagon. The goal for these companies seems to be to outdo each other by producing fully functional R/C cars that are smaller and smaller. Well, to our surprise, 1/60 scale table-top racers are starting to hit hobby shops across the world and doing so in popular fashion. Searching the internet, we came across Takara's line of 1/60 scale cars that are imported from Japan by Integy. The tiny cars' detailed paint schemes and their pistol grip radios caught our attention and sparked our curiosity. Fortunately, at our request, we were sent one of these intriguing penny-racer R/Cs to test and play with.



WHAT YOU GET

When the Lancer Evolution VII Digi-Q arrived at our Valencia office, it came with a custom box which held both the car and its radio. Inside the box is a pre-formed plastic inner carrier, which makes a great transporter when you travel with your Micro-iR or decide to store it for a use at a later time. When the packaging is removed, you will notice that the Digi-Q comes with a very sophisticated pistol grip radio. The radio has a sliding switch, which allows you to change to one of four different frequencies. This is very helpful if you own more than one Digi-Q or when you decide to race a couple of your buddies on your home track (the dining room table). The smaller-than-normal radio takes four AA batteries and doubles as the car's charger. The car snaps into place on the rear side of the controller and with the radio turned on, the car's batteries will be charged in about fifteen minutes. No need for a separate charger or to go out and purchase batteries for this table-top racer. There is also a small dial to adjust steering trim if the car is unable to track straight. The steering trim does not adjust any micro-sized servo as one might think, but changes the amount of power given to each rear tire when turning (which is how the Digi-Q steers). It's pretty impressive to think that this little car actually turns quite well with out any help from a servo. Fortunately our tiny terror drove perfectly straight and needed no adjustments.



LOCK UP

DRIVING THE Q

Despite its size, the Digi-Q has a respectable top speed. The throttle is a little sensitive and takes some time to get use to, but there are two different modes of operation, which help control the top speed. The first mode on the controller is "Easy," which cuts down the acceleration of the car and makes turning a whole lot easier. Second is the "Normal" mode, which gives the little car all of the power it can handle, which requires much more skill and a faster reaction time. The two modes are a great feature and were very helpful during the first few times we drove the "Q." Since speed was important to us, Normal mode is what we drove in most of the time. Steering is similar to that of a larger scale R/C; tight turns are much easier if they are taken slowly. If you try and turn at full speed, the car will push and its turning radius is widened significantly. The most fun we had with our little Q was when we set up an oval-type track on a large table and ran consecutive laps to see who could hold the best lines. Surprisingly, you can put the car almost anywhere you want, provided you have enough skill.

FINAL THOUGHTS

At a retail price of $59.99, the Takara Digi-Q might be a little pricey for some. For those who can afford the little racer, rest assured that it is a pretty good value. Our test Micro-iR was launched several times off a table over four feet high and landed unharmed every time (on carpet, of course; hardwood floors would be a different story). The durability test was passed with flying colors. The thoughtfully designed itty-bitty car takes four AA batteries for the radio before it is up and running, and that is it. There is no building or preparation whatsoever. This is a big plus for plug-and-play type people. Although you won't see them raced at your local track, you might see some guys in their garages surrounding a table with small pistol grip radios in hand. Heck, they might also be raced indoors on kitchen tables or tile floors on a rainy day. The Digi-Q makes a great stocking stuffer or an out of the ordinary gift for any R/C nut. This little R/C may not ever be as popular as other scales, but its performance raised our eyebrows and exceeded our expectations.

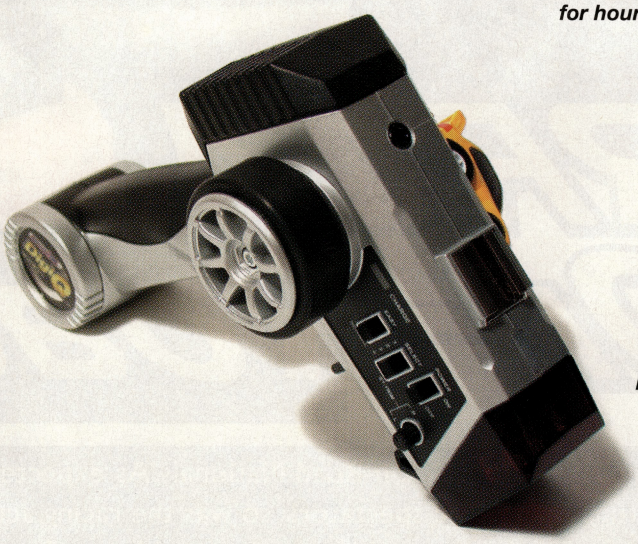
DQS-02 Digi-Q Lancer EVVII $59.99



The radio doubles as a carrier —and the car's charger.



A smooth dining room table is perfect for hours of fun with the "Q".





A normal size hand shows how small the 1/60 scale Digi Q is.

SOURCES

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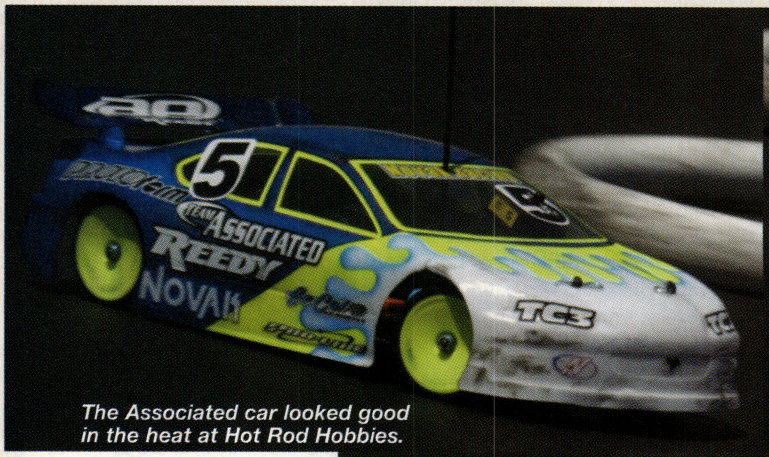
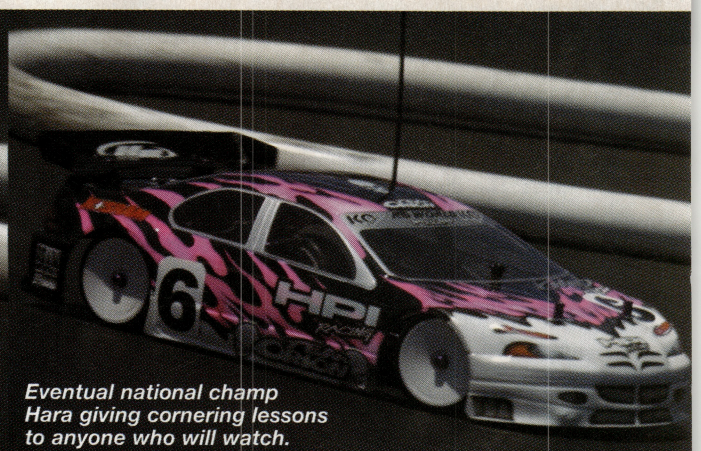
THE CAT!



The Associated car looked good in the heat at Hot Rod Hobbies.

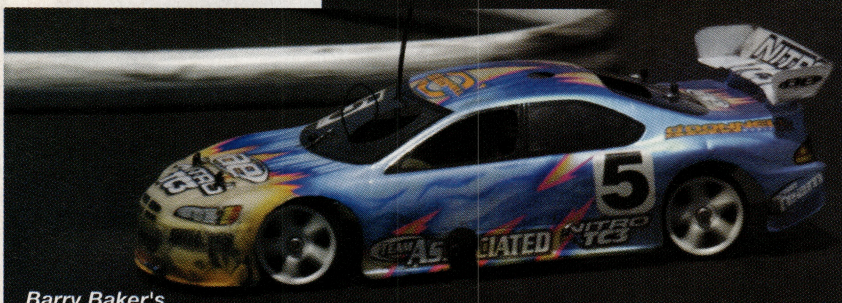


Eventual national champ Hara giving cornering lessons to anyone who will watch.

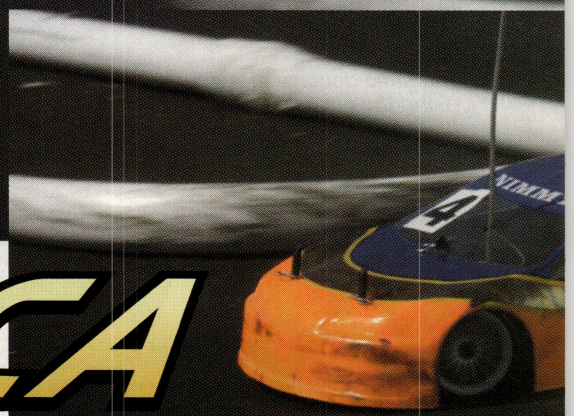


Local racer Robert Drew fared well, taking third place in the highly competitive Expert Stock class.





Barry Baker's winning Associated Nitro TC3.

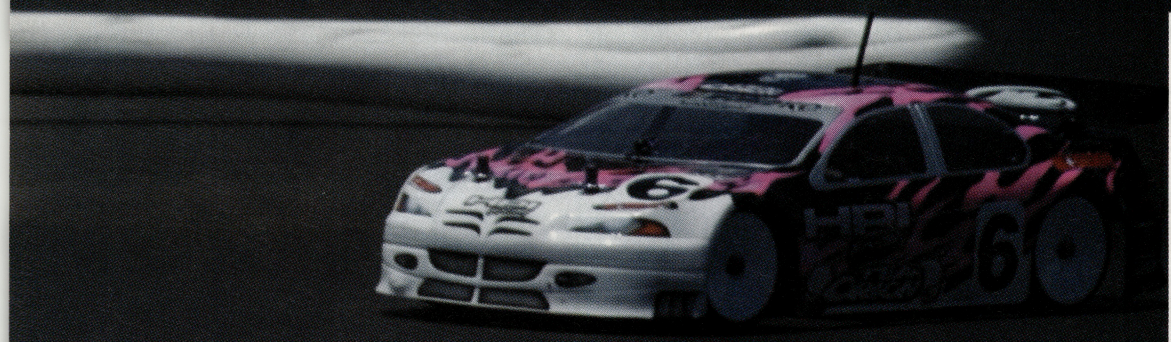


NORRCA On-Road

Hot Rod Hobbies hosted the annual NORRCA On-Road Nationals. As expected, the June weather in SoCal was hot; fortunately for the spectators, so was the racing action. Many of the world's top drivers tolerated the heat and were in attendance. Brian Kinwald, Barry Baker and Atsushi Hara were just some of the big guns racing and representing their sponsors. The three-day event was run really smoothly, which should be expected from the Hot Rod



Kinwald rolls it over while leading to allow Hara's HPI sedan by.



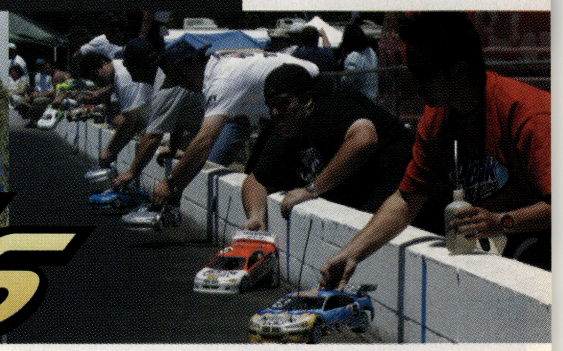
Brian Kinwald leads eventual winner Atsushi Hara. These two battled to the end, with the title decided during the third and final A-main.



Barry Baker and Chris Tosolini battle during the Expert Gas A Main.





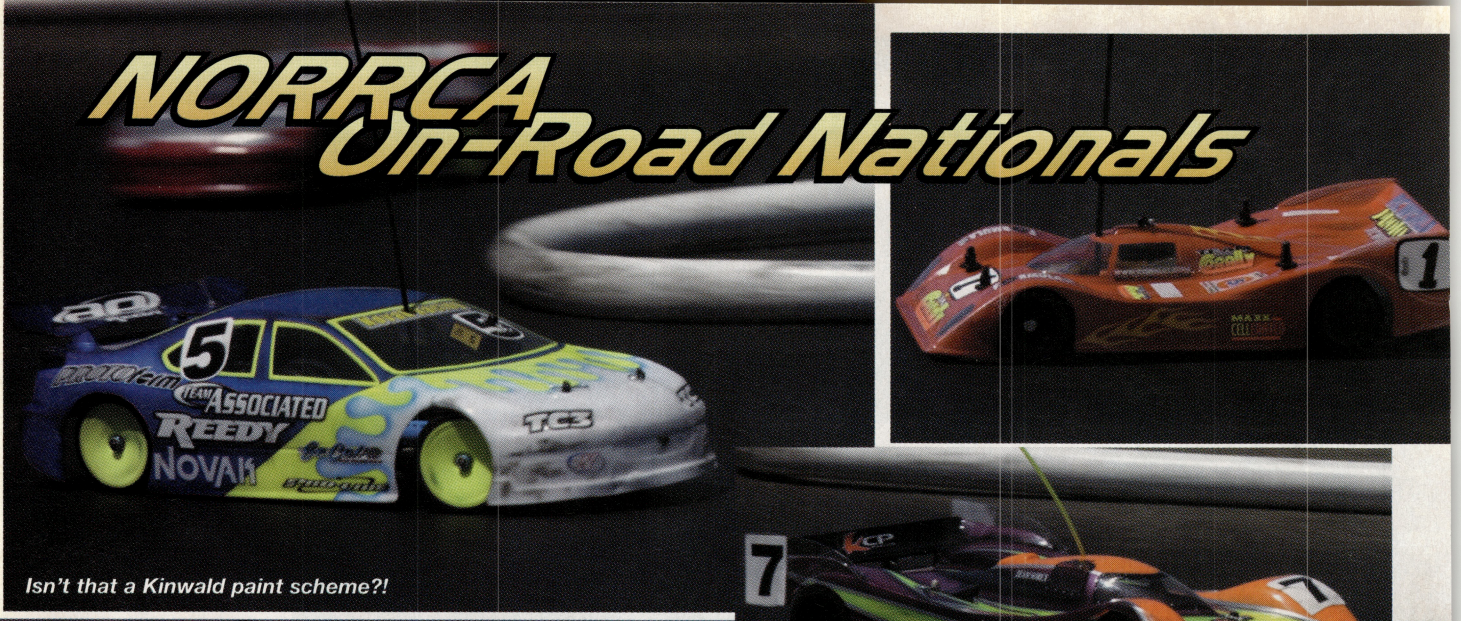


Seconds before the Expert Gas A Main.

Nationals

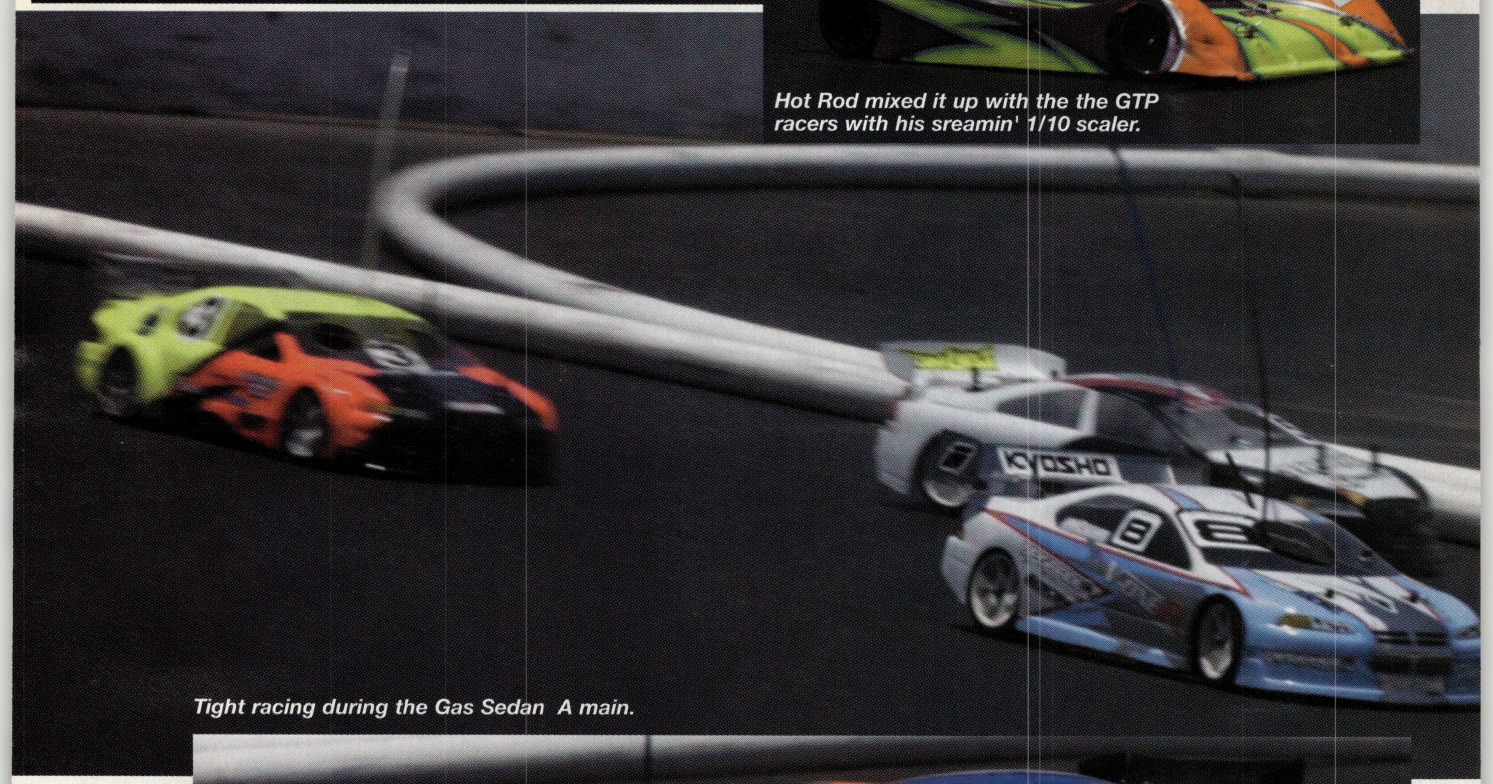
staff; they host quite a few big races each year. If you weren't there, then shame on you; you missed out on a great weekend of fun. No matter what on-road racing suits you best, this race had it all. Gas, stock sedan, modified sedan, 1/12-scale stock, 1/12-scale modified, and even a 1/10-scale GTP class were all well filled with plenty of intense competition that any racer would appreciate. Take a look out this year's new National Champs and how the top five fared in each class.

NORRCA On-Road Nationals



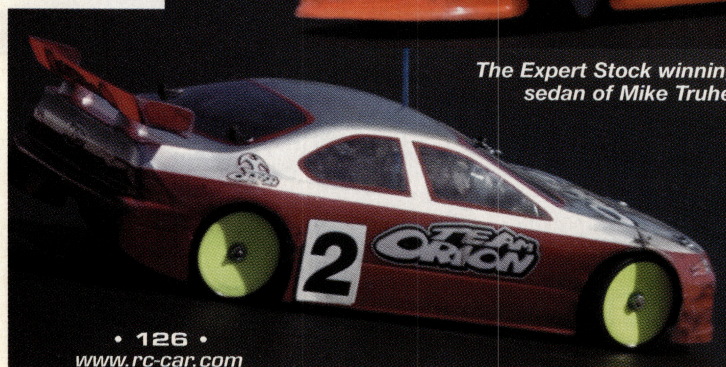
Isn't that a Kinwald paint scheme?!

Hot Rod mixed it up with the the GTP racers with his sreamin' 1/10 scaler.



Tight racing during the Gas Sedan A main.





The Expert Stock winning sedan of Mike Truhe.





Baker and BK sharing insights.



Your typical race carnage.

Expert Modified Sedan

Qual		Driver	Chassis	Motor	Cells	Tires	Body	ESC	Radio
1	1	Atsushi Hara	HPI Pro 3 Hara Ver	Orion 8X2	Orion	Sorex 36	Hot Bodies Stratus	Nosram	Ko Propo
2	2	Brian Kinwald	Losi XXX-S	Trinity 7X3	Trinity	Sorex	Protoform Stratus 2.0	Novak TC2	Airtronics M8
3	3	Jeff Wittman	Schumacher	Putnam Propulsion	Nuclear Power	Sorex	Protoform	Keyence	Airtronics M8
4	4	Derek Furutani	Losi XXX-S	Peak	Peak	Sorex 36	Protoform Stratus	Novak Cyclone	Airtronics M8
5	6	Mike Truhe	Losi XXX-S	Orion 8X2	Orion	Sorex 36	ProtoformStratus	Novak TC2	Airtronics M8

Modified Sedan

Qual		Driver	Chassis	Motor	Cells	Tires	Body	ESC	Radio
1	1	Jim Bishop	X-Ray	Fantom	Integy	Takeoff	Protoform Stratus	Novak	Airtronics
2	2	Mark Dawson	Losi XXX-S	Trinity	Trinity	Sorex	Andy's Stratus	Novak TC2	JR R-1
3	3	Robert Ibon	Losi XXX-S	Orion	Orion	Sorex	Hot Bodies Stratus	LRP	JR
4	4	Shannon Hudson	Losi XXX-S	Bonzai	Spyked	Sorex	Protoform Stratus	CS Rocket Max	Ko Propo
5	6	Andrew Kisbey	Associated TC3	Kisbey 11X2	Pro Match	Sorex	Protoform	Novak	JR

Expert Stock Sedan

Qual		Driver	Chassis	Motor	Cells	Tires	Body	ESC	Radio
1	2	Mike Truhe	Losi XXX-S	Orion	Orion	Sorex 36	Protoform Stratus	Novak TC2	Airtronics M8
2	6	Alex Torrico	Losi XXX-S	Trinity	Trinity	Sorex 36	Protoform Stratus	Novak Cyclone	Airtronics M8
3	10	Robert Drew	Losi XXX-S	Bonzai	Panasonic	Sorex 36	Andy's Stratus	Novak Cyclone	Airtronics M8
4	7	Steve Weiss	Losi XXX-S	Trinity	Trinity	Sorex	Protoform Stratus	Novak TC2	Airtronics M8
5	1	Derek Furutani	Losi XXX-S	Peak	Peak	Sorex 36	Protoform Stratus	Novak Cyclone	Airtronics M8

Stock Sedan

Qual		Driver	Chassis	Motor	Cells	Tires	Body	ESC	Radio
1	1	Travis Lawrence	Losi XXX-S	Trinity	Trinity	Sorex	Trinity Stratus	Novak	Airtronics M8
2	2	Chris Lauw	Associated Team TC3	Trinity	Trinity	Sorex 32	Trinity Stratus	Novak TC2	Hitec Lynx 3D
3	4	Jason Sams	Losi XXX-S	Orion	Orion	Sorex f-32/r-28	Protoform Civic	Novak Cyclone	Airtronics M8
4	5	Jeff Owens	Associated TC3	Trinity	Trinity	Sorex	Protoform	LRP Quantum	Airtronics M8
5	9	Dennis Stumpf	Losi XXX-S	Ruby	Panasonic	Sorex	HPI	Novak	JR

1/12 Scale Modified

Qual		Driver	Chassis	Motor	Cells	Tires	Body	ESC	Radio
1	2	Ron Rossetti	Trinity Switchblade	Trinity	Trinity	TRC	Andy's/Ref. Mercedes	Novak TC2	JR R-1
2	1	Jeff Wittman	WRP	Putnam Propulsion	TRC	TRC	Parma Speed 8	GM	Airtronics
3	3	Dominic Favorito	Associated 12L3	Fantom	SMC	Jaco	Protoform	LRP	Airtronics
4	4	Craig Tasker	Associated 12L	Race Prep	Pro-Match	Jaco	Pro-Line P35	Novak	Futaba 3PJ
5	5	Jim Bishop	Associated 12L3	Fantom	Panasonic	BSR	Parma Speed 8	Novak	Airtronics

1/12 Scale Stock

Qual		Driver	Chassis	Motor	Cells	Tires	Body	ESC	Radio
1	1	Gus Rosal	Corally	Trinity	Pro-Match	Corally	Protoform	LRP	Airtronics M8
2	3	Dennis Stumpf	Trinity	Ruby	Panasonic	Jaco	Protoform	Novak	JR
3	4	Chris Brow	Calandra Carpet Knife	Bonzai	Orion	Jaco	Proline	Novak Cyclone	Airtronics M8
4	2	Robert Drew	Associated 12L3	Bonzai	Panasonic	TRC	Proline	Novak Cyclone	Airtronics M8
5	5	Kevin Hudis	Associated 12L3	Trinity	Trinity	Jaco	Proline	Novak	Futaba

1/10 Scale GTP

Qual		Driver	Chassis	Motor	Cells	Tires	Body	ESC	Radio
1	1	Mark Anton	Associated 10L2	Trinity	SMC	f-TRC/r-Jaco	Protoform	LRP	Futaba
2	3	Jim Bishop	Associated 10L2	Trinity	Integy	BSR	Andy's Sauber	Novak	Airtronics
3	5	Mike Atherton	Associated 10L2	Ruby	Ruby	N/A	N/A	Novak	Airtronics
4	4	Mike Malsed	Associated 10L2	Trinity	Reedy	f-BSR/r-TRC	Protoform Peugeot	LRP Quantum	Airtronics M8
5	2	Kevin Kubota	Associated 10L2	Trinity	Integy	Proline	Andy's Mercedes	Novak Cyclone	Ko Propo

Expert Gas Sedan

Qual		Driver	Chassis	Motor	Tires	Body	Radio
1	1	Barry Baker	Associated Nitro TC3	RB/O'Donnell	Jacof-40 r-35	Protoform Stratus	Airtronics M8
2	8	Austin Sarnelle	Associated Nitro TC3	JP Mugen MT	UFRA	Protoform Stratus	Futaba 3PJ
3	5	Terry Martin	Yokomo GT-4	Yokomo	Jaco F/R 40	Yokomo	Airtronics
4	4	Rodney Kiss	Associated Nitro TC3	Picco	Treadz f-45 r-37	Protoform Stratus	Airtronics M8
5	9	David Palacios	Associated Nitro TC3	*	*	*	*

Gas Sedan

Qual		Driver	Chassis	Motor	Tires	Body	Radio
1	1	Jim Bishop	Mugen MTX 2	Collari	BSR	Protoform	Airtronics
2	3	Mark Dawson	Trinity Reflex	O.S. TR	Treadz	Protoform Volvo	JR R-1
3	4	Mike Malsed	Associated Nitro TC3	Mugen MT	Jaco	Trinity Stratus	Airtronics M8
4	5	Robert Ibon	Kyosho V One R	O.S.	Super "G"	Protoform Stratus	JR
5	2	Kevin Kubota	Kyosho V One R	O.S. TR	Zac Project	Andy's Stratus	Ko Propo Mars

Team Losi Tech-Talk

Tech Tips #13

This month were going to tackle a few frequently asked questions to help keep you running instead of wrenching. **How** do you keep from stripping the hex in the flathead screws used on the bottom of the chassis? First off be sure you use the thread cutting screw included in every Team Losi kit to thread all of the plastic parts. This is no ordinary plastic and unlike common materials used by most manufactures it will hold a tight thread. The second thing to be aware of is that when you use the inexpensive "L" type Allen wrenches like those included in about every R/C car kit you have to be careful to not let it strip or turn in the hex of a screw. If it does you have to file or grind the end or you will surely strip the hex in the next screws you try to tighten. A better solution is pick-up a quality Team Losi Race Wrench. The A-99101 1/16" wrench uses an extra hard steel drill blank that has been precision ground to fit the hex precisely. The tip is titanium nitrided for unmatched wear and the hard anodized machined aluminum handle fits comfortably in you hand. And yes there are other inch and metric sizes available. Lastly, be sure you clean any dirt from inside the hex before you try to remove it. If the wrench does not get seated al the way into the hex you increase the chance of stripping it. **How** do I get over spray or tire marks off of my body? Try using a little fuel on a clean rag or denatured alcohol available at your local hardware store. Use common sense and make sure you use these away from any kind on flame. **How** do I get the starter wheel to hit my flywheel without grinding on the chassis? Some of the starter boxes have a wheel designed for 1/8 scale engines and are simply to big to fit in the opening of a 1/10 scale truck. Check this before you assemble the box. Keep in mind that you only need a starter wheel a little wider than the flywheel. If it is to big find a local shop that can narrow it for you or if you lucky ask that friend that just did his own. Secondly, take a few extra minutes to make sure the locating pegs on the box top position the chassis so the starter wheel is directly under the opening. A little to far forward or back is the same a lot. Filing or grinding a slight chamfer at the front and rear of the flywheel opening can make extra room for the starter wheel. A helpful trick is to adjust the switch so that the motor comes on well before the starter wheel touches the flywheel. This will allow the motor and wheel to build up some speed and energy before trying to turn over the engine. **How** do I stop fuel from going into the exhaust pipe through the pressure line? Put two full 360-degree loops in the line between the fuel tank and the muffler. Most of the racers tuck this into the center brace just behind the steering servo. Which body works better, the XXX-T or the "Fury"? Same for the XXX-NT and Fury-NT? Both of these body styles work equally well. It really comes down to the "look" you prefer. The development team at Team Losi always tries to produce off-road bodies that are as neutral as possible. That's it for this month. Don't forget to check out www.teamlosi.com for more tech tips and set-ups by our team of World Champion drivers. ❑

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Test Drives: Team Atlas YM-34; Kyosho Inferno TR15; Schumacher Nitro Big 6 Sports Elise Features: Battlebots:R/C On The Cutting Edge!; How To: Prep Graphite Parts; 2001 New Product Guide; F1 Invades America; IFMAR On-Road World Championships; What It Takes To Make A Concourse Winner; 2000 Tamiya TCS Nationals.

❑ **FEB. '01**
Product Test: Trinity Shock Dyno Features: 2000 Reedy Truck Race Of Champions; Inside The Reedy Winning Trucks; The "Original" E-Maxx; How To Build A Battery Discharger; Chicago Hobby Show Coverage; IFMAR 1/8 Scale Off-Road Worlds; Inside Losi's New SB3; Paris Can-Am Challenge; Trinity Green Machine 3; Tamiya 1/16-scale Tiger 1 Tank Test Drives: Schumacher Axis 2; HPI Nitro MT Racer; Tamiya XR311; Schumacher Nitro 21XT-R Desert Storm; Tamiya EB Mitsubishi Pajero.

❑ **MAR. '01**
Product Test: Tamiya Tractor Truck Sound Effects Set Features: Eight Ways To Moisture-Proof Your Car; Tuned Pipe Buyer's Guide; Ian Aquino's HPI Concourse-Winning Cars; Tamiya TA04 Hop-Up Guide; Truck Wheel Buyer's Guide; HPI World Challenge; Traxxas T-Maxx Power Guide Test Drives: Tamiya TB-01 Evolution; Team Associated T3RTR; Traxxas E-Maxx; Yokomo MR-4TC; DuraTrax Maximum ST And MT Pro; Tamiya Tyrrell P34.

❑ **APR.'01**
Features: Driving The R/C Rubicon Trail; Race Report From Europe; Kyosho V-ONE-R; Set Pillow-Ball Suspension; Convert Your Race Engine To The Traxxas EZ-Start; Multi-Stage Tire Inserts; Top Touring Car Setups; Reedy MVP Stock Motor Test Drives: Kyosho Inferno MP-7.5; Team Associated Factory Team TC3; Team Losi Triple-X and Triple-X Dirt Spec; Mugen Seiki MTX-2; HPI Super Nitro Rally; Kyosho FW-04 SuperTen 4-Stroke.

❑ **MAY '01**
Features: Never Build Again; 15 Off-Road Racing Tips And Tricks; First Look: Team XRay T1 Touring Car; 16th Annual Reedy Race Of Champions; Project Schumacher Axis 2; Project Traxxas E-Maxx; Part 1; 10 Nitro Tips; Inside The Reedy Race Winning Cars; Project Schumacher Nitro Xtreme .21; Raytek MT4 Temperature Gun; Trinity Panasonic Heavy Metal 2 3000's Test Drives:Tamiya Mercedes CLK DTM TG10; Kyosho V-One-R; GS Racing Sonic; Tamiya Ferrari 360 Modena.

❑ **JUNE '01**
Features: Basic Motor Maintenance; 2001 Team Losi Florida Winterchamps; T-Maxx/E-Maxx Wheel and Tire Buyer's Guide; First Look: HPI's New Pro 3 Touring Car; Project Full Metal Maxx; Body Painting Basics ; New Engine Prep; Let Loose The Juice; Second Annual "The Dirt" Challenge Test Drives: Thunder Tiger EB4 RTR; Mugen Seiki MBX-4XR Works; Team Losi Triple-X Kinwald Edition; Thunder Tiger TS-4n Sport Product Test ESP; Juggular Chassis Upgrade Kit.

❑ **JULY '01**
Test Drives: Tamiya Mammoth Dump Truck; Kyosho Pure Ten Honda S2000; Kyosho V-One S McLaren GT1; Cen GX-1 Rally Cars Features: Nitro Off-Road Tips; Novak's New Cyclones; Project Yokomo GT-4W; Extreme R/C; Project E-Maxx; Is Your RTR Really Ready; First Look: Team Losi XXX-S; Get A Grip; Splashdown Product Test: Stormer Racing Maximizer T-Maxx Wheels; Hudy Excellent Tire Truing Machine; Hardcore Racing .21 T-Maxx Conversion; Airtronics ALB Booster

❑ **AUG. '01**
LRP Quantum ESCs; AC/DC Charger Buyer's Guide; Project SR-Maxx; Project Mugen MTX-2; T-Maxx/E-Maxx Body Buyer's Guide; Easy Breathing; 2001 ROAR Off-Road Gas Nationals Test Drives: HPI Pro 3; Bergonzoni/Dreier Racing Bandit; CEN Fun Factor MT; Kyosho Ultima RB Racing Sports.

❑ **SEPT. '01**
Reedy Touring Car Race Of Champions, How-To: Set Your Diff And Slipper Clutch, Inside Mark Pavidi's Reedy Race Winning TC3, Kyosho Mini-Z Buyer's Guide, Top TC3 Tuners, How-To: Keep your Engine Running Cool, How-To: Dye Your Shock Springs, Top R/C Inventions, 10 Steps To Preventing And Resolving Receiver Problems, Super Ten Battle: Two Stroke vs. Four Stroke Product Test: JHM Aero Engineering On-Board Glow Driver, Traxxas EVX Speed Control, Competition Electronics Pit Bull Charger Test Drives: Nuova Faor SF501 Motorcycle, GS Racing Storm 1/8-Scale Buggy, Tamiya Mad Bull, Tamiya Subaru Impreza WRC '99 XB.

❑ **OCT. '01**
Schumacher Fireblade EVO, Team Associated TC3 RTR, Kyosho KX-One, MRC/Academy STR-4 Pro, Traxxas Street Sport and Spirit Features: R/C Car/Hardcore Racing/Traxxas Maxx Shootout, Pro Racers, 2001 ROAR Off-Road Stock Nationals, Drivers Stand Semaphore, 2001 ROAR Off-Road Modified Nationals, Project 4-Stroke T-Maxx Product Test ESP MaddMaxx Clodbuster Wheel Adapters.

❑ **NOV. '01**
Team Losi XXX-S, Tamiya TAO4-R HKS Racing Altezza, Team Associated Team Built RC10GT, Tamiya Lancia 037 Rally Features: How One-Ways Work, Pre-Painted Bodies, Novak XXTra Synthesized Receiver, Plastic Fantastic: Molded Chassis vs. Graphite Plate, Hopping Up the Tyco Jeremy McGrath X-Treme Cycle, Pro-file: Scott Hughes, David Katz, ROAR On-Road Nationals, First Test HPI Micro RS4, R/C Car/Hot Rod Hobbies Off-Road Shootout, Jason Jaeckel's Racer Maxx

❑ **DEC. '01**
Kyosho Landmax 2 Peugoeot 206 WRC, Tamiya TG10R, XRay T1, Yokomo MR-4TC Features: New For 2002, The First Touring Car, Pro-File: Matt Franks, Best Truck of 2001, Tamiya TCS 2001 North American Finals, Pro-File: Tatsuro Watanabe, Best Car of 2001 Product Tests: CS Electronics Space Charger Pro, Multiplex Profi 301, MRC Super Brain 959, Integy INDI 16x5 Computerized Battery Charger.

❑ **JAN. '02**
HPI Micro RS4, Tamiya TXT-1, Team Losi Matt Francis Edition Triple XT, Kyosho MP7.5 Sports Features: Pro-File: Gil Losi Junior, Tamiya 414M: The "Secret" Tamiya Sedan, Just Like Driving A Car SuperTuner Special Kawahara/Mugen MTX-2, Hardcore Racing/Team Associated TC-3, Integy/TopCAD Kyosho Mini-Z Product Tests: Novak Millennium Pro, Trinity Brush Warehouse.

❑ **FEB. '02**
GS Racing Storm Pro, Tecnokit TKT99E, Tamiya TA04S Corvette C5R, Duratrax Evader ST, Bolink Nitro Legend Special Pro-Tips Section: Understanding Roll Center, Pick The Right Off-Road Tire, Diff Tips and Tricks, TRX-15 Power Tips, Match Touring Car Tires And Inserts, Get Sponsored, How To Pass Features: The Science Of Jumping, 12 Tips For Gas Trucks, 10 Things To Do To Improve Lap Times, Sun Valley Microspeedway, How To Gear Your Car For Racing, NORRCA Road Course Nationals Product Tests: Team Orion Pro LCS, Keyence Zero V Extreme.

❑ **MAR. '02**
Kyosho Mega Force, BoLink Little Red Wagon, Kyosho FW-04 Loctite Mugen NSX, Tamiya Dyna Storm, Kyosho Baja Beetle QRC Features: Maxxed Out!, Rear Port Myths, Pro Paint Tricks, Reedy Truck Race Of Champions, Project Outlaw V-One R Pro Tips Section: Scott Hughes On Shocks, Jack Johnson On Servo Tape, Mark Pavidis On One-Ways, Brian Dunbar On Jumping Product Tests Dynamite Vision Peak Plus And Mega Dual-E Chargers, Hardcore RAcing T/E Maxx Bulkheads, Parma Fasglitter, Tamiya TA04 Hop-Ups

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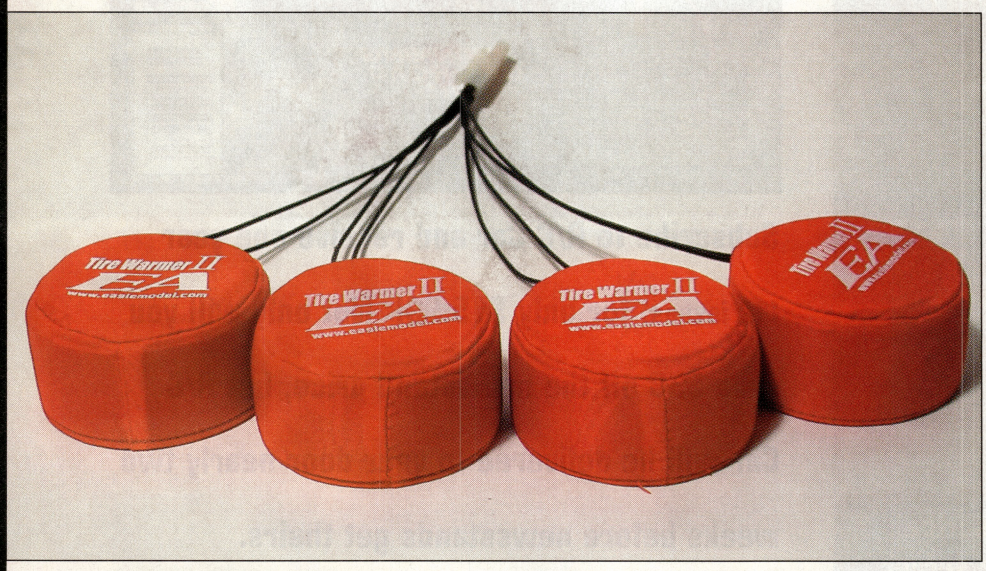
Eagle Racing Tire Warmers 2

Turn up the heat on your competition

World Champ Surikarn Chaidajsuriya used tire warmers at the IFMAR World Championships in South Africa to give his Tamiya sedan the edge over his competition. The weather in Africa was warm, so many drivers overlooked the advantages of using tire warmers. The smart decision by Surikarn paid off and gave the eventual champ's Tamiya TRF 414MII instant traction. The other cars in the race needed two or three laps before their tires warmed up to give them optimum traction. If tire warmers put the world champ on top, then why shouldn't we use them each time we race? That being a good question, we e-mailed Integy, a very big distributor of Japanese products, knowing that they probably carried tire warmers. As it turned out, they had quite a few tire warmers to choose from, so we opted to try Eagle Racing's Tire Warmer 2.



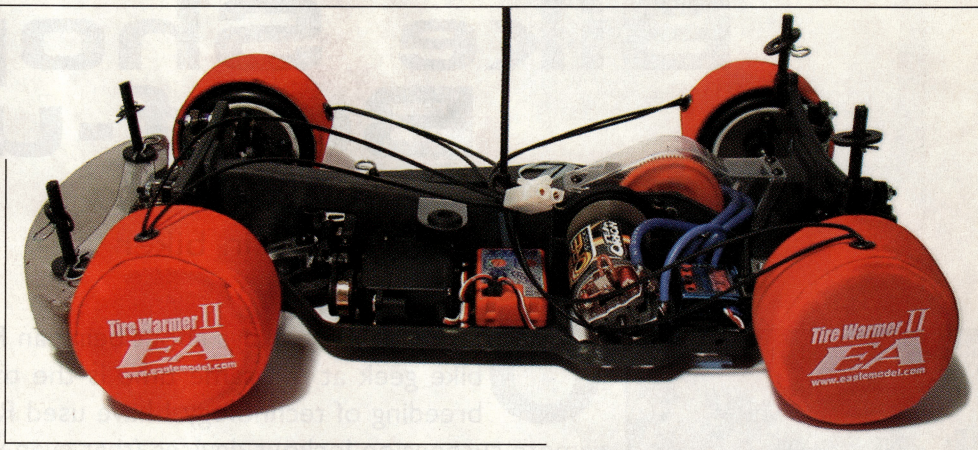
TRACK TESTING

Our local track, Hot Rod Hobbies, hosts weekly on-road races every Thursday night. During summer night races, the track temperature can drop from about 110 degrees at 6 p.m. to about 60 degrees at 9:30 p.m. The latter time is usually when the main events start to get underway. We felt that the temperature change at night would be a great time to put the warmers to the test. Many drivers at Hot Rod's track use Sorex tires varying from 28 to 36 compounds. For the first qualifier, we decided to use Sorex 32 compound. The air temperature was about 80 degrees and the track temperature was around 100 degrees. Initially, the car felt a little loose; if it were pushed a bit too hard in the turns, the rear tires would break loose and cause the rear end to slide. Steering was exaggerated by the looseness felt from the rear tires. After a few laps on the fairly hot surface, both the front and rear tires heated up and the car felt totally different. Initial steering response was much faster and the rear of the car was completely planted. The first few laps were in the mid-15 second ranges, but the rest of the laps were low 15s and high 14s. Since lap times are a great way to measure the car's traction and setup, we knew that having warmer tires at the beginning of the race would help our qualifying time.

For our second qualifier, you bet we used the Eagle Racing warmers. The track temperature had dropped about 15 degrees, and many racers were switching tires to suit the cooler pavement. Seconds before the qualifier, the warmers were pulled off and the car was set down on the track. It was now time to see if the warmers did their thing. Wow! The car was hooked up from the first pull of the trigger. Our first lap was a 15.1 and most of the other laps were 14s. Not only was traction considerably better in the beginning of the race, but it was easier to put in consistent laps and get into a groove quicker. Since the tire warmers worked exceptionally well, it was a no-brainer to use them in the main



event when the track temperature was about 70 degrees. The added traction thanks to the warmers launched the car from third on the grid to second by the first turn. The car was definitely better for the first few laps than any other car in the main. Despite this, better driving prevailed and third place is how we ended up.



THE VERDICT

Eagle Racing's Tire Warmer 2s are a great product and a good addition to any on-roader's list of things to bring to the track. If the weather is cool or cold, then the warmers are a definite advantage. The aluminum cups are well made and fit all 1/10-scale on-road tires. We used a 1500mAh NiCad stick pack and found that it only had enough juice to heat the tires for five minutes before two races. Next time, we will use a 3000 mAh NiMH stick pack, and we expect that the higher-capacity battery will endure a whole night's worth of racing. Other than a possible on/off switch so the battery can remain attached to the warmers, we have no gripes about the performance, durability and effectiveness of Eagle Racing's Tire Warmer 2.

Eagle Racing Tire Warmers 2
Part no.: 1472
Price: $55.95

SOURCES

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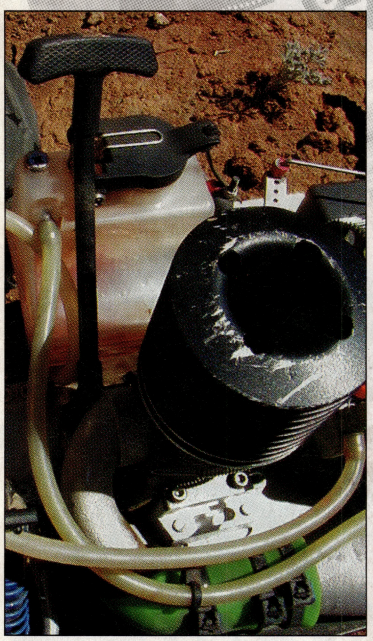
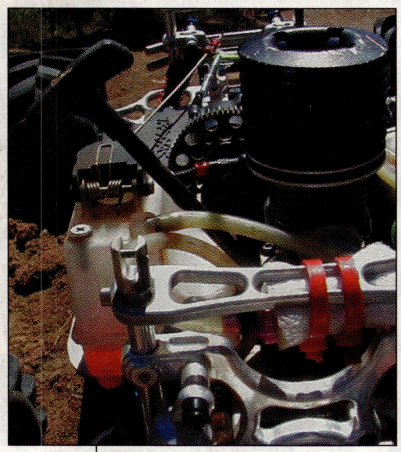
Bike Shop Beef-ups

R/C tech tips from a world-champ mountain biker

By Greg Herbold

One of the best things about being an R/C geek and a mountain bike geek at the same time is the transformation and cross-breeding of technology. I have used R/C components to make remote suspension lockout devices (that even won a World Cup Cross-Country event) and bicycle parts to make my R/C car perform better. Here are just a few examples of this crossover technology







H-BALL'S STARTER-HOUSING MODIFICATION

With many popular T-Maxx upgrades, a different engine is used, such as the pull-start .21 in my Hardcore Maxx. I hated searching for the pull lever through my body, and the fuel tubing, which I placed around the first few inches of the starter cord to hold the lever higher, did not hold its shape and was wimpy. So to make it easier to reach the pull-starter, I added a three-inch piece of bicycle brake cable housing to put the pull handle right where I wanted. Ask the bike shop guy for large diameter brake housing (it runs about a buck per foot), and if he could cut it with the special cable snips. Then carefully grind the ends perfectly flat (without getting it too hot), and use a scribe to open up the Teflon sleeve inside the housing. Next, carefully feed your pull cord through the stock rubber grommet, into the housing, and through the pull handle. Now you can easily start your beast with the body on, not burn your fingers, and win the race of life.

ANTENNA PROTECTION

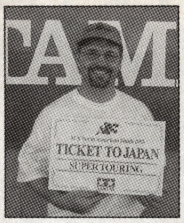
It always seemed stupid to me that you buy an expensive FM receiver, and then feed the antenna wire through a cheap piece of brittle plastic antenna tube. Where I drive (or crash), this tube lasts about two tanks of fuel. I have found a cool way to protect the wire, and make your R/C rig look cool. Using hydraulic bicycle brake tubing is perfect for the job. The tubing is light, very strong, and can hold its shape endo after endo. Again, go to the friendly bike shop (tell 'em H-Ball sent ya) and ask for hydraulic brake line. The best type is older Magura hydraulic rim-brake line, but most types will work fine. First cut the tubing to length, then carefully drill or ream the antenna holder on the car to just undersize of the tubing diameter. The tubing will have a larger inside diameter, making it easy to feed the wire through. Carefully push the tubing into the holder or receiver box. Position the tubing straight up, or pre bend it to curve to the rear (swoopy and aero). I use a little CA to make sure the tubing stays in place. Lastly, add a little piece of fuel line on the top to hold the wire in place. Now go out and launch with reckless abandon—your antenna tube will still be there!

2002 TCS TAMIYA Championship Series

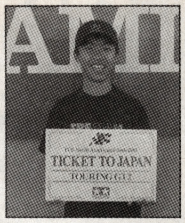
North American Finals

September 28 & 29

The TCS North American Finals is the chance for all drivers that placed in the top 10 in their respective classes this season to compete in one of the most competitive radio control events of the year. The grand prize for each of the four classes is a trip to Japan to compete in the Tamiya World Event. Come see the action at Tamiya America Headquarters in sunny Southern California. Visit our web site, www.tamiyausa.com, for information on schedule of events including special sales on Tamiya product and spectator raffle.



Martin Crisp, GT1

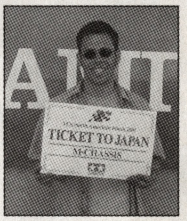


Derek Hung, GT2

2001 WINNERS



Chein-Hwa Chen, F-1



Erik Whippler, M-Chassis



TCS in Salt Lake

Entries	
Racers	50
Second Entry:	14
Total Entries:	64

RESULTS

Formula-1

First Place	Russell Johnson
Second Place	Steve Duncan
Third Place	Paul Hatfield
Best of Show	Paul Hatfield
Top Qualifier	Russell Johnson

Super Touring GT1

First Place	Robert Kephart
Second Place	Kevin Mitchellich
Third Place	Rory Pester
Best of Show	Robert Kephart
Top Qualifier	Robert Kephart

Touring GT2

First Place	Kevin Mitchellich
Second Place	Ed Hoffman
Third Place	Mark Ibrahim
Best of Show	Tai Robinson
Top Qualifier	Kevin Mitchellich

Mini

First Place	Anthony Dubbelman
Second Place	Dan Garber
Third Place	Dan Julio
Best of Show	Emerald Brown
Top Qualifier	Anthony Dubbelman
Top Rookie	Mark Lazzaro

TL-01 Spec Exhibition

First Place	Andrew Lund
Second Place	Chad Butterfield
Third Place	David King
Best of Show	David Camp
Top Qualifier	Chad Butterfield
Top Rookie	Emerald Brown

Tarmac Exhibition

First Place	Andy Sharples
Second Place	Tai Robinson
Third Place	Derek Julio
Best of Show	Tai Robinson
Top Qualifier	Dan Garber

Monster Truck Exhibition

First Place	Andrew Lund
Second Place	Luke Bacon
Third Place	Chad Butterfield
Best of Show	Luke Bacon
Top Qualifier	Luke Bacon



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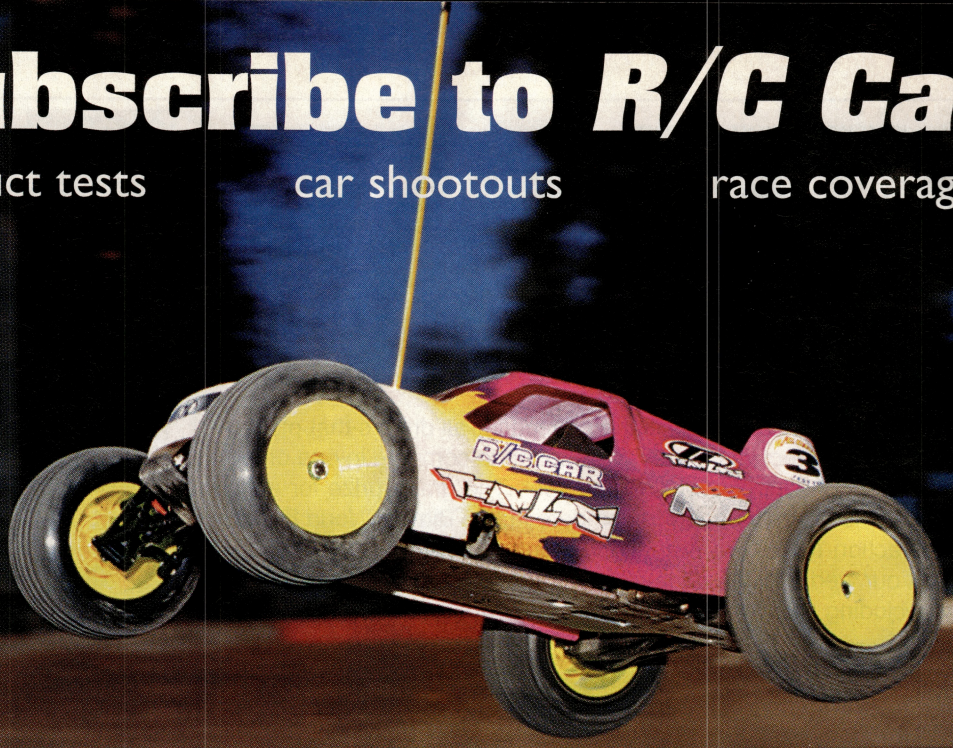

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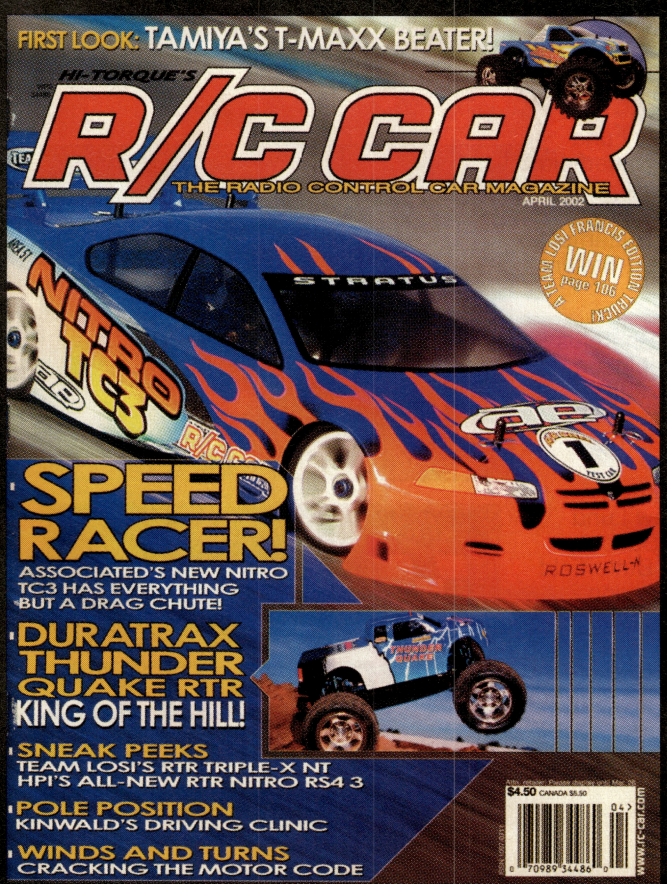



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KECK HARDWARE & HOBBY	2132 WEST RD	Trenton	48183	734-676-2282
LARRY'S PERFORMANCE R/C'S	43665 UTICA RD	Sterling Heights	48314	810-997-4840
NANKIN HDWRE & HOBBY	35101 FORD RD	Westland	48185	734-722-5700
P & D HOBBY SHOP	31280 GROESBECK HWY	Fraser	48026	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
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RIDER'S HOBBY	32115 JOHN "R" RD	Madison Heights	48071	248-589-8111
RIDER'S HOBBY	42011 FORD RD	Canton	48187	734-981-8700
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RIDER'S HOBBIES	2061 S. LINDEN RD	Flint	48532	810-720-2500
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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
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HOBBYTOWN USA	DAKOTA PLAZA	Sioux Falls	57105	605-339-6613
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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
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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

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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

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

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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

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

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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

Monster Hobbies, 616 Southeast 10th St., Deerfield Beach, FL 23441, (954) 428-9118

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) 358-7047

GEORGIA

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

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

Hobbytown Raceway, 2301 Airport Thruway, Columbus, GA 31904, (706) 660-1763

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

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

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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 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

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

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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

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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

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

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

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

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

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

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

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

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

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

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

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

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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

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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

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

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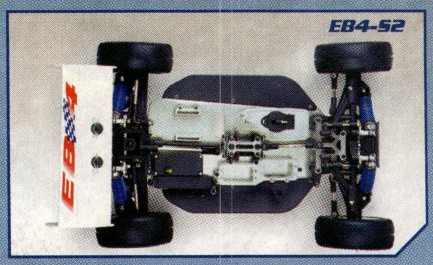



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Real R/C Raceway, 24204 State Rte. 58, Pleasant Hill, MO 64080

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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

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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

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

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

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

Alpine Lounge, Blackhorse Pike Turnersville, NJ

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106 Race Park, 743 Clough Mill Rd. Pembroke 03275, (603) 225-9787 www.106racepark.com

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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

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

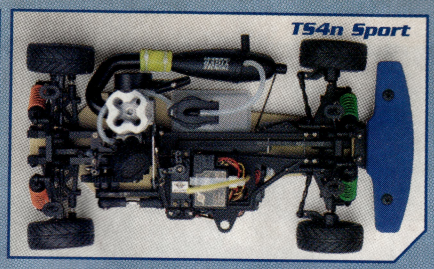
Shamroc Raceway, 106 Cheviot Pl., Stephens City, VA 22655; Scott Janow, (540) 869-3551

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

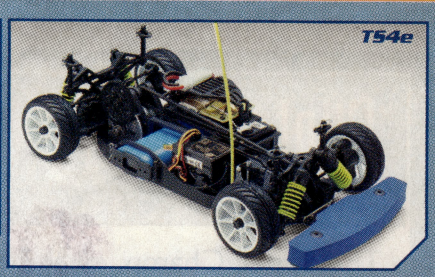
The Toteyard, 6494 Toteyard Dr., Dayton, VA 22821 (540) 828-3476 *toteyard.com.home*

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

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

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

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

Canada R/C Auto Racing, www.geocities.com/midcanadarcautoracing

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

One Stop Hobbies Raceway, 33228 S. Fraiser Way, Abbostford, B.C. Canada V252B3 (604) 852-6497 Dave Palmer

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Thunder Tiger

The Super Champ

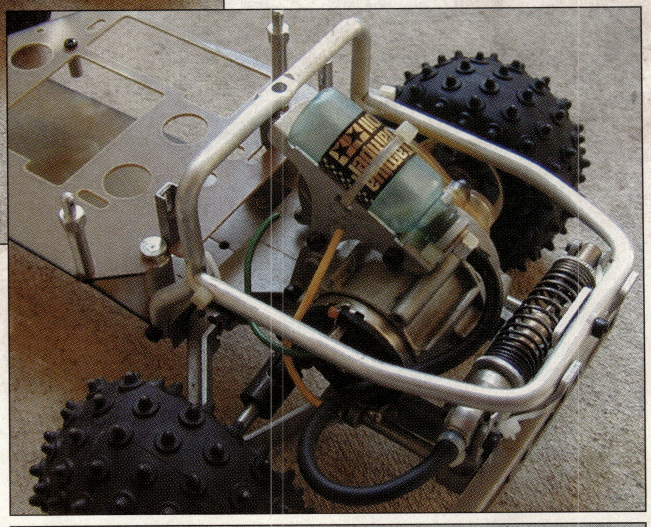


BY RICHARD TRUJILLO

In the early '80s, R/C off-road racing was growing in popularity. While in it's infancy, most racers used the Tamiya Sand Scorcher and Rough Rider. These 2WD buggies would be run in the "stock" class. As time went on, racers began to modify their cars to make them lighter and handle better. Tamiya took notice of this and released the Super Champ 2WD buggy, which used the same basic layout as the Rough Rider and Sand Scorcher, but with some interesting changes. The biggest change came to the rear of the chassis; instead of using the torsion bar rear suspension of the previous cars, Tamiya went to a mono-shock rear end. The mono-shock even had an oil reserve bottle mounted just over the chassis. This feature alone forced racers to run the Super Champ in the modified class - even with a stock motor!

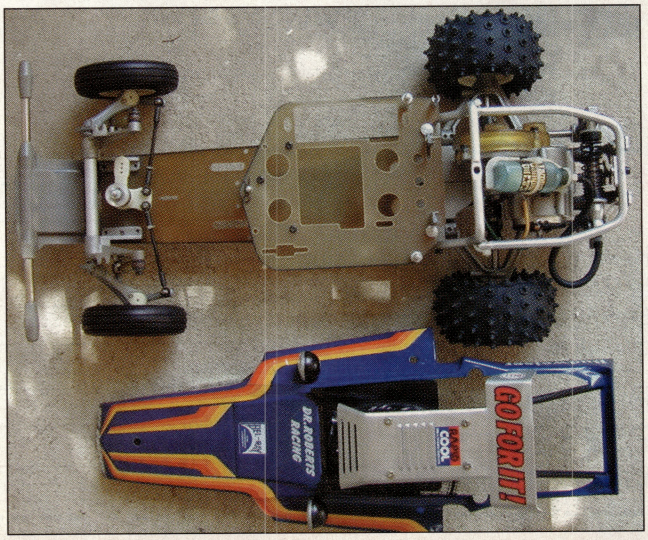


While searching the wonderful World Wide Web, I came across www.tamiyaclub.com. This new site is aimed at the Tamiya enthusiast. It features forums, chat rooms, trading board, vintage parts for sale and the coolest feature is a place to show off your collection and see other member's collections. Who knows, maybe you'll find that good deal on a Super Champ.



Tamiya didn't stop there, they eliminated the sealed tub that housed the radio gear and went to a double-deck fiberglass chassis. The injection-molded styrene body was updated to resemble the full-scale racecars of the time, and it was lighter than the Rough Rider body. Some other race features included adjustable rod ends, large "Super Grip" step-pin type tires and u-joints made of a much better material than the original brass joints that would wear out in only two runs.

I acquired my Super Champ about a year and half ago in a trade. Other than a driver figure that is in need of some detailing, it is in great condition. My Super Champ also came with the chromed plastic wheels from CRP. Super Champs in various conditions seem to pop up on eBay all the time. If you're looking to buy one, expect to pay between $150.00 and $400.00 depending on the condition. The body will be your biggest expense, as I have seen some sell for as much as $200 NIB (new in box). Most of the other parts are interchangeable with the Sand Scorcher and Rough Rider, and can be found on eBay as well.



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HOT HOT HOT

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AGT334 Rr Arms Aluminum	$34.50
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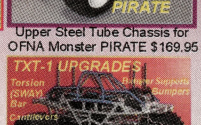

TXT306 Rear Torsion Bar	$35.00
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TXT324 Frt Bumper Sup	$19.50
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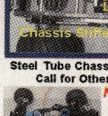

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TRS330 Front Bulkhead (Blue)	$37.50
TRS331 Rear Bulkhead (Blue)	$24.00
TRS332 Front Control Arms pr.(Blue)	$34.00
TRS333 Rear Control Arms	pr. $34.00
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TRS430 Front Shock Tower	$23.50
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TRM320 Front Skid Plate	$19.95
TRM321 Rear Skid Plate	$19.95
TRM320SD 3.2mm Frt Skid	$22.50
TRM321SD 3.2mm Rear Skid	$22.50
TRM322 Front Bumper pr	$18.95
TRM323 Rear Bumper pr.	$18.95
TRM324 Front Bumper Supports pr.	$22.95
TRM325 Rear Bumper Supports pr.	$22.95
TRM102 Rear Torsion Bar. (Requires TRM325)	$35.95
TRM305 Front Torsion Bar. (Requires TRM324)	$35.95
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TRM318P Front Body Mount With Solid Post and Collar	$22.50
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TRM329 Steering Drag Link	$ 8.95
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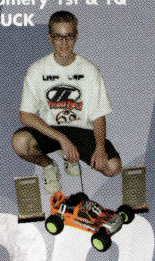
Losi® Sweeps ROAR Nationals


Dave Montgomery 1st & TQ
MODIFIED TRUCK


Greg Hodapp TQ
2WD & 4WD

First, Team Losi drivers made history at the 2002 IFMAR Off-Road World Championships, taking the top qualifying position and finishing 1st and 2nd in both the 2WD and 4WD classes. It's the first time ever a single car manufacturer has won, not to mention top qualify, every class at the most prestigious off-road event in the world.

Then, our guys did it again.

Team Losi cars and trucks were simply unbeatable at the 2002 ROAR Modified Nationals, setting the top qualifying times in all three classes and then racing away with impressive 1st-2nd-3rd place finishes in every class! In fact, only three of the thirty A-main finalists weren't driving Team Losi chassis! This makes the fourth year in a row that Team Losi has won every off-road Modified national championship. And again at the ROAR Stock Nationals, Losi drivers dominated the track, TQ-ing and taking home four more National titles—including father & son 1st place & TQ-ers Torry and Keith Hadley.

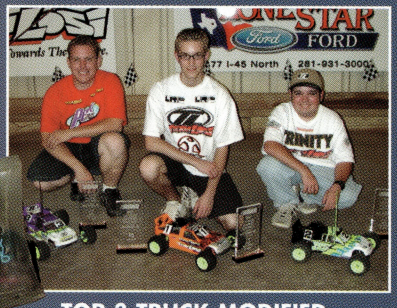
Way to go, guys! Thanks and congrats to you all!

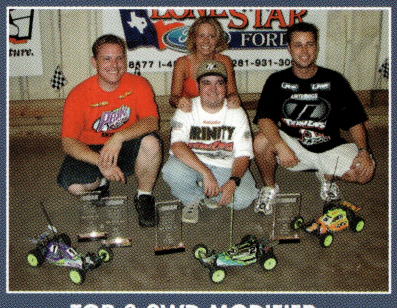

TOP 10 2WD MODIFIED


TOP 10 4WD MODIFIED


TOP 10 TRUCK MODIFIED


TOP 3 4WD MODIFIED


TOP 3 TRUCK MODIFIED


TOP 3 2WD MODIFIED

2002 ROAR NATIONALS

2WD Modified–9 of 10 Losi Buggies
1st Brian Kinwald
2nd Brian Dunbar
3rd Greg Hodapp TQ
XXX

4WD Modified–All 10 Losi Buggies
1st Brian Kinwald
2nd Rick Hohwart
3rd Greg Hodapp TQ
XX-4

Modified Truck–8 of 10 Losi Trucks
1st Dave Montgomery TQ
2nd Brian Kinwald
3rd Greg Hodapp
XXX-T

2WD Stock–6 of 10 Losi Buggies
1st Mike Truhe TQ
2nd Cliff Nicholson
3rd Brian Westerman
XXX

Juniors 2WD Stock–4 of 6 Losi Buggies
1st Keith Hadley
3rd Skyler Gall
4th Scot Robicheaux
XXX

4WD Stock– All 10 Losi Buggies
1st Mike Truhe
2nd Cliff Nicholson TQ
3rd Brian Westerman
XX-4

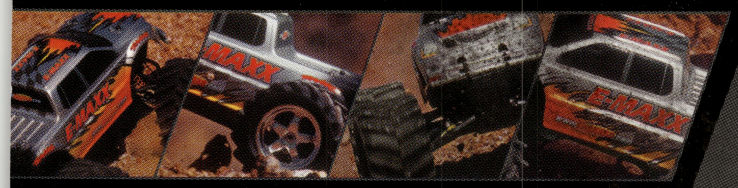
Masters Stock Truck–6 of 10 Losi Trucks
1st Torry Hadley TQ
2nd Donovan Gray
4th Frank Riley

Team Losi
ENGINEERING WINS

"The E-Maxx blows away every other electric monster truck we have ever tested."

*-The editors of RC Car Action Magazine**







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- True nitro speed with the clean quiet convenience of electric.

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- Nothing else has more accessories and customization potential than a Traxxas Maxx™ truck!

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- E-Mail us at support@traxxas.com or visit our website at www.Traxxas.com.

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- RC Car Action 2001 Reader's Choice Award for Innovation
- RC Car Action 2002 Reader's Choice Award for Electric Monster Truck

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**R/C Car Action, Sept. 2001 issue.*